



Red Fruit

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CHAPTER I

ABOUT RED FRUIT

A. MYTHS ABOUT RED FRUIT

According to the beliefs of the tribe of Dhani in Memberamo, Papua, thousands of years ago, their ancestors came down from mount Pugima to gather on the Wesakpog region. Mount Pugima, according to them is a mount Jayawijaya which is the highest mountain in Indonesia and Wesakpog is an area in the Baliem valley. After gathering in Wesakpog, the ancestors of the Papuans continue the journey without take stock and equipment at all. They then spread to wind around the eye.

In journey, some of them have a stop for a rest and create a fire. According to the story people of Dhani tribe, in their place of rest, the Creator lower the equipment such as a bow and arrow, a stone axe, flint, a variety of plants, animals and cultured. The plants are cassava and fruit red. Meanwhile the animals suspected as pigs. After make fire by flint, their burn cassava and red fruit. The red fruit dregs given to the animals. In the place of rest and create a fire, they create a colony and then developed into the various tribes such as the current.

Meanwhile, some of the ancestors of the Papuans continue the journey on land and cross the sea use raft. Strongly suspected, that they cross the ocean until the Australian Continent and will became the Aborigin tribe.

B. RED FRUIT AND PAPUA SOCIETY

Since long time ago, red fruit has been known and used by the people of Papua, especially who living in the mount Jayawijaya. By population, red fruit is used as a daily food mixture. After they burn the red fruit, they rack it with a stone. Their consume red fruit oil (extract result) together with cassava, sago, vegetables, meat and other food.

Red fruit is also processed into pasta. red fruit cropped into small form, and boiled until the skin becomes soft and pushed it until the seeds separate from the red fruit pulp. The smooth porridge filtered until the oil out. Red fruit pasta usually used as a food mixture so their food become more palatable and smell tasty. The dregs of the pasta given to their cattle.

In a bakar batu ceremony, red fruit is a main element for collecting people, especially in a one tribe when there is an event such as weddings, Christmas, Idul Fitri, New Year, Harvest Feast, ancestor worship, death ceremony, or to increase the family relationship bond. The dish from bakar batu ceremony fell incomplete and not favor if not using this fruit that is still a family with this pandanus plants. In fact, some people in Wamena use red fruit as medicine to cure various diseases. Parents often give red fruit to their children because it do not cause blindness, the bones become strong, not easily hurt, and etc.

Papua society is known as a clever to exploit natural resources as a fulfillment of daily needs. Leaves, stem bark, and roots from red fruit plant used to create a rope, seat cover, even as a bed for sleeping. At this time, leaf , stem bark and root of the red fruit used for handicraft industry by Papua's people. Usually the stem and root of plants used with as rope and be split into several parts like yarn. Leaves that have become old wattled as mats. Meanwhile, the young leaves are used as a substitute cigarette wrap.

C. PLANT DESCRIPTION

Red fruit plant (*Pandanus conoideus*) is an endemic plant from Papua that still one family with pandanus trees and a wild plant. Red fruit plants are located in the Sahul shelf area of Papua, Papua New Guinea, and little in Maluku island. This plant in the original habitat (The Papua island) grow from the low near the coast to the highlands. In fact, the mountain slopes in Jayawijaya elevation 2500 meters above sea level, this plant can be found.

This plant grows fork until have 5 branch. Ribbon-shaped leaves that have small spiny-burr side. Higher plants can reach 16-17 meters. The root is cantilever root that have diameter 67 cm along the 2,5—3,7 meters. Branching appears at a height of 5—8 meters above the ground. Leaves dark green, lancet shaped with centered leaf base and taper edge. Single leaf, stem hug, and hose-cross. Leaves have 88—102 cm length and 6—10 cm width. Thorns along the leaf edge 1 mm. Leaf bone on the surface of the leaf under the leaves is thorny. This plants bear fruit after three years old since planting.

Red fruit plant included on endemic plant. Generally, the original habitat is a secondary forest land with humid conditions. This plant is found growing wild in the Papua and Papua New Guinea region. In Papua region, red fruit plant, found growing in the area between 2—2300 meters of height above the sea level with temperature in the range 23—33° C and air humidity 73-98%. This means that the red fruit plant can grow anywhere in the area of Papua, from lowland to highland. Few famous central plant of red fruit plant such as Puncak Jaya, Timika, Tolikara, Sarmi, Manokwari, Jayawijaya, and Yakhukimo.



Red fruit tree

1. Taksonomi

Red fruit, included into pandan plant (Pandanus). Estimated there are about 600 types of plants that are in the genus Pandanus, one of them is a red fruit. Generally, red fruit taksonomi described as follows:

Division : Spermatophyta
Class : Angiospermae
Subclass : Monocotyledonae
Ordo : Pandanales
Family : Pandanaceae
Genus : Pandanus
Species : *Pandanus conoideus* Lam.

2. Morfologi

2.1 Leaf

Single lancet-shaped leaves (oblanceolate), bottle green, and hose-cross. The tip of the spiny leaves (acute), base leaves hug the stem. Leaves the surface slippery. Thorny leaf edges or not depending on the type.



a) Red fruit leaf



b) The edge of thorns

2.2 Stem

Stem many ramose, vertical, sticky, chocolate color and have white speck. This plant can reach 16 meters high with a free trunk of branches 5-8 meters above the ground.



a) Adult stem



b) Young stem

2.3 Root

The root have a functions to support the stem. Root of red fruit plant are classified as staple root with short type root enter into the soil about 94 cm deep. Cantilever root appear on the stem near the soil surface. This root function as stem holder. The largest root diameter is about 6,6—8 cm, while the smallest is about 1,5—2,8 cm.



Cantilever roots that appear on the stem near soil surface

D. RED FRUIT TYPE

In the Papua region actually grow about 30 varieties of red fruit, but only 4 varieties which have high economic value. These four varieties are consist of red long, red short, red brown, and some are yellow.

1. Red Long

Red fruit with long red variety have cylinder shaped, blunt tip, and base heart shaped. The fruit reaches 96—102 cm length with diameter about 15—20 cm. Fruit weight reached 7—8 kg. If still unripe, the fruit still red brick color. After ripe, fruit turn into bright red. Ripe fruit marked with the seed that irrespective of sinkarp. Fruit wrapped leaves taper protector, with the spine along 1 / 2 part of leaf main bones.



Red long fruit

2. Red Short

Long cylinder fruit with sharp edge , and base heart shaped. Fruit 35-55 cm long and diameter about 5,5-15 cm. Fruit wrapped leaves taper protector, with the spine along 8/10 part of the edge. If still unripe, the fruit still red brick color. After ripe, fruit turn into bright red. Besides as source of food oil and flavor for rural communities, this variety is also as a source of natural coloring agent for processed food.



Red short fruit

3. Red Brown

This fruit called as red brown is caused when not yet ripe have a brown color and become to red-brown when ripe. Fruit have cylinder shape with base heart shaped and blunt tip. 27—33 cm length, diameter 6,9—12 cm. This fruit have 2—4 kg weight and wrapped by protective leaves that taper with a line of thorns along the 2 / 3 of leaf main bones. It produce red color and used as food coloring.



Red brown fruit

4. Yellow

Cylinder fruit with blunt edge. 35—42 cm length, 11—12 cm diameter, and weight 2—4 kg. Fruit wrapped leaves taper protector, with leaf main bones thorny along 1 / 3 part from edge. Fruit have green color if still unripe and yellow when ripe. It used as source of yellow coloring for the community.



Yellow fruit

Red fruit which used as medicine is red long shape because it has active compound that relatively high if compared with the 3 type of red fruit varieties above. The outside skin of this fruit resembles with skin of jackfruit. This skin consist of a collection of seeds arranged in pith that is in the heart of the fruit.



a) Red long fruit



b) Slices of fresh red fruit



c) Seed + pulp

This fruit has a very unique characteristics which rarely found in other fruits. This is a red slab color. This is one sign of the fruit or plant that have very much betakaroten.

In Papua, some areas that become centers of red fruit are areas along the mountain slopes Jayawijaya. Among at Kelila, Bokondini, Karubaga, Kobakma, Kenyam, and Pasema.

E. BUSINESS OPPURTUNITIES FOR SOCIETY

When the harvest of red fruit, the people of Papua usually cook red fruit like people on the Java island that make a coconut oil. Red fruit Oil (red fruit extract often called the red fruit oil) are stored in bamboo and can be used for one year. Reserves of this oil used for cooking food, like a cooking oil. Red fruit oil is used to substitute cooking oil because oil prices in the hinterland is relatively expensive.

Until now, red fruit still used by Papua's people. Most of the population that consume red fruit, whether in pasta for daily food and also the oil. They are rarely affected by disease, strong body, and have prime stamina. This question invites newcomers community, so that not a few of them started trying to take advantage of red fruit, especially the oil.

Based on the individuals research although institute research about the contents of red fruit, newcomers community join to exploit this fruit from the hinterland. Until now almost all elements of society, from people which use koteka untill government officials, active to process the red fruit. Therefore not surprising if the red fruit called as red gold from the jungle of Papua. Processed result of red fruit oil sold as drugs that help to cure many different types of diseases, such as HIV / AIDS, cancer / tumor, hemorrhoid, diabetes mellitus, uric acid, rheumatism, coronary heart, lungs, asthma, heart and kidney trouble , high blood pressure, eczema, and herpes.

Now, red fruit oil prices rebound slightly. Meanwhile, several other factors that affect the high cost of such as follows:

1. Rendemen of red fruit untill 15%. To produce 200 ml of red fruit oil, required 10 kg fruit (wet weight).
2. Price of raw materials that the rebound since the high demand from a large amount of various regions in Indonesia.
3. Raw material obtained from a very remote area. For this reason, need to use transportation with high costs such as the use of aircraft.

CHAPTER II

A GLANCE OF CULTIVATION

Before known as a medicinal plant, red fruit only grows wild in forests, swamps, the coastal region. However, after being identified, now start to cultivation because it has limited quantity in nature. Red fruit still be hunted because people can generate additional income. The high price of red fruit attract some people of Papua to planting this plant. Local government also participate in opening the land to be planted red fruit. Expected in the future, red fruit from nature that run out, can be covered from cultivation society.



The process of Cultivation, the quality of soil, area of processing, until maintenance will determine the content of active vitamin from red fruit that produced. This is caused by reason that red fruit including endemic plants from Papua. The following were presented cultivation techniques of red fruit in Papua

A. LAND CONDITION

In the natural habitat, red fruit living in humid places near the source water such as the river edge, swamp, or lake. However, the red fruit does not want places that are too wet and sinking place. In that place will cause root become spoilt and the plant will be death.

In addition, this plants likes a snug environment , and shady, especially to ensure the roots stay moist and protected. Remember of this reason, the land for cultivation should be quite moist and snug. However, it does not mean planting location must be in the side the river or on the lake edge. To be cultivated intensively, make many trench with width 0,5-1 meter girth plot of planting. Each plot is made with 10-12 meters width.

To create the desired conditions, the location should be near the source of abundant water. This is mean that the water periodically can be flowed to the trench in the garden for overwhelm the location of environment root plant. With so environment root plant always humid. Beside that, also planted protective trees such as Lamtoro inside the garden.

While the preferred soil type is loose soil, fertile, and rich in humus. Land of the desired texture is loamy clay, but the loose-black soil, or sand soil. However, the red fruit should be planted in the highland area that is 1500-2000 meters above sea level.

B. PROCUREMENT OF SEED PLANTS

Seedlings can be obtained from stek (stem fragment), shoot plants, or the results of seedling seed. Next will be explained the procurement of seeds plant for the red fruit in the garden.

1. Stek

Stek taken as the tip of plant that grow under the parent plants by cutting the stem of the tip of the plants. Select the parent plants that have many branch, grow strong and solid, and able to bear much fruit and also can produce 2-3 times a year. In addition, the plant was taken from the type of high-value according to the local people.



Parents plants

About 30 varieties of red fruit that known by people, there are three types of red fruit that most preferred by the local people, namely maler, bomi, and barhum. Maler have long shape, sweet taste, and has the highest protein. Barhum red fruit, long, and large and have high oil contents. Red fruit bomi have crimson colors, short-sized, but have a oil rendement highly and red-black oil color.

Selected tip of the plant conditions as stek material is an old stem with gray color. Stek have 40—50 cm length with diameter about 2—3 cm. Between edge of leaves branch until base of stem area clipping at least 15 cm.

Stek planted in seedling field which has been prepared with a distance of 60 cm x 60 cm. Soil that used must loose, fertile, and rich in humus. To create this conditions, seedling field made from top soil layer added manure or compost with a 1:1 comparison. Seedling field conditions must be moist enough to ensure the growth of plants.

Seedling field location should be protected from direct sunlight. Therefore, this location should be sheltered by trees (as protector) after planting, seedling field closed by shadingnet 60—70%. To reduce the dehydration plant and accelerate the growth of roots, leaves are trimmed to about 5—10 cm. Furthermore, seedling field watered every day (morning and evening) to keep the soil in the moist condition. Try sprinkling not on the leaves, but in the land.

Sprinkling on the leaves can cause the incoming water become a sediment in the base of leaves branch. As a result, stek rot and die. Usually within 1—2 weeks, stek start grow new leaves, it sign that root start grow. After grow until 4—5 new leaves in 2—3 weeks, the fledgling can be moved to polybag or maintained in the seedling field until ready to plant or planted in the land.

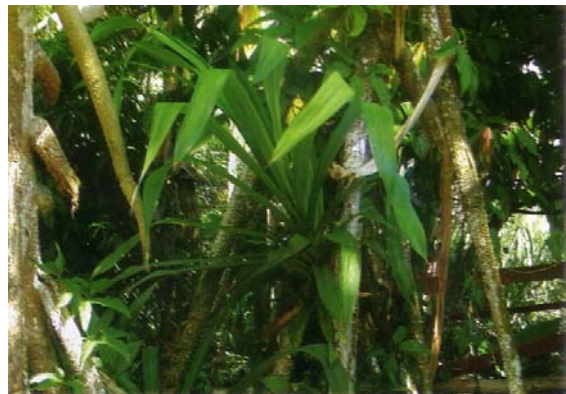
The fledgling can be planted in the planting area after the age reach 1-2 months. Avoid roots become broken at pull out time the plants from seedling field. First, started with watering the planting field, dig around the plants, then pull it slowly. Revoked soon, the fledgling must be set in the polybag. If it will be sent to far place, the soil must be removed then roots must be wrapped by banana leaves to ensure the root fibers does not dry out.

2. Child Plants

Child plants is a shoot that out from the stem and from root plants. Chosen child plants size is about 15-20 cm. The shoot's stem must be old, large leaves and dense, and also begin to grow root from the stem segment. This child-plants usually start to grow root.

Once separated from the parent, the child plant planted on seedling field that have been prepared before. Planting distance is about 50 cm x 50 cm or 60 cm x 60 cm. Condition and environmental of seedling-field soil same as like seedling field soil for stek conditions. To prevent dryness, the plants are given shadingnet and watered every day at morning and afternoon.

To avoid the plants dehydration, leaves need to be cut. Trimming is needed so stem not quick enlarge until difficult to the move. Fledgling from child-plant can be moved to land after reaching 40—50 cm height in 3—4 months.



Child plant that grow around the main plant

3. Fledgling from Seed

Beside stek and child-plant way, red fruit plant can be multiply by seed. However, this way have a disadvantages. Beside need long time to produce fruit, the quality of the plant also various.

Need a long time and low power to sprout caused by physical-dormant as result from solid seed-skin. This condition prevent water absorption into embryo so growth progress running low. Furthermore, the embryo had difficulty breaking the skin to bring out the seeds sprout. In fact, in a long time, seed-institutions can be mechanical damage, physiological, or biological so the seeds sprout-power very low.



Red fruit seed

Before seedling time, seeds should be soaked first in water for 1 hour, then drained and wrapped with wet cloth for 1 night. This is aimed to solve seed-dormant problem. Next, seed need to spreaded on seedling-field or bucket with soil media mix with of sand 1:2 or compost with comparison 3:1. Spread the seed on top of seedling media, and closed sand about 2—3 cm. After that, the seed is covered with straw or sawdust to keep humidity. To solve dryness, seedling-field need to watered 1 times a day.

Seeds germinate after 2—3 weeks. For get the best sprout-growth, the sprout that reach 5—10 cm moved into polybag. This polybag media consist of mixture of top-soil and manure-soil or compost with 1:1 comparison. it can also be added with 2—3 kg TSP every 1 m³ media. The fledgling is planted until root's neck limitation.

Plants in the seedbed should be sheltered with shadingnet 50-60% so the incoming light intensity only 40-50%. In addition, seeds need to be watered every day. Fledgling on polybag moved to the planting land after reaching 25—40 cm high with a trunk diameter of about 2 cm.



Fledgling plant moved to planting-land

Fledgling from seed take a longer time to bear if compared with vegetative-planting. New plants from seed will bear fruit after 5 years old, while from child-plant bear fruit less than 3 years, depending on the age of the shoot that have been moved.

C. PLANTING



Ready-fledgling planted with planting distance about 6m x 6m or 8m x 8m

Fledgling planted with planting distance of 6m x 6m or 8m x 8m. Thus, each plot have 2 rows plants. Beside to plant staple plant, need to planted shelter-tree between each row. So, in the middle of each plot will seen a line of shelter tree neatly.

Planting hole is made of 50 cm x 50 cm x 50 cm. Extractive soil mixed with manure or compost as much as 20-30 kg / holes to ensure soil fertility. After that, the fledgling planted until root's neck limitation.

D. PRESERVATION

Red fruit plant don't require more attention during the growth phase. The provision of chemical fertilizer during the growth is not necessary. However, to ensure the availability of burly elements in the soil, given enough manure periodically 2—3 times a year. In addition, it can also be given leftover crops such as banana stem and foliage around the plant

At the beginning of the growth, older leaves should be cut and reduced to speed up plant growth. However, pruning is done only to the plants with 1—2 m high. After that, the plants left to grow naturally. Plants that are too often trimmed will result a small stem with little branching. Conversely if left without trimming leaves, plants can grow lush with big trunks and a lot of branching. Result, many plants can bear fruit according to the amount of branching.



Generally the fruit will bear after the plant began the age of 3 years since planting



To accelerate growth, the old leaves need to be trimmed

The treatment used only to control the growth of shelter tree. When enough disturb and mask the red fruit leaves, the shelter plant's crown need to be reduced. In addition, need to clean the parasites which often grow around the red fruit plant.

With this preservation, plants can ramose since 2 years old. Usually about 6 months already appear branching, the plant will start production. At the beginning of bear fruit process, the fruit will grow straight in every ramification. Along the growth, the fruit will slowly bow down until ready to harvest. Fruit ready for harvest when the wrapped leaves start to open.

E. HARVEST

Harvest is done with a bamboo-quant which have a splited tip. The fruit at the tip of the quant, then rotate and pull it. After harvest, the fruit should be processed immediately. Because the fruit can not survive. Only in 3—4 days the fruit is covered with mold and rot.

On prime harvest, generally only 2—3 pieces that can be obtained each cluster. After few time, divarication will increase up to 5 branches in each cluster. Thus, each cluster can produce 15 fruits in each season. Harvest can take place 2—3 times a year. Plants can bear up to age of 70—100 years

Red fruit which have not yet entered the period of harvest should not be processed because the red fruit does not have maximum bioactive content.



Fruit can be harvested after three month

The characteristics of red fruit that has been ripe and ready to harvest:

1. The green color of leaves which wrap the fruit turns to brown and dry.
2. There was a change in fruit color, from pink to red .
3. The distance between the protrusion the more rare.
4. Seed at the tip of fruit easily separated.

CHAPTER III NATURAL SUBSTANCE ON RED FRUIT

A. HEALTH FACT OF PAPUA SOCIETY

Facts that are found in original regions which as well as consumers of red fruit (Jayawijaya mountain region) with 2000 meters height above sea level and temperatures below 20°C The population remains fresh although without using any clothes. Their stamina don't need to doubt again walk up or down the mountain and explore the forest during the day.

One thing that is quite interesting in this altitude area, rarely found people with the mumps diseases. But usually in a highland area like this, mumps diseases found because of the lack of feed iodine. In addition, people in there already with the use fruit as worms medicine, skin, and eyes.

B. NATURAL SUBSTANCE ON RED FRUIT

Red fruit plant (*Pandanus conoideus*) included pandanus plants which have the most prominent benefits for health if compared with another pandanus family-plants that grow outside of Papua island.

Based on the chemical analysis, red fruit contains the most complete nutritional composition in the form of oxygen-active substances such as beta-carotene, Tocopherol, and a number of essential fatty acid. In addition, red fruit also contains vitamins and minerals which are complete enough, including calcium, phosphorus, iron, vitamin B1, vitamin C, and nialin. It contain high enough energy, about 400 calories / 100 grams of pulp. This is equal to the quality of olive oil. Micro mineral and macro mineral of red fruit such as iron (Fe), Zinc (Zn), and Magnesium (Mg) works as co-factor in accelerating the process of body metabolism



**Pulp and seed or red fruit.
ingredient of red fruit oil which
have rich chemical compounds**

Here is the research results from one researchers in Papua which use a red fruit with red-long type as a sample which taken from highland (due to red fruit on the lowland have a very little oxygen content if compared to the plant on highland – affected by different agroclimate so that heat temperatures can cause oxidation of antioxidants which trigger reduction of antioxidants value).

Active Compound on The Red Fruit Oil

Active Compound	Content
Carotenoid total	12.000 ppm
Tocopherol total	11.000 ppm
Beta-carotene	700 ppm
Alpha tocopherol	500 ppm
Oleat acid	58%
Linoleic acid	8,8%
Linolenic acid	7,8%
Decanoic	2,0%

Nutrition Content per 100 grams of Red Fruit

Nutrition Material	Content
Energy	396 cal
Protein	3.300 mg
Fat	28.100 mg
Fiber	20.900 mg
Calcium	54.000 mg
Phosphor	30 mg
Iron	2,44 mg
Vitamin B1	0,90 mg
Vitamin C	25,70 mg
Niacin	1,8 mg
Water	34,90 %

Beta-carotene and Tocopherol known as powerful antioxidants compound that prevent many disease. In the body substances, these compound are capable to neutralize free radical substances carcinogen (compound which can triggered a variety of diseases), including cancer, tumor and HIV / AIDS. Both of these compound prevent and cut off the chain free radical cells that cause a genetic mutation so wild growth without restrained. As impact, mass cells or tumor failed to shaped.

1. Beta-carotene

Beta-carotene also known have function to slow directly the fleck cumulation on arterial so blood flow, both to heart and to the brain, can smoothly without any clogged so it can prevent the occurrence of stroke and heart disease. He was also able to increase the body's immune because of the interaction of vitamins A with protein (acid-amino acid) have a role in the formation of antibody. In metabolic systems, each molecule beta-carotene produce 2 molecules of vitamin A. With the availability of vitamin A in sufficient amount, the protein absorption which support the body's immune system can be improved.

A study proves, the consumption of beta-carotene 30-60 mg per day for two months will improve the natural killer cells in the body. He also stimulates T helpers cells and limposit to be more active. Increased natural killer cells is essential to fight cancer cells and control the free radicals that damage the health.

2. Tocopherol

Tocopherol functions like a fire brigade which kill the free radicals attack and neutralize cholesterol in the blood. With lymphocytes and mononuclear cells, this active compounds will improve the immune system, thereby reducing morbidity and mortality of cells. He also helped the formation of new cells to replace damaged or old cells.

Tocopherol lowered LDL-cholesterol rate (bad cholesterol, distributed by the *low density lipoprotein*) and raise HDL-cholesterol rate (distributed by *high-density lipoprotein*, it helps the liver produce gall acids and important hormones). Clinical trials show that heart disease and respiratory, blood pressure feel smoother and heartbeat feel more normal after consuming tocopherol.

3. Fatty Acid

Red fruit also contains essential fatty acids in high quantity . These fatty acids are oils or fats. There are two fat, namely saturated and unsaturated fats. Although red fruit contains 28% fat, but 85% of them in the form of unsaturated fat and consists mainly of oleic acid and linoleic acid which is needed by the body. High quantity of unsaturated fatty acids make the red fruit is absorbed easily and facilitate the digestive organs of metabolism. Fluently metabolism very helpful the disease healing process, because the body get enough protein intake to increase stamina. Moreover, red fruit contains enough vitamins and minerals which needed to complete in the metabolism process. Improvement in liver metabolism helps regenerate liver cells which damaged by hepatitis.

Fatty acids, especially omega-3 (derivative 2, 3, 4) and omega-9 which has been known to be obtained from animals and fish in the deep sea. Fatty acids in the red fruit is also a natural antibiotic and strong antivirus. They actively weaken and shed the lipid of virus membrane and turn it off. Even, the virus was not given the opportunity to build new structures and is unable to regenerate. Because of this, they effectively inhibit and kill the virus strains, including hepatitis viruses that damage the liver cells and kill active tumor cells.

One of the red fruit competitor is olive oil. Olive oil was used as a breast cancer drug in the UK and the results are very positive. Omega 9 is the most favored substance from olive oil. Olive oil does not have a red color like red fruit and the *trace element* is also not as much red fruit.

C. TIPS FROM PAPUA SOCIETY

1. Cough Muffler

Cough streak and not go away like a successive firecracker. How uncomfortable and disturbing people around. Just chew a few seeds of red fruit after washed. Skin covering the seeds will be peeled off and can be swallowed. Usually, only 2-3 times chewing, coughing subsided. Sputum which had been suspended, easy to expelled and chest fell relieved.

2. Skin Smoother

Want to have a shiny smooth skin like a model Naomi Campbell? Red fruit pasta can help realize that dream. Paste into your entire body. If not cleaned with soap when bathing, pasta survive until day 4. That's the way that used by Wamena people. This is also have a function as sunscreen that protects skin from the sun.

3. Wound Dryer

Processed waste of red fruit shape as pasta which still can be used. By Papuan tribal, pasta is used to accelerate wound healing of knife scratch. Because red fruits contain iodine. Paste it on the wound so that in a short time the wound dry and free of infection. If pasta is not available, can also be replaced by fresh fruit flesh.

4. Ageless

Wrinkles on the face like a stele that records how skin aging. If you want to look young, not always have to operate on the skin. In addition to risk draining the contents of wallet. Just put the oil extracts of red fruit on the skin as often as possible. Included at the bottom of the eye that often arise fat pockets. Apply an hour before a bath or before bed. Be careful not to hit eyes because of sore.



The process of smearing face with red fruit oil

5. Nourish Hair

Hair loss? Bald head? Or simply want to enrich the crown? For these 3 goals just 1 way. Drops the red fruit oil on the surface of cotton. Then apply evenly over the scalp an hour before bath. Two weeks later it stop the hair loss as experienced by Jeni Rangan, in Wamena. To grows hairs on bald heads need 1—2 months. Do not worry, the red color in the hair loss itself after wash.



The process of slathering head with red fruit oil

6. Stop Intestinal Worms

The prevalence of intestinal worms in Wamena fairly high. Fortunately the local society find the elixir. Red fruit seeds are usually not used, is now used to solve this disease. Fried (without fried oil)a handful of seeds which have been washed clean until done. After grinded until smooth, give 1 teaspoon to people with intestinal worms sufferer. Usually only the consumption of 2-3 times, the vermes away with feces.

D. SIDE EFFECT OF RED FRUIT

Until now, studies of red fruit as a drug not yet complete. Therefore, the red fruit oil produced to temporarily remain classified as a jamu or food supplement. Indeed empirically many sufferers of degenerative diseases (such as diabetes, high blood pressure, uric acid, cancer, etc.) whom are helped because consume the red fruit oil. However, clinical trials about this quality still not completed until now.

Just as like herbs and modern medicine, the use of red fruit oil to help the healing process of the disease also has side effects. Until now, the empirical side effects caused after consume red fruit oil is weak, nausea, and drowsiness. This drowsiness caused by sedatives or sedative effects of red fruit. There is also a feeling of itching in the throat and diarrhea. The itching caused by red fruit oil is consumed dirty or less hygienic and many contain bacteria from the wrong way when processing. Itching can also be caused before and after eating the red fruit oil not drink water first.

Another effect of red fruit oil consumption found like effects reflexology. Usually people who have health problems, after taking the red fruit oil will feel the pain of a troubled

organs. For example, patients with lung cancer will experience pain in her lung and breast cancer after taking the red fruit oil will feel the pain on her breast. This effect usually occurs on the first day or two after drinking red fruit oil.

Red fruit oil which processed using high heat can cause cholesterol levels in patients increased. This is due to high heating that resulted red fruit oil as a saturated oil. The most dangerous effect is if people consume too much red fruit oil or over-dose. Tocopherol that contained in the red fruit has a effects can dilute the blood. Therefore, patients or consumers who consume the red fruit is recommended not taking any medication similar warferin, such as aspirin, Ascardia, or Aspilet. This is due to red fruit also have the of warfarin effect to dilute the blood. Consume red fruit with warfarin may be good for people with blood clotting (thick blood), high blood pressure, or stroke due to clotting of direction, but if excessive can cause broken blood vessels.

Until now, people have not found the side effects due to over-dose in red fruit oil consumption. Perhaps this is because the largest content of red fruit are vitamins and minerals. Even so people are advised not to consume too much because the red fruit contains iron. Excess iron can dangerous the health because it can not excreted through feces (urine and feces).

E. SUGGESTIONS FOR CONSUMERS

First question posed by consumer who will buy the red fruit oil is authenticity. The question really is the right of consumers and it is reasonable if made for the seller or manufacturer. Nevertheless, the question really is a question futile because dumb-dumb sellers and producers, the question must be answered with the obvious answer, namely "original".

Actually, the wise consumer question is, where the fruit is produced and what about land height? How the manufacturing process? How long does the process of foreplay? Is it getting permission from the Ministry of Health or POM institution (control agencies of drugs and foods)? Is it have been investigated of chemical content from the manufacturing process?

Red fruit oil which have a good quality, based on research results (already done) must come from the red fruit plants in the highlands, with minimum height of 1500 meters above sea level. Red fruit in the lowlands have a very low tocopherol and beta-carotene contents and could be even nothing at all. This red fruit is commonly found in the lowlands such as Jayapura.

Unhygienic of making process which can result red fruit oil contaminated by bacteria and microbes which are harmful to health. The process of cooking over high heat for a long time can lead compounds of beta-carotene and tocopherol disappeared due soluble or reduced. The process of cooking using object from the iron and aluminum also can cause red fruit oil reacts with the object. This also harm the body because of the red fruit oil can contain peroxide.

F. HOW TO CONSUME RED FRUIT

Content of compounds that function as the treatment on red fruit and oil are various. In the fresh fruit depending on the level of maturity and planting place. Meanwhile, the red fruit oil depends on the manufacturing process. Particularly striking differences in the content of tocopherol and beta-carotene. Both these compounds will be dissolved if the cooking process using high heat for a long time.

Due to differences in content of this active compounds, until now there has been no standard rule about the appropriate dose to consume one tablespoon at intervals of 2—3 times a day and some are taking a teaspoon at intervals of 2—3 times a day. However, people with an illness are advised to consume red fruit oil as much 1 teaspoon, 2—3 times a day and healthy people as much as 1 teaspoon, 1-2 times a day.

Also advisable before taking the red fruit oil, should know the health conditions, blood sugar, uric acid, cholesterol, heart disease, ulcer, blood pressure, and other health factors. Then make it more secure should be two weeks after consume red fruit oil, checked the health condition again. If there is a positive change, consumption of red fruit can be resumed. However, if there are negative effects should be stopped first.

If people want to consume the red fruit oil and is still in the doctor's care, should consult with your concerned doctor first. If not, could consume red fruit oil, but also keep taking the medicine from the doctor, with a record of two hours of taking before or after taking the drug from the doctor. To eliminate fell nausea and felt stuck in his throat, before drinking red fruit oil should drink warm water, as well as afterwards. Beginners are advised to consume red fruit oil before eating. This is intended to prevent vomiting and throw up-eaten food wasted, because usually the beginners will feel nauseous and want to vomit after consume the red fruit oil.



Red Fruit Oil

CHAPTER IV

RED FRUIT OIL, PURE OR NOT?

One of the differences of the original red fruit oil and a fake is the boiling point of the red fruit oil, that is 10 ° C and for the fake red fruit that is mixed or other materials such as cooking oil boiling point is 50 ° C.

In addition to cooking oil, other ingredients are often mixed with soy sauce. There is also people that mixed the raw material. A red fruit mixed with 3 or 4 red-yellow fruit. The latter price is relatively cheaper than the red. however, the quality lower than than the red.

To check its purity, the easiest way is with dripping the red fruit oil on litmus paper. Take a few moments until the liquid expands. Original extract remained blackish-red while the fake extract, yellow, such as cooking oil and also more dilute.

The smell can be as signifying purity of red fruit oil. According Yacobus Lopak, Section Chief Industry Testing of Papua Province, red fruit comes from the highlands more sharply flavored. If treated with high temperatures usually smelled burnt. There is truth in this old adage: *Caveat Emptor*. Buyers also should be careful.



Processing must be true

Now many outstanding of red fruit. The quality also various because there is no standard. Based on one team resesarch of mass media, in Wamena there are 11 red fruit producer with a large scale. Different quality of processed products because of the techniques used are also varied. In order to obtain high quality, red fruit oil must be processed properly and use quality raw materials.

Thus correct processing technique so important because of wrong-processing technique causes the red fruit oil no longer efficacious. Temperature that used for heating should be 40 ° C. It used wet method, with ice as a solvent that protects antioxidants. So, do not be fried like coconut oil because efficacy will perish. Even that will appear peroxide contents of more than 5% due to high heat. Peroxide as free radicals that trigger cancer cells. threshold limit is 0%.

In addition, the cleanliness must be maintained because E colli bacterial contamination is high. Because age of this fruit is 6 months old so it has a lot of dust. It needs to brushed and cleaned. If not, the consumer will get a great diarrhea disease after drinking this red fruit oil because cleanliness is not maintained. Similarly, environmental hygiene and processing equipment. All affect the cleanliness of the product.

In the Indonesian national standards, something water based, water content must be zero to avoid hydrolysis reactions. Water content was removed through filtration stages. As a result of hydrolysis reactions, appears like a lot of sour taste found in red fruit. The impact from appearance of free fatty acids exceeds than the ideal threshold of 0.1%. Free fatty acids in food oils is due to the hydrolysis reaction. This reaction is cut the carbon-triglycerides chain and released the free fatty acids. Besides smelling rancid, oxidized oil also becomes more concentrated, so difficult to digest and to absorbed.

After the production of red fruit oil is finished, it should immediately be stored in the refrigerator to save the content of omega 3. when placed at room temperature, will appear as rancid smell because of oxidized. With proper processing and storage, red fruit oil can be stored up to 9 months.

A. CHOOSING RED FRUIT THAT READY FOR HARVEST

Red fruit oil should come from the fruit that is red, not yellow. Growth must also place on the plateau. Beta-carotene content of red fruit from the mountains is 900 ppm; lowlands, 0-500 ppm. Likewise, the content of tocopherols, omega 3, omega-9 and other compounds. In other words, do not use kaef(red fruit)-called in Ngulum tribes which taken from the lowlands.

Although plucked from plants growing in highland, not all red fruit can be used as oil. Red fruit should be chosen completely ripe. The characters are red skin, the seeds easily threshed, looked greasy, and the distance between the bulge of seeds are rare

In Wamena none producer who buy intact red fruit. It purchased from planters and had been cleaned from the pith and tied neatly. If the pith is not removed, then the fruit will rot easily. Pith is considered useless and discarded. Red fruit which is free from pith, the weight dropped to 35%. The weight of red fruit originally lived 4—7 kg 3—5 kg.

The planter have an unique technique to remove the pith. The way, newly harvested fruit are split into two parts vertically. The instrument used is cassowary thighbone, not a machete. This giant bird bones were indeed very strong and sharp. The fruit stabbed by following horizontally until the stab point met each other. then the fruit can be splitted with both hands without difficulty due the freshly picked fruit rather hard.

After split in two, with scraper made from wire plate which usually used for binding a board or carton, gradually pith will be removed. Starting from the end scraper continue to shift toward the base. The pattern is exactly like scraper the coconut. The work was not strenuous because pith crumb texture. Pith scraped up in the fruit skin boundary, up to half the fruit to form the canoe.

B. PROCESSING STEP FROM WAMENA

Wamena is the center of red fruit that are considered good quality. in there, the producer easily to obtain raw materials. Naturally, if large scale producers capable to supplying hundreds liters of red fruit oil per day to all over Indonesia. Some producer are concerned the product quality has a high standard through the selection of raw materials, hygiene and temperature control during processing. Here's how to produce red fruit oil with high quality. Here is a picture of raw materials and red fruit, and also red fruit processing:



1. Fruit is harvested when ripe. Indication clear red skin



2. Supply from collectors, the pith has been discarded



3. Fruit washed to remove dust, bacteria, and other filth.



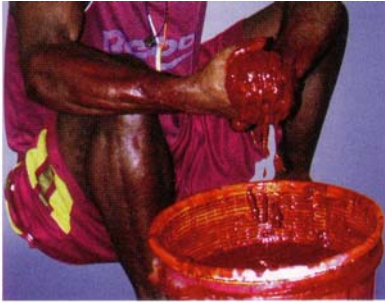
4. Cut into pieces, making it easier to be cooked in a kettle



5. Steamed so that the seeds easily removed from mesokarp



6. Result stew, after being cold, seeds threshed from mesokarp



7. Extracted to get pasta



8. Repeat the extraction so the white seed skin seen



9. With a small fire, with maximum of 40 ° C, the pasta is heated until the oil out



10. Take the oil, and then filtered



11. Deposit for 1.5 hours.



12. The oil filtered to avoid mixed paste.



13. By using a flashlight, the sediment will be seen.



14. Filtered and precipitated again for 24 hours.



15. Re-filtering the oil to completely free from the pasta.



16. Heated oil over a low heat to remove water.



17. Red fruit oil packed in dark bottles which to avoid sunshine parse the beta-carotene.

CHAPTER V

PROS CONS ABOUT RED FRUIT



Her Liver cirrhosis has not been cured, the doctor decide that she hit by hypertension disease. His blood pressure was 150/90 mmHg. Already complete her suffering. Sekar Arum (pseudonym name). After her husband died. These two deadly disease, makes Sekar Arum traumatized and anxious for the last 10 years. Drugs from doctors also could not cure this woman (70 years old).

However, check it now. At her old age, Sekar Arum felt very happy. Toward evening this four children mother were reading the evening paper with a cup of hot tea and steamed-cassava. He really enjoyed his old days in a house in Tomang, West Jakarta. It starts at 2 months ago when he got a few bottles of red fruit oil.

Every day after breakfast and dinner, she took 1 tablespoon of red fruit oil. Two months later he returned to check his health. The result, her blood pressure is normal (120/80 mmHg). Likewise with liver cirrhosis.

The cirrhosis-indicators before consume red fruit oil, her SGOT is 74 and SGPT is 21. Now, the SGPT became normal and the SGOT decreased to 69, tired and feel weak once, now has gone. He endless utter gratitude.

That woman was lucky. Her health condition steadily improved. Taufik Mardanis (50 years old) in Pondok Gede, Bekasi, not so lucky like Sekar Arum. Cirrhosis hit him since 2 years ago, still remains. After drugs from doctor failed to fullfill his hope, he drank red fruit oil 3 times a day, each 1 tablespoon.

Unfortunately, his body rejected the red fruit oil. Father of these 3 children's, felt sick every time consuming the red fruit oil. Finally, the consumption was stopped after he spent 50ml. So there's always 2 polar opposite: cured and not cured. Despite their illness, dose, and frequency of drugs consumed are same.

The cause of cured or not at similar diseased patients after consuming the red fruit is very complex. From the medical side, the first to be seen is what are the triggers of the disease. In commodities side, red fruit oil that used must be checked for purity and the content. That means need to be observe the originality and quality of raw materials, processing, and whether or not pure red fruit oil. If the standard procedure of red fruit oil violated, then it is definitely content and efficacy of the red fruit oil is different.

Disclosure of how high the red fruit oil efficacy had shaken a number of parties involved. This Papua endemic fruit become an interesting gossip material. The patient whom had deadly disease, asked where to buy, efficacy, side effects, and doses for their disease. Herbalis, pharmacologist, nutritionists, and medical doctors ask the validity and security for consuming red fruit oil. Institutions research interested in conducting a series of tests to check the efficacy of *Pandanus conoideus*. All people expect and all want red fruit to be really proven its effectiveness for treating various degenerative diseases. From the daily reality at this point, the red fruit oil demand is rising and also many news about people who has been cured after drinking red fruit oil. This strongly supports that red fruit can help to cure various diseases.

A. COMPLEMENTARY HEALERS COMMENT

"There's no magic bullet to deal with various diseases. Healing is individual, not mass," said Dr. Paulus Wahyudi Halim. Alumnus of Degli Studi Padova University, Italy, it is a medical doctor who always gives a traditional medicine to his patients.

This doctor explained that nutritious ingredients of a commodity is influenced by the location of cultivation. Planting in a different location, possibility will result fruit with different content too. It's true opinion. Based on the research, red fruit that contains beta-carotene, tocopherols, and other substances are high, obtained from the red fruit from the mountains.

If the quality of raw materials was in accordance with the needs, another drawback is processing techniques. Heating with excessive temperature will cause the destruction of potent compounds in red fruit. If the temperature too hot it caused an increase peroxides, free radicals that trigger cancer. In addition to temperature, also affect the boiling container. According to Dr. Paulus, boiled with containers made from aluminum or metal allow for chemical reactions. The effect efficacy of medicinal plants were floated. He was suggested processing step with clay jar or pirex.

Viewed from the Chinese medicine philosophy, the physical form of red fruit is promising big benefits. According to the tradition of Chinese medicine, material hard and thick-skinned like red fruit suited to overcome the disease syndrome associated with heat such as cirrhosis and high blood and the disease. In this bamboo curtain country there fu zi (read: fu ce) *Aconitum Carmichaeli* hard-skinned. While the striking red color, according to doctors alumnus of Beijing University of Traditional Chinese Medicine, fit for the heart medication.

Another respons, highlighted by Ir Wahyu Suprpto. Herbalist who engaged in traditional medicine for 25 years, said, different responses of red fruit at the same disease depending on the balance of the body's metabolism, including hormonal and enzyme. In addition, the character of the plants also affects the response to the patient. This means that one plant is not necessarily suitable for every disease.

Metabolism changes depending on the pattern and lifestyle of each individual. Wrong eat pattern, the influence of the environment, patterns of disorganized thinking until to way works can trigger cell changes wild in the body's metabolic system. "That can lead to cancer," said herbalist who had been been study on the *Traditional Chinese Medicine Education*.

B. NUTRITIONIST COMMENT

Another comments from nutrition expert about the red fruit. Prof. Dr. Muhilal, a nutritionist from the Nutrition Research and Development Center of Health Department would not be surprised to efficacy of red fruit. Biochemistry doctor alumnus of the University of Liverpool's 1992 research on xeroftalmia or deficiency of vitamin A. The prevalence of



Have a high antioxidant so-called super-antioxidant

patients in Papua is much smaller than in Java. The secret, in the daily life of people accustomed to eating the red fruit which the beta-carotene content reached more than 700 ppm. By glucose substance, it changed into vitamin A. According to Muhilal, about the high content of beta-carotene has no effect on health. "If excessive it will be stored on fat layers under the skin so that the skin seen yellow. But it was very rare. In the world, this events were no more than 5 people".

Moreover, kuansu (another name of red fruit)-tocopherol also contain 11,000 ppm that can counteract free radicals. The high vitamin

E content (other name of tocopherol candidate) only can be rivaled by olive oil. This compounds is the bastion of degenerative disease such as diabetes mellitus, hypertension, and cancer. "Antioxidant is overcome degenerative diseases, such as the antidote for free radicals like cadmium, anti aging, able for eye," said doctor researcher in the Chemistry and Biology Research LIPI.

In order for antioxidants did not disappear, we must know the right temperature for processing red fruit. Boiling will soften the network structure so beta-carotene is easily digested by body. It's need to be observed a maximum limit of warming at processing procedure. 80% beta-carotene in carrots still good even reheated in the 150 ° C temperature. For red fruit maximum processing temperature is 40 °C.

Red fruit was widely publicized as fruit which contain beta-carotene and tocopherols. Beta-carotene levels in red fruit reached 700 ppm. It's incredible, in the past never known a fruit with high antioxidant content like red fruit. So it called super-antioxide.

Excessive carotenoids and tocopherol consumption do not endanger health, according to Ahmad Sulaeman. Because, both of them are new precursor vitamin—toktoferol, prospective vitamin E and beta-carotene, vitamin A prospective. If excess, body will throw it away with feces. "Unless the excess of vitamin A, for example, which can lead to death *hypervitaminosis*," Said Doctor which be the alumnus of Human Nutrition University of Nebraska.

C. MEDICAL DOCTOR COMMENT

Red fruit, highly nutritious and beneficial to health is a necessity. Everyone admits that. However, that red fruit can act as a specific medicine is still a question mark because of unfinished scientific research. Most of the medical community still considers, red fruit just a herbal because of the efficacy only empirical experience. If it had passed a series of standard tests in the medical media world, then its status could change into a medicine.

There's the assumption among the laity, consuming herbal medicine is safer than medical medicine because of side effects slightly. Is this correct? Doctors in Darma Medika Hospital in Wonogiri, Central Java, which also gives a red fruit to the patient said, "People often mistake taking herbal concoction is guaranteed safe. And if not right dose, it will be more worse. "

This opinion was approved by a doctor who is also a columnist in various media mass is saying, whatever comes from nature, of course legitimate for consumption. So it is with red fruit. However, natural origin materials that would not necessarily safe for consumption. Several types of forest mushrooms, fish, bloated, and other various poisonous plants detrimental health.

This opinion means when the natural materials also contained toxic or potentially harmful to the body, with rough materials consumed, the body will be disrupted as well. The proof is some kind of herbal medicine from China, Japan, and Korea withdrawn from circulation because of not safe. Ma Huang, for example. Why?

Medical drugs which taken from nature has been made purely so only contain nutrition. Different if consumed coarse materials such as herbal medicine and traditional medicine, in addition to potent substances, other substances which included are still consumed. Whereas other substances that could be unsafe because it is toxic. That is the weakness of herbal and traditional medicine in general, because not all take the security toxicity test (*toxicity test*).

Nutritious substance that comes from nature is still unknown exactly about right dose of efficacious substances content as a medicine(therapeutic dose). Used materials-dose, generally not standarization exactly, but still in the measure sheets, cloves, grains, or handheld. Lethal dose was not yet known, if it exists.

So to be a medicine, any efficacy of natural materials need to take a series of scientific tests before considered feasible in the drug market. Including toxicity testing. However, for these large costs, while the budget is not available.

We hear media mass reported that red fruit have cured some diseases, such as expressed by a number of recognition, is indeed a fact. But there also people who consumed red fruit but not cured. That is, it is unclear what nutritious substances are contained, for whom case, how the substance works in the body, and at least safe for consumption.

D. PHARMACOLOGIST COMMENT

The pharmacologist emphasize the importance of research to prove the effectiveness of red fruit. According to professor from pharmacy University of Padjadjaran, red fruit should be tested clinically to determine dosage and toxicity.

According to them not only beta-carotene and tocopherol are on main role. There are many other major compound or substances which still unknown . "There are still many unidentified compounds from red fruit. They suspect many secondary compounds such as alkaloids, phenol compounds, glycosides, and other secondary metabolites. Hence should be tested further, "said vice chairman of Unit Test Center Fitofamarka Clinic, University of Padjadjaran in Bandung.

First, a natural ingredient should be tested by LD50 (lethal dose, red) testing on sample animal. If a safe dose is known, so a series of continued tests such as pre-clinical trial and clinical trials must be done. "Not only the empirical data and claims the community," said *Phytomedica* Award-winning 1992's. According to these tests, they need to be consider the carcinogenic potency and dose relationship of use with long use to the toxic response.

Pharmacy doctor which graduates from Netherlands Leiden University predicting the 4-hydroxy-4-methylglumatic acid ($C_6H_{11}NO_5$) substance in the red fruit that serves to strengthen the liver. This hepaprotector substance that protects the liver from toxic substances. But it must be tested further. It also as other imunomodulator on red fruit extracts.

Red fruit's ability as an antioxidant recognized because there antosian compounds (compound with red color). professor of herbal medicine from Bandung revealed that the possibility of red fruit as antiviral for AIDS virus. Antiviral worked as an phagocytosis antivirus which "devouring" the HIV virus and cooperate with other imunomodulator so increase the endurance.

CHAPTER VI SCIENTIFIC EVIDENCE

Exposure from mass media about the efficacy of red fruit few months ago led the healing searchers come to the papua. They did not just come from Jayapura and the surrounding areas, but also from outside the island. However, due to the red fruit is limited, most of them came home with empty-handed. Another factor that caused crowded of red fruit demand is due to selective consumers. The consumers know, the quality of red fruit in the market is very diverse. Therefore, they chose to buy from a trusted producer. That is why, although there a lot of red fruit producer, but still many consumers are willing to line up to get the red fruit from a particular producer.

Euphoria of red fruit to cure a variety of degenerative diseases so far driven only by the testimony and a series of empirical facts. There is evidence, many are cured of certain illnesses after drinking red fruit oil. On the other hand, there are also a number of failures, although the type of disease and red fruit the used doses are same. Positive and negative sides of it encourages a number of institutions to scientifically examine the efficacy of red fruit.]

A. TORTUOUS WAY OF RED FRUIT TO BE A HEALER

Red fruit oil should go through a long way before the drugs label officially used. Fruit extracts of red fruit (*Pandanus conoideus*) must pass a series of tests from preclinical to clinical trials to be a healer. This is the red fruit stage test for recognition as a drug. No. 1-6 called preclinical testing and the other as clinical trials test.

1. In Vitro Pharmacology Experimental Test

Beneficial is to clarify the effect of a drug. Red fruit oil is given to some of the isolated organs, cell culture, or microbes. This research is partial, a new means tested in some organs above that organ and see the effect. The length of observation time 1-7 days.

2. In Vivo Pharmacology Experimental Test

Testing was conducted overall on experimental animals such as mice / rabbit. The aim is to prove the claim as a drug. For example, red fruit claimed as anti-cancer and anti-diabetes mellitus. Well, the truth of the claim was tested by injecting cancer cells into experimental animals. Then red fruit oil was given to animals and observed their development, whether red fruit may inhibit or kill cancer cells.



**Need a long time for testing
as a drug**

3. Acute Toxicity Test

During the 14 days since the red fruit oil is given to experimental animals, observation still continues. The ultimate goal is to determine LD50 (lethal dose) of a drug. It means, with required dose to kill 50% of experimental animals. LD50 which is more higher, so the drug is more safe because to kill experimental animals required high doses.

4. Sub-chronic Toxicity Test

Abnormality due to drug consumption was observed in sub-chronic toxicity tests. Drug accumulation effects become the focus of this stage research. Every day during few months experimental animals are given drug or red fruit.

5. Chronic Toxicity Test

In this phase, similar to sub-chronic test. The difference is in the length of the observation, for 1 year or as long as the age of experimental animal. Does continuous drug consumption for lifetime cause side effects? This test applies only to certain drugs that should be consumed in the long term.

6. Specific Toxicity Test

Consuming drugs in the long term should be guaranteed for safety. Is the drug not carcinogenic (cancer cells trigger), not mutagenic (gen mutation), teratogenic (safe for the fetus and reproductive organs), and irritation. It is tested with a specific toxicity test.

7. Clinical Test, Phase 1

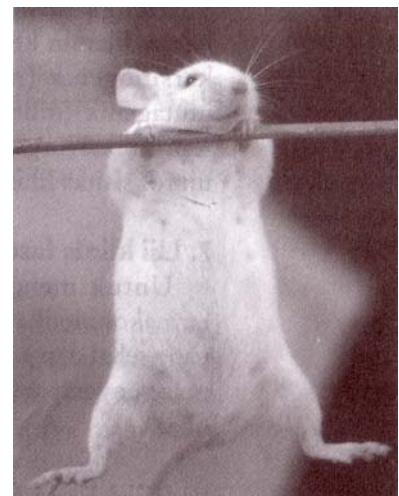
To find out and clarify the effects and pharmacokinetics or the fate of drugs in the body. Limited number of healthy volunteers are given the drugs. Then observe the pattern of absorption, metabolism, and excretion after drug consumption.

8. Clinical Test, Phase 2

Drugs are given to people who are sick as per the drug claim explanation. For example, red fruit anti-breast cancer means that the red fruit extract should be given to this patient's disease. In this phase the patient and test center are expanded and used a placebo as a comparison. Placebo is people who receive the drug. For example, people who were given capsules, but they did not know the true contents of the capsule. It could be an empty capsule.



Pre-clinical tests conducted in experimental animal



Experimental animal growth was observed after being given the red fruit oil



A series of toxicity tests result have been done

9. Clinical Test, Phase 3

This phase is similar to phase 2, only added the number of volunteers and also extend the test location. What distinguishes with previous phase is to use the comparison innovators or well-established drugs in the market. For example, red fruit administering to breast cancer patients compared with tamoxifen administering to breast cancer patients compared with tamoxifen administering to other breast cancer patient. Tamoxifen is an anti-breast cancer drugs that known in the market today.

10. Clinical Test, Phase 4

After passing phase 3, the drug able to sold at market. Yet the drugs still being monitored with Post Marketing Surveilance method. There is an reporting about event due consuming the drug.

B. ITB PHARMACEUTICAL RESEARCH RESULT

None of the medical professionals who doubt the benefits of red fruit for health. However, called as particular disease drug, not yet! Especially if the red fruit was branded as a healer of various degenerative diseases. Most of professionals who truly understand the rules in the medical world is questioning the testing stages that have been undertaken by red fruit.

One of the most common questions that came out is what is the safe-dose that can be consumed by human? What is the basis of this dose? now this question has been answered by scientific research that has been done by Sukandar from the Department of Pharmacy, Faculty of Mathematics and Natural Sciences, Institut Teknologi Bandung (ITB FMIPA). Sukandar try the acute toxicity test at mice, in March 2005. There are 2 groups of mice are used as experimental animal. Each consisting of 6 tail: 3 males and 3 females weighing 25—30g. This muscervicolor(3 months old) got fasting for 16 hours. After that a group given the extract of red fruit with a dose of 2 g and other groups 5 g each tail. This doses referring to the OECD which centered in Japan. This agency since 2001 recommending a dose of 2 g for experimental and from the previous experiment is 5 g. Until 14 days later, active-animals behavior are watched at night. There are 26 things that become the object of observation. Some of them had tremors (trembling), writhing (walking with dragging abdomen), cataleps (interference to hang ability), and grooming (feet often scratching the mouth).

The result, at male mice tremors, writhing, and cataleps respectively 0%, while at male grooming is 66.7%. At female mice tremors, writhing, and cataleps each also 0%; Grooming 33.3%. That means, "The dose is relatively safe," if converted to the human who 70kg weight, for example, the dose was equivalent to 240 g. Volume for 3 tablespoons of red fruit about 45 ml equivalent with 36 g..

Which also tested in Pharmacy Departement of ITB is red fruit claims as anti-infection. This is just a preliminary test which the results is very encouraging. Three male rabbits each weighing 2.5 kg. In the back-after the skin is scraped, every rabbits injected by different fungi / bacteria: *candida albicans*, *Staphylococcus aureus*, and *microsporium gypseum*.

Candida albicans, a fungi that cause disease infection in respiratory, digestive, and other organs. He attacked the patient who has a weak body condition and often occurs in people with HIV / AIDS.

Staphylococcus aureus is a types of germs that cause skin infections so occur festering-sores or carbuncle. He also attacked the digestive tract.

Whereas *Microsporium gypseum* causes skin diseases, eating horn or keratin substances, and damage to nails and hair. During the 9 days after injection, observed erythema or redden, eschar or injury, and the formation popular udem or as swollen.

A day after being given a bacteria and fungi, irritation index was on a scale of 4. That means heavy erythema and eschar formation. However, after an injury smeared by red fruit oil. On the 2nd, irritation of the scale down to 3. irritation was becoming smaller and fully recovered on day 8 and some at day 9. In contrast, rabbits that had not smeared red fruit extracts until day 9 has not been recovered. At that time, the irritation index on a scale of 2 (medium-severe erythema) or still inflamed. With red fruit trials very potent anti irritation / infection.

Claim of red fruit as anti-inflammatory also examined in March 2005 by Suwendar, Msi. He test this claims in 3 groups of mice, each 7 tails. Rear left leg of mice injected with 0.05 ml karagenan so swollen. The handling of each different group.

Swelling of the feet at one group overcome by applying a red fruit. After it, wound closed with transparent plastic. Other groups, given with other drugs that have been established in the market. Drugs that contain methyl salicylate. Application of both drugs were in an hour, 4 hours, and 8 hours after injection karagenan. A group without any treatment. After that the swelling area before and after application measured by pletismometer . Research shows, red fruit less significance as anti-inflammatory drugs.

C. INDONESIA UNIVERSITY PHARMACEUTICAL RESEARCH RESULT

They show toxicity test results, LD₅₀ at male mice approximately 2.687 g / kg of body weight; female mice, 6.714 g / kg of body weight. "Potential toxicity in males, slightly toxic and in females there was no toxic," are like listed on the examination results. Agreed dose of red fruit that had been many advocated is safe enough. There should be further research to determine the accumulation of consumption.

Other tests are also needed to determine ED₅₀ or effective dose of red fruit consumption. Of that number is known, Therapy Index (TI) by dividing the LD₅₀ with ED₅₀. According to research from the Department of Pharmacy, Padjadjaran University, "higher Therapy index of a drug so more secure. This means that the distance between the LD₅₀ and ED₅₀ further. More higher LD₅₀, many red fruit consumption means that are still safe. "

D. TEST RESULT ON CATTLE

There is also a test giving a red fruit pulp for chickens. Chicken was given a red fruit pulp or the red fruit oil. The yolk is going to more red color and the eggwhite turn more white. When tested in the laboratory at a university in Surabaya, the nutrient content of eggs increased as protein and calcium, and contain little fat.

CHAPTER VII

RED FRUIT HELPS THE HEALING PROCESS OF VARIOUS DISEASES

A. CANCER AND TUMOR

Cancer is a number one disease in the world's. Cancer or tumor caused by irregularity of hormone journey that resulted in the growth of meat in the normal tissues. This cancer can strike any part of the body such as the womb, breast, blood, skin even brain. Severe cancer disease can cause death.

Role of red fruit in helping of cancers disease healing process caused by it tocopherol and beta-carotene content which relatively high, these two compounds work together as antioxidants and enhance the immune system. As antioxidants, these compounds play a role both prevent and suppress reproductive cancer cells. Omega 3 is contained in the red fruit can also repair the function of damaged tissue, so it is recommended for *ca mammae* or breast cancer patient.

Utilization of the red fruit oil to help the healing process of cancer should combined with other herbs, such as temu putih, temu manggo, and keladi tikus that could kill cancer cells. Cancer patients who had improved usually drink one teaspoon of red fruit oil twice a day. If you are taking this red fruit oil, it is suggested not taking supplements containing vitamin E because vitamin E is contained in the red fruit oil is high. Cholesterol condition should always be checked, because some people who ate the red fruit oil, cholesterol tended to increase. Also recommended before taking the red fruit oil, cancer patients consult with a doctor and herbalis whom specializes to handle cancer.

B. HIV/AIDS

HIV (Human Immunodeficiency Virus) that causes AIDS (Aquired Immunodeficiency Syndrome), attacks the human body until the immune system becomes weak or missing. Because of it, people who infected by HIV and have follow-up disease usually can not be recovered because they have no immune system that can counter the disease. This follow-up disease are causes the death of AIDS patients.

The immune system of HIV / AIDS patients usually will weaken and if attacked by another disease could cause death because his immune system weakened and could not counter the disease. In the process of healing, red fruit oil will improve the immune system and break down the protein compounds that become food of HIV / AIDS. As a result, HIV / AIDS is more weaker because not getting the food for cell reproductions.

Few chemical compounds that present in red fruit oil is tocopherol and beta-carotene. Tocopherol and beta-carotene is functioning as an antioxidant and can improve the immune system which it is a major problem on HIV / AIDS patient. Both these compounds can also ward off free radicals. With increased immune system, patients with AIDS is expected able to fight the attacked follow-up disease. Tocopherol and beta-carotene also collaborate to broke amino acids which needed by HIV, so the virus does not obtain food for survival. High



Dose of red fruit oil (1 teaspoon)

protein in the red fruit can also help the protein that needed required by people with AIDS. Combination with *Centella asiatica* and *sambiloto* can also be done, because of *Centella asiatica* can function as antivirus and *sambiloto* as antibiotic or anti-inflammation.

To help the healing of AIDS, this red fruit should be consumed as a companion and not leave medicine from doctors. Red fruit oil can be given as much as one teaspoon three times a day.

C. STROKE

Stroke is a disease that attacks the brain. This disease is usually caused by a frozen blood and accompanied by a narrowing of blood vessels. High blood pressure also became one of the triggers of this disease. If blood pressure rises, blood clot, and there was narrowing of blood vessels, blood supply to the brain will be reduced. In fact, the blood vessels can rupture. This disease can cause paralysis in the limbs, either total paralysis or one side paralysis.

Role of red fruit is to prevent and help treat of stroke attack. Chemical compounds that act is tocopherol. Tocopherol in the red fruit is a natural tocopherol and prevents blood clotting by dilute the blood . Blood clotting effect is can be avoided and blood flow to the brain becomes smooth. Red fruit also serve to improve heart working system. So blood pressure is too high can be decreased.

Red fruit oil to prevent and help cure a stroke can be consumed as many as 1 teaspoon 2—3 times sehari. Beside that, the stroke patient noticed to attention the eating pattern with a diet and not consume wafarin.

D. DIABETES MELLITUS

Diabetes mellitus is often also called blood sugar disease. This disease caused by pancreas work was disturbed, so it can not produce insulin in sufficient portion. As a result, carbohydrate metabolism is disturbed and glucose can not be processed by the body, the sugar content in the blood increases, and then issued together with urine. The symptoms of this disease is sugar content in the urine, decreased weight, always thirsty and hungry, and urinate constantly.

Medical treatment for this disease is regularly with inject insulin. In addition, patients also need to set a strict diet and eating patterns. Diabetes healing process can be assisted by red fruit oil consumption because of contain natural vitamin E or tocopherol. Tocopherol in the red fruit will improve the work of the pancreas, which secrete insulin function to be perfect. To get maximum work of red fruit oil, diabetes mellitus patient is recommended to use diets with avoid foods that cause diabetes mellitus (containing carbohydrates and excess sugars).

E. LUPUS

According to a survey conducted, so far \pm 5000 people died caused by lupus disease. The disease is known by red spot with butterfly shaped on a wound or bite scratches scar. This disease is an *autoimmune* disease that attacks the immune system from within and not able to recognize his own body tissue. Immune system of lupus patient usually become wild and attack himself. Severe lupus can cause an attack on the joints bone, skin, kidneys, liver, lungs, blood vessels, and brain. Usually this disease is also accompanied by appetite loss, weight loss, and hair loss.

There are two types of lupus disease, namely *Discoïd Lupus Erythematosus* (DLE) and *Systemic Lupus Erythematosus* (SLE). DLE lupus species attack only skin. SLE Lupus is more dangerous than DLE due attacking internal organs, and very dangerous. If lupus attacked a pregnant woman can result in miscarriage. Usually lupus patient will gain weight if

often exposed to the sun shine directly. Until now has not known for certain causes of this disease.

Red fruit role in helping to cure diseases is a boost stamina of lupus patients. Red fruit in this disease treatment serves as an antioxidant. Consumed red fruit oil expected to boost the immune system, so that people will get strong stamina and be able to counter the disease. Until now people with lupus who consume red fruit has shown positive development.

F. HIGH BLOOD PRESSURE

High blood pressure caused heart work that serves as a blood pump is not running as it should. Heart work in pumping blood that is too fast is what is called high blood pressure disease. One of the triggers of this phenomenon is the lack of blood oxygen and / or the blood is too thick. High blood pressure is accompanied by a narrowing of blood vessels can cause strokes.

Role of natural tocopherols in red fruit is to thins the blood and facilitate blood circulation, so the oxygen content in blood become normal. Due to blood viscosity and oxygen content became normal, so it automatically make blood pressure down or normal.

G. HERPES

Herpes is a skin disease caused by the herpes virus. The disease is characterized by appearance of fragmented nodules in the skin and it very itchy. Nodules of this disease can attack the whole body or in around the genitals area. Currently there are two types of herpes is herpes namely herpes that attacks the skin and herpes that attack genital. Skin herpes can attack the entire surface of the body skin and genital herpes are usually attacked around the human genitals. The spread of this disease is usually through sexual contact, clothing, sweat, and from an unhealthy environment.

Empirically, people with herpes who drank red fruit oil and rubbed oil on the affected body areas experiencing healing. However, scientifically not known what compounds can cure herpes.

H. URIC ACID

Uric acid disease occurs because the liver function did not work as it should, so that the liver produce excessive uric acid. Uric acid is then deposited in the kidneys and into stone, then carried through the bloodstream to the body and accumulate, especially in the fingers and toes.

Tocopherols role in terms of helping the healing the uric acid is to dilute and facilitate blood flow, which improves the working lever system. Good working liver system can reduced uric acid production and improve the work of the heart. Natural fat in the red fruit also can block out excess uric acid. Despite have consumed red fruit oil, the patients should remain on a diet with avoid food that can trigger uric acid disease.

I. OSTEOPOROSIS

Osteoporosis or porous bone that typically attack older people, especially women. The cause of osteoporosis is calcium deficient, so the body takes calcium from the bones and causes bones to become porous.

The ability of red fruit to help prevent and healing process of osteoporosis caused by high calcium content on red fruits. In every 100 grams of fresh red fruit contains 54,000 mg of calcium. Helps prevent and osteoporosis treatment can be done by consuming the red fruit in the pasta form, fresh red fruit, red fruit oil.

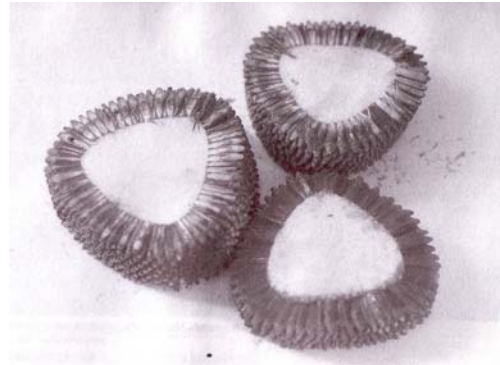
J. DISTURBANCE ON EYE

Diseases that often strike the eye, such as temporary blindness and blindness disease, usually caused by deficiency of vitamin A. Meanwhile, vitamin A can not be produced by the body. This is where the role of beta-carotene in the red fruit. Beta-carotene is absorbed by the body and then converted into vitamin A.

K. HEMORRHOID

This disease is caused by swelling at the end of the release channel or rectum. People who attacked by hemorrhoid, in the anus will feel hot and sick. This tormented feeling will occur mainly after eating spicy food or at defecation. In cases of severe hemorrhoid sometimes anal glands can get out. Such hemorrhoid is by the doctor usually will be operated.

Until now many hemorrhoid sufferers who have recovered after consume red fruit oil in a matter of weeks. However, there has been no information from the medical community neighbors about red fruit oil properties in curing hemorrhoid.



Red Fruit. Shown to help the healing process of hemorrhoid

L. HELP TO INCREASE INTELLIGENCE

One way to help at improve intelligence of human brain is stimulate the growth of the baby's brain when still in the womb and in growth time. One way is by taking the essential acids such as omega 3 and omega 6. Both should be consumed together to make the effective work. Omega 3 and omega 6 compounds found in the red fruit as much as 7.8% and 8.8%. Both this omega compound can stimulate the brain power that continues enhance intelligence.

Red fruit oil to enhance the brain works can be consumed in the form of oil or used as cooking oil when sauteing or cooking food. In the meantime, the children are encouraged to consume as much as one teaspoon once a day.

TIPS ON CHOOSING THE RED FRUIT OIL

Knowing the quality of the red fruit oil which can either be done in three ways, namely seeing, smelling, and feel it with tongue.

1. See The Red Fruit Oil Quality

- Red fruit oil with good quality are don't have sediment or pasta. This can be known by see it. Red fruit oil in the transparan bottle can be directly known by shining a flashlight or other light and see the opposite side. If you see any sediment, red fruit oil quality is questionable because of the possibility of such sediment is a mixture of pasta or cooking oil.
- When poured into a plate or spoon, the red fruit oil have dark red color. Red fruit oil with black color sign burn marks or burned during the manufacturing process. Meanwhile, red fruits oil with yellowish color marks the chooking process too long and was the saturated oil that harmful to health.
- Oil is turbid mixture indicating still a lot of pasta and have deposited again.

2. Smell Red Fruit Oil

- Red fruit oil quality has no smell at all or only a tasty smell like the smell of pandan.
- Smell rot means red fruit oil is bad. This red fruit oil usually caused by the manufacturing process that does not hygiene or has too much pasta. The smell of the red fruit oil that smells like rotten eggs.
- Sour smells like the smell of vinegar sign that red fruit oil is broken.
- Scorched or charred smell means the red fruit oil scorched because of high heating process in a long time. a lot of tocopherol and beta-carotene content in red fruit oil has been reduced.
- Red fruit oil with good quality is not smell rancid. If the red fruit oil contains water (H_2O), it will cause hydrolysis generating free fatty acids and cause rancid smell.

3. Feel by Tongue

- Red fruit oil is good if it is felt with the tongue has no taste at all and same like cooking oil, no taste at all, whether sweet, salty, and sour.
- If it was sour, mean red fruit oil is already rotten. Sweet or salty taste means that the red fruit oil is mixed with other ingredients such as sugar, salt, or other substances.

CHAPTER VIII TESTIMONIAL

A. ABOUT BUAH MERAH, BY DR. BUDI

"In Jayapura I have experienced the results of buah merah, namely to cure brain cancer, baby's lung spots, breast cancer, uterus cancer, uterus tumor, eye irritation, blindness, heart disease, lung disease and weakness. After a cancer patient had consumed the buah merah, his condition was laboratory tested, and the results were amazing. Actually prior to consuming the buah merah, the patient was in a lot of pain and now the cancer patient feels fresh and fit ", Drs. Budi MSc (Balinese) said.

During his interview with a national TV station – Metro Tv, Drs. Budi MSc, talked about a patient that had **HIV/AIDS**. Her name was Agustina (22) who had experienced a tremendous health change. **Before** she took the **buah merah**, her weight was 27 kg (59.5 lbs), due to the HIV/AIDS virus, but after she consumed the buah merah her weight had increased to 42 kg (92.5 lbs.).

Agustina who was an HIV/AIDS patient was brought in by a public health development agency at Papua (West New Guinea) to Drs. Budi MSc. They requested Doctor Budi to give Agustina the buah merah extract for treatment. After she had consumed the **buah merah just a few times**, she felt much better. Heavy diarrhea symptoms and ulceration, which is usually present with HIV/AIDS patients, came to a non existence. She felt fresh and could perform her daily activities again just like a healthy person.

Buah Merah functions as an **anti-retrovirus medicine**, which is required for HIV/AIDS patients. It binds protein and **increases the body's resistance**. This great achievement was also in line with the results of the laboratory tests. After the treatment Agustina's blood's CD-4 reached a figure 400 and the CD-8 showed negative. CD-4 of positive AIDS patients is maximum 200 and CD-8 is positive. **Buah Merah** has a good effect on human health in general. The experts analyzed the active substances in Buah Merah; They determined that they are high in potential **antioxidants**, proven to support the body's natural defenses in illness:

Buah Merah consists of some **high nutrient substances**. They are *beta-carotene, tocopherol, oleat acid, linoleat acid, linolenat acid, and dekanooat acid*. They are **active medicine compounds**. The Beta-Carotene functions to slow down artery spots blockage. As a result, blood can flow to the heart and brain smoothly. They can interact with protein doubling the antibody output. This can increase the number of natural cell killers and increasing T helpers and lymphocyte activities. **Consumption of Beta-Carotene 30 - 60mg/day for 2 months caused body produced diseases to free natural cells**. Increasing such natural cells may minimize cancer cells production because it can neutralize carcinogens compound free radicals, which is known as cancer sources.

Another function of buah merah is as an **anti-carcinogen**, which is even better with the presence of **tocopherol**(Vitamin E). This compound functions to **increase the body immune system** - HIV/ AIDS target. Buah Merah which consists of high doses of *Omega 3* and *Omega 9* is a non saturated fatty acid, easily digested and absorbed and as a result the metabolism can run smoothly. A smooth metabolism process will increase the recovery process, because the body obtains a protein supply to increase the body resistance power.

Buah merah contains a tocopherol amount up to **11.000 ppm** to prevent free radical damage. High contents of vitamin E – otherwise known by the name of tocopherol, is a defense against degenerative diseases attacks like **diabetes mellitus, hypertension, and cancer**.

Buah Merah's fatty acid is also an **antibiotic** and **antivirus**. They function to slow down and kill virus lipids membranes. In addition, the virus is not given the opportunity to develop new structures, and as a result regeneration can not be performed. Due to its competence, it actively prevents and kill HIV/AIDS viruses, including hepatitis virus which may damage liver cells. In addition, it is also able to slow down and kill active tumor cells. "Buah Merah" translated in English: "Red Fruit"

B. TESTIMONIAL

Since it was being published by a notable Indonesian health Magazine in the beginning of 2004, pandanus conoideus (red fruit / buah merah) became very popular in many conversations. Many testimonies appeared to convince the amazing effects of pandanus conoideus (red fruit / buah merah). For example : success stories in treatment by pandanus conoideus (red fruit / buah merah) from various famous artists. When pandanus conoideus (red fruit / buah merah) season is over, supply of the raw material is scarce, customers had to order first before they could get the pandanus conoideus (red fruit / buah merah) oil.

Following are some real testimonies of consumers who had been recovered from hard to recover diseases.

Bleeding

Lolubolan experience bleeding due to uterine disorders. However, full recovery bleeding after consuming the red fruit oil for 3 days. Every day 3 times and each one tablespoon. Now he never again felt the bleeding, even a perfectly healthy body condition as before the affected bleeding.

Brain Tumor

Hamid: "The doctor said my brain tumor was cured 90% thanks to the red fruit oil". Hamid (54 years old) body tired and thin, almost live skin and bones. His five- senses can not function. His libido like running out of oil lamps, dim. All were due to tumor cells residing in the brain of this middle-aged man. Irradiation was done for dozens of times, but also not able to tame the growing tumor cells in the Hamid brain system. Tumors network is growing that make her suffer, unable to do anything.

About a year, hamid (Employee of a contracting company in Jayapura from South Sulawesi) know the presence of malignant disease in his brain system. Along the way he felt great pain. Like giant sledge hammer hit to his head so pain and dizziness. Pain was followed by sensory dysfunction. The tongue can not taste and discriminating taste. In fact, speaking haltingly because of his tongue more rigid. Memory and hearing perception continues to decline. His eyesight look crossed cause dizziness every eye was opened.

Hamid never thought there was something wrong in his brain. "I think just because of the stress due to the job". When he felt a severe headache around May 2003, Hamid went straight to a doctor. Doctor said that it was only about hypertension. After intensive examination, the doctor immediately sent him to the hospital emergency room Dian Harapan, Jayapura. "You have a serious disease, your place not in here", said the doctor as imitated by hamid.

Day by day He spent his time in a hospital bed. During the 8 days lying weak, almost no change. Not only perceived headache, almost the whole body felt weak and stiff. Therefore, he finally choose to check the disease at deep disease doctor. Because the source of disease did not detected, the doctor advised her to undergo acupuncture treatment at the Navy

Hospital, Jayapura. During a month, acupuncture needles impale his body. However, pain as reluctant to move away from his body. Curiosity led to his switch to the ENT doctor who also sent him to a hospital in Makassar, which has more complete equipment.

Recovery which expected encourage this brown-skinned man to go to Makassar. That's where Hamid finally get an answer. Intensive examination showed a tumor in the brain system. He was required to undergo intensive treatment at the hospital.

Wild network in the Hamid's brain from time to time will suppress the central nervous system in line with its growth. As a result, the organs of sight, hearing, or feeling also disturbed. In fact, the function of some sensory organs can be decreased if the pressure occurs at the nerve center. If not controlled, the metabolism system can be disrupted. As a result, body feel anemia, weak, decreased body weight, and body resistance goes down. Therefore, patients need to undergo intensive treatment.

Two months Hamid must live in the hospital. In addition to intensive treatment, he must undergo routine irradiation 35 times to tame the tumors. Unfortunately, pain is not over yet. Whereas post-hospitalization, he had made an outpatient for 5 months. Finally, he chose to return home to Jayapura, although body condition was still apprehensive.

Options back to Jayapura taken forcedly because of financial thinning. "Imagine, once irradiation alone cost Rp. 350.000, - ", he said. Not to mention for other treatment and living expenses while in Makassar. Glimmer of hope came when he met an employee of Dian Harapan Hospital, Jayapura when he hospitalized there. This employee suggest Hamid to try to find the red fruit oil because many cancer patients get well after taking that drug.

This information that brought Hamid going to the home of one of the red fruit oil providers. Viewing Hamid conditions that are very apprehensive, the provider's conscience is touched. Two bottles of red fruit oil products directly given freely. "When first came to me, he is in bad condition, almost no hope left due to very thin and pale face, like hold a great pain", explained the provider of the red fruit oil.

Because of his desire to healed, Hamid drinking directly the red fruit oil that received. Convinced the cure lies on the front of the eyes, he went on the consumption of red fruit oil drugs like recommendation that suggested earlier by providers, that is taken twice a day, each one tablespoon.

Change is beginning to be felt after two bottles containing approximately 150 ml of red fruit oil dranked in two weeks. It marked by started loss of pain in his head. He also began to sleep soundly without interruption pain in the brain. Condition that almost never felt again since the pain whipping him.

Having spent 8 bottle in 2 months, pain in the head almost never again be felt. Body that had thin, listless, and pale, are progressively contained. Talk no longer rigid and auditory perception back to normal.

Currently, Hamid no longer feel dizzy. Although does not do a CT-scan, doctors believed that Hamid's recovery has reached 90%. Whereas, in addition to the red fruit oil, although now he do not taking any medical drugs.

Breast Cancer - 1

Hariyanti, a mother of 2 daughters, had a lot of pain in her breasts. Although the pain was sometimes unbearable, she didn't want to get surgery. Instead she consumed the red fruit oil since 2004 and as a result,her condition was getting better and better.

In 2003, there was a little spot on her left breast. She didn't think much of it in the beginning, but she finally went to the doctor because of a very painful breast. She was shocked when she got the results from the doctor. However,she refused to get surgery.

Herbal:

She consumed many traditional herbs and never be recovered. One day in 2004, the spot opened up and a white melt was coming out and the skin turned black. The wound became worse and worse. The herbs did not do anything for her, and her breasts became more painful.

One of her friends came over one day and suggested to try the red fruit oil. She consumed 3x1 spoons per day. Within five days she felt better and her black spot was clearing up day by day. Also, the white melt became fresh blood. The doctor who practices at Boro general hospital gave her vitamins only. She just consumed the red fruit oil and she became healthy afterwards.

Breast Cancer - 2

Doctor's verdict Dian Harapan Hospital Jayapura to lift the lump blame at breast must be passed. Before finding a way out, for many years Tri Daryanti always feel that pain. Not only the pain around the breast, the fingers were sore. More complete misery after he suffered a motorcycle accident. "Nerves closed four fat, so the blood circulation is interrupted," he explained. As a result, the left leg often feels numb.

Not without reason Tri Daryanti follow the doctor's advice to perform the operation. The people closest too have experienced the deadly disease. Her sister has tumors in the foot. In fact, malignant disease was also a pick up his father and uncle to the afterlife. "I do not want the same disease claimed the lives of me," said the woman was 31 years.

According to Traditional medicine practitioners, genetic factors are influential. "If a family member had cancer, his family has big potential suffer breast cancer," he said at one point. The little girl who just entered the first menstruation period was likely able to suffer this disease if there is a history of this disease in her family.

The existence of a lump in the left breast was first known in 1996. then, she touched a small bump on the bottom of the left breast. "If it is relapse, the lump hardens and feels hot," said Tri. The lump growth until like quail eggs. The lump presence not only felt wedge but also pain. Pain that caused by swelling was not appeared every day, but once any recurrence of pain radiating to the back of the back. Was eventually disturbed sleep. Unfortunately the pain more frequently arise. Can not bear the pain, he went to the doctor. Examination not only about the lump in the breast, but thorough. Heart, urine, blood pressure, all piece of scary words escaped from the lips of the doctor, "Cancer stage II." The days pass with Tri struggle against the endless suffering. Appetite Rubadi wife was also decreased. His body grew thin, weak and helpless. Within a month his weight decreased by almost 10 kg.

Various efforts made by her family to healing Tri. Move one place to the place of treatment to other treatments became routine agenda. Almost all the treatments in Yogyakarta, Salatiga and Solo be visited.

However, "the drugs were apparently only for tranquilizers. If she stop taking it, the pain lashed back", she explained. She was looking for an alternative to other treatments, including massage and consume traditional herbs. alternative medicine unfortunately she lived for 3 years and also did not give satisfactory results. Finally, Tri decided departure to Jayapura, Papua, follow her husband who work there.

In Jayapura treatment efforts continue to be done. When she went to the hospital, the doctor in charge suggested that the lump immediately to be surgery. Because, based on scanning, the more active cancer growth. "Your disease gets worse if no immediate surgery," she said mimicking the words doctor.

Because of the risks concerned, she was forced to give up one of her breasts removed. Moreover, heat pain and cold in the whole body becomes more and more. Appetite was completely gone due to a sharp pain. The night was long, too difficult because the eyes were

closed. Hospital operating room Dian Harapan, Jayapura, to witness the loss of a symbol of her honor.

The first weeks after surgery in 2001, she was feeling better. However, the pain gradually returned. Breast remained hard and tense, there was even a new lump. "The wound never dry operation, when pressed to hurt," said the white-skinned woman.

Suffered for two years should be covered until a relative informed about the efficacy of red fruit oil. "I've heard a lot of cancer patients cured after taking this drug," said her relatives assured.

Armed with that information, she was chasing the red fruit oil. Great desire to heal is also a push toward the Kotaraja of Jayapura, a distance of 50 km from his home in Sentani. Since then he consumes red fruit oil 3 times a day each one tablespoon. The condition improved after drinking red fruit oil.

To speed healing, someone suggested that simultaneous treatment of oral medications from outside. As an external medicine, a red fruit oil provider give her no more other remedy other than that fish oil.

The combination application of red fruit oil and fish oil was so effective. The proof, a few days took the drug, she felt her condition improved. "Body felt good and began to sleep soundly," he explained. The breasts began to loosen and soften.

For Tri, improved body condition as a signal to healing of her illness. He also continued the treatment until the bump to deflate a week later. The pain began to no longer be felt. In fact, two weeks of taking red fruit oil the bump is no longer found. Still others suggest a consumption continued until a month to avoid a return of cancer cells.

Although recovery has now been achieved, Tri still drank red fruit oil until now to maintain vitality. However, the frequency 1-2 times a week, each 1 tablespoon. "After all, the nutrients in it either to maintain vitality," she said.

Cyst and Diabetes

"Only in 5 months cyst and diabetes disappeared". The check up result from my doctor in Singapore proved that a number of my tumor markers are reduced, became 31,1 (before: 62,5) so they cancelled my operation and the diabetes number also reduced from 108 to 87.

Heart Attack-1

"My heart gets stronger...". During his rehabilitation time after a by-pass operation, he began to consume pandanus conoideus (red fruit / buah merah) regularly, in fact many changes happened. He doesn't have any gastric problems anymore and his heart is getting stronger.

Heart Attack-2

"Salute for pandanus conoideus (red fruit / buah merah)". After having the benefits of pandanus conoideus (red fruit / buah merah), Mr. Budi who had several heart attacks, stopped using imported anti-oxidant super pills. He only drinks pandanus conoideus (red fruit / buah merah), and his body is always fresh, he sleeps much better and feels much stronger now.

Hepatitis

In 1997 a man was hospitalized in a very weak state. His name is Wardoyo. He was in the army. His skin was yellow and the face very pale. The man was so hopeless and gave up to live. He couldn't even react when people were visiting him in the hospital. Sometimes he touched his stomach with his hand because he was in so much pain. The reason for his weakness was caused by the virus Hepatitis B.

Since 1986 he was always routinely checked up every two months. Because of his routine check up, he never expected to contract the hepatitis B virus. He started to get weak in 1993 without knowing what the problem was. His health condition decreased and he started to neglect it. He was too busy with his job and started to eat less also. He didn't have much of an appetite and wanted to vomit after every meal. He lost a lot of weight and the doctors suggested doing an intensive examination of the swollen stomach.

He was admitted to Pertamina Hospital in Cirebon. They took a blood test and the results were very bad. The SGPT and SGOT were totally out of the normal range. That means the liver was not functioning. Normally, SGOT is 17 mu / cc, and SGPT is 13 mu/cc maximum.

Wardoyo had a very high SGOT and SGPT, the doctor diagnose that Wardoyo got the hepatitis B infection. It is also causing a chronic hepatitis and cirrhosis (hardening of the liver) and could eventually develop into liver cancer. After being in the hospital for a full week without any improvement, he decided to look for an alternative remedy. He went to another clinic without any results.

The Treatment:

Then, during an exhibition he was introduced about the Red Fruit Oil. He bought 2 bottles and consumed it 2 x 1 spoon daily. He also mixed it with jungle worm to recover from the hepatitis. The combination of the red fruit oil and jungle worm was very effective. He felt much better only within a few days after taking this mixture. He became stronger and stronger and did not have to vomit anymore.

The lab test showed that the SGOT and SGPT was going down. So, he kept consuming the pills while consuming the red fruit oil.

HIV/AIDS – 1 (Papua)

At the end of December 2003 Agustina Saweri , 23 years old like await bells of death. This woman were sentenced positively suffering Acquired Immunodeficiency syndrome (AIDS), the incredibly deadly viper that difficult inevitable. His body was emaciated, the skin covering the bones remained. Weighed only 27 pounds from the previous high of 50 kg with 150 cm. Pistol ani or anal infections, liver disorders, moldy mouth, and lung infections complete misery. Group of diseases is not less dangerous is triggered by a virus emergence immune thresher.

Disaster begins from his job as commercial sex workers because of poverty that pressing his family. However, after out of poverty, she attacked by HIV / AIDS who have not been discovered a cure. So since December 2003 he was lying on the disease part in a hospital in Jayapura. Because the liver is damaged, she could not swallow any medication that must be infused.

Three month full she spent there. At February 27, 2004, she back home. Agustina consuming one tablespoon at a frequency 3 times a day coincided with lung drug given from doctor.

Consumption of red fruit oil were offset intake by high-protein food. Slowly, the body condition of women which born at August 14, 1981 was better. Three months consume sauk-eken(term of red fruit in Wamena), increased body weight 6 kg. Body weight continued to

increase up to 46 kg now. Also more cheerful face with eyes shining. The original skin scaly, re-smooth. The hair loss had started to grow above his head. In short, Agustina looked much more fit. In fact, "when her conditions is bad looks like no hope anymore".

Red fruit serves as antiretroviral drugs that much-needed HIV/AIDS sufferer. It binds protein and boost immunity. "Achievement so spectacular it is also in line with the results of laboratory tests in Jakarta in early November 2004. CD-4 blood Agustina been adding numbers 400 and CD-8 show number 8. CD-4 positive person AIDS, maximum 200; CD-8, positive. Papuan women are now reaching a total recovery. Until now, he continues to consume oil red fruit that figure was similar Cempedak.

HIV/AIDS – 2 (Ghana)

A brother of mine was having extra marital affairs with a woman who was diagnosed with HIV/AIDS positive. That same woman passed away about 3 1/2 years ago. Now, this brother and his 2nd wife and children frequently get sick and all people whom comes to their home think that they are also HIV Positive. This is because they could see all the symptoms of HIV in their body. This brother, together with his 2nd wife and 1 child started taking the red fruit oil expecting to be healed from that illness.

Last Last Friday I went to the village where they live and to my surprise, the woman said and I quote: "The medicine which you bought for us is very good. At first, I used to be tired after a very short walk, but now since I started taking the red fruit oil, I feel fit again. Before I could not eat but now I can eat very well, she added. My hands used to be heavy and it had no feeling whenever I put it down on a table or on an object for ten minutes or more, but now it is OK. The medicine is very good.

I will ask my husband to let you bring us more, she concluded. Mr. Samuel, I was very happy to hear that from the woman. I believe the red fruit oil wile surely save many lives in Ghana.

Liver Cirrhosis

Shine of spirit now emanating from both Albertin Salong eyeballs. Robust body condition during an interview with one of the mass media. Cheerful face throughout the interview. Only a few wrinkles and blackened lines around the eyes that show the rest of her misery.

The condition is different than a year ago when this 50 years old woman who lived in Papua was weak and lying in one hospital in Makassar. She suffered a liver cancer and it make her body skinny, yellowing of skin and eyes, and her eyes glazed not shine.

He still remembered the incident in May 2003. when she only could look bucket of a yellow liquid in a corner of the hospital room. That day 7 liters of yellow fluid which must be sucked from his body. For a moment he could relief breathe because there's nothing more pressing the lungs. However, a few days later, fluid-filled stomach started again. That's why suck out the liquid is did not can be negotiable: once of 2 weeks. He also needs intake the albumin from outside that worth Rp 1.6 million per dose.

Cirrhosis (hardening of tissue), it has made Albertin liver is not functioning. Liver no longer able to produce albumin, to prevent the entry of blood fluid into the tissue. As a result, there was accumulation of fluid in the tissue. Abdominal cavity was filled with fluid because of venous blood vessels (leading to the liver blood vessels) are blocked. That blockage makes the bile pigment absorbed into the blood. As a result, the skin and the whites of the eyes become yellow.

Damage to liver cells also causes digestive and metabolic processes disturbed. His body become thinner and limp because there was no food intake. Moreover, decreased

appetite due to indigestion. Various medicine are difficult digested and absorbed by the body due to metabolic disturbance. Experts Doctor who take care of her are unable to do much. " Medically, your illness was very severe. We only can to try, but God disposes, " the doctor said like simulated by Albertin. That doctor word is also forcing her back to Papua with very weak body condition.

When one of her family suggest the red fruit oil that was discussed by many people. Armed with that information, since September 2003 he began to consume red fruit oil 2 times a day each one tablespoon. "A week consume, there are remarkable changes. Digestion becomes normal again, "she explained. The frequency was reduced to suck out 40 days. Therefore, he went on more serious medicine use to obtain a total recovery after 1.5 months of consuming the red fruit oil.

Lung Cancer

Andi, a 56 years old man, had lung cancer. Within the last two years he had tried many traditional remedies without any results, Doctors had given up on him, because in general lung cancer patients have a very small survival rate. Then, the red fruit oil helped him to recover himself.

He had coughed for many years, but he never give to much attention to this sign until his chest started to hurt during coughing. His chest became so painful, he decided to see a doctor and was shocked when he heard the news that he had an advanced degree of cancer in the lungs, which in most cases is irreversible. The doctor knew it, because of a very high alfa-fitoprotein and the tumor was large.

The weak body

Lung cancer is one of the biggest cancer killer in the Asia, because of Asian people are classified in the heaviest smokers in the world. In Asia 90% of cancer patients are have lung cancer.

Andi's body was very weak and the doctor suggested to undergo chemotherapy. For some unknown reason he did not follow the doctors instructions and his family tried to use some traditional herbal treatments.

The alternative remedy

He tried many alternative remedies, such as a traditional remedy. Finally, he consumed the red fruit oil. He consumed 8 bottles of the red fruit oil which each contain of 120 ml.

Andi looked fresher and no longer pale. Now he has an appetite, gained weight. His stamina was increased after consuming the red fruit oil.

Lung Problem

A 34 year old man from Sleman, Central Java, Indonesia, by the name of Sulistyو Nugroho can smile and joke with his family now, however a few years ago , he coughed continually and as a result his chest was hurting so bad, that he couldn't work very well. It was at the end of 2002. In the beginning, he didn't take care so much for his illness. He consumed general pills. His wife was pregnant at the same time. The cough was getting even worse after the baby was born. He couldn't sleep at all during the night because of his cough.

The Diagnose

His wife took him to the doctor for a check up. After the examination the doctor did not say anything. He was given medication without any results. He also tried Javanese and Chinese herbal traditional medicines. He went to a Chinese medication man, called a sinshe. and had to pay 5 million rupiahs for the traditional medication. His chest got better but he didn't keep consuming the sinshe pills because of the expensive price. He went back to the doctor because his lungs were still not good. The regular doctor and a specialist checked him out. Some doctors said that it was TBC (Tuberculosis).

His body was cold even in hot weather and his condition was getting worse. He had a bitter taste and he became skinnier. The weight dropped from 75 to 50 kg.

The Appeared Hope

Someone offered him to use the red fruit oil. He began to consume the red fruit oil on December 2004. He consumed 3 x 3 tea spoons of the red fruit oil daily. He decided not to work for a couple of weeks while consuming the red fruit oil. He became better within a few days. He got many benefits by consuming the red fruit oil. The cough and the breast pain almost disappeared. He was now able to sleep all night..

Myoma

"My myoma has been healed..". According to the doctor, only scalpel could end my suffering caused by myomauteri, but after consume pandanous conoideus (red fruit / buah merah) oil (MBM) my myoma has been healed and I could face my future.

Nasal Tumor

Nur Hasyim is an employer of a fertilizer company, PT. Pusri, in Palembang. Nur Hasyim spent two weeks in a hospital, but his condition got worse, and didn't have an appetite. The body temperature was very high, approximately 38.2 – 39.5 ° C. The only medication they gave him, were pills for flu.

He had this nasal tumor since October 2000. Firstly, he experienced bleeding of the left nostril. Doctors performed a CT Scan observation early 2001 and found a tumor inside the nose and it had spread to the left side of the cheek and under the front side of the brain, just behind the left eye. Because of the seriousness, the doctor recommend to have surgery

The surgery was successful and was done in June 2001. Unfortunately, the tumor inside the nasal of the left nostril was still there, and there was also a tumor still on the front side of the brain and behind the left eye, because the doctor did not want to risk the patient's life.

Nur Hasyim was so hopeless. He could not eat nor drink well. Of course, as a result he lost a lot of weight. He had a blood transfusion in July 2004, just to raise the hemoglobin. The hemoglobin showed at 7. And the blood transfusion did not go well either.

Someone encouraged him to consume the red fruit oil 3 times a day. After he followed this advise, just after a few days taking the red fruit oil, his condition improved considerably. He was able to eat again normally, first day only a little but gradually more and more. He began to eat well though 3 tablespoon only. The swelling in his nasal was recovered and it was not babbling anymore. The doctor let him back home on the 22nd day after consuming the red fruit oil.

Paralyzed

Abraham Ronsumre was a teacher at Newi Elementary School. Abraham Ronsumre had been paralyzed for many years and the red fruit has helped him to recover. One day he was digging dirt for the foundation of a brick wall, when the bricks and stones slid on top of him. He was buried about 1 meter deep and totally covered with the bricks. Luckily, he was still alive considering the heavy weight of the material, but ended up paralyzed. Bystanders took him to the hospital; however he was unable to move his hands or lift his body up. The stone slide weakened all his nerves and he ended up paralyzed.

After several years went by, one of his nieces offered him red fruit oil because it contains vitamins and minerals and a high dose of antioxidants. Only a few days after consuming the red fruit oil he was able to move again. He was totally recovered after consuming 3 bottles of the "red fruit oil". He still consumes the red fruit oil to prevent any relapse.

Stroke

"Stroke sufferer, now has free activities ..." Heavy stroke attacked her in 2002. She was unable to move her left arm and foot, It was really amazing that after consuming pandanous conoideus (red fruit / buah merah) extract for two weeks, she was completely healed and was able to do normal activities.

Stronger Heart

A man from Pacitan worked at PT Pos Indonesia in Jakarta. His name is Mr. Koesdijono. He had difficulty breathing and was very weak because he had suffered a heart attack. He got the heart attack in 1987 and had another one in 2004 because of not getting enough rest and not enough sleep. When Mr. Koesdijono had his second heart attack, he was working in his office. An ambulance took him to Harapan Kita hospital in Jakarta. He went straight into the emergency room.

The doctor said that there were three problems in his pulse as it reached 80%. No way out except undergoing by pass surgery right away. The surgery went well and he was released from the hospital on February 16, 2004. He joined a rehabilitation group for a speedy recovery. He also did some exercises at home. The Doctor suggested to him to eat more vegetables and fruits and change his pattern of life, so that he would be less stressed out.

However, Mr. Koesdijono did not only have a heart problem, but also a gastric problem. He had a problems with his digestion system and had a hard time to defecation. One morning, during a health discussion on TV, he watched a testimony about the advantages of red fruit oil that cured a woman from HIV/AIDS. He became very interested to consume the red fruit oil also. After consuming the red fruit oil he felt much stronger, walks every day for 3 km now and his gastric and digestion problems were totally a thing of the past.

Stroke

Mrs. Krey had suffered a stroke a year and had gone to various doctors. However, no results he got, especially to relieve swelling of the right foot. The left hand also was not able to move and so was very stiff legs.

According to doctors, she severe stroke. She was also taking various types of supplements with a very expensive price, but no change. After hearing there was a new

discovery at the University of Cendrawasih about the red fruit oil, he went straight to looking for and taking this drug.

After drinking 100 ml with a frequency of once a day as much as a teaspoon, seen a remarkable change. Swelling in the legs began to shrink. The hand that had been normal stiff back. Currently, she can do daily activities as housewife and constantly drinking red fruit oil to condition her body back as before.

Tumor Cancer

"My cancer tumors became smaller after drinking pandanus conoides (red fruit / buah merah)". A week after drinking pandanus conoides (red fruit / buah merah) three times a day, the doctor said that her cervix cancer size reduced 50%

Uterus Cancer-1

Doctors at Mount Elizabeth Hospital, Singapore, at the end of 2004 sentence to Ussy Suliawaty that she have a uterus cancer. No wonder the birth of a beautiful woman is 13 July 1980 feel shock. When it reach an advanced stage, the uterus is a valuable treasure for the women should be taken out. Because drink red fruit oil for 2 weeks, the malignant tumors deflate.

Busyness as a artist, advertising, and presenter at various events could neglect Ussy. Solid shooting schedule made the couple's daughter of Sulaeman Musri and Nila Rosita's ignored cancer onset of symptoms. Special Herbalis reproductive health in Yogyakarta, said malignant tumors in the uterus is usually characterized by abnormal menstrual cycles and in large quantities.

In addition, occurs abnormal bleeding outside the 2 kind of menstrual cycle. In women over the age of 40 years and have menopausal there is vaginal bleeding in a long time. Patients also often feel pain in the lower abdomen or pelvic cramps, or pain during intercourse or pee, and white liquid is flowing out.

When the symptoms condition felt greater than before, Ussy consult an expert practitioner in internal medicine at the Mount Elizabeth Hospital, Singapore. That's when doctors sentenced it's a cancer. Pictured in front of the eyes that grief would faced. Understandably for women, the uterus is important because the perfection of a woman's identity. Threats do not have children was heartbreaking. In the advanced stage of abnormal cells can spread to the cervix, the pelvic cavity, and even the bladder.

The way to recovery with any operation decided. Ussy planned into the operating room in mid-November 2004. When waiting this moments, a friend inform to try the red fruit oil. An article in the mass media mentions red fruit can heal various diseases including cancer.

"As long as it's not chemical drugs, I try," said Ussy. She previously drank herbal potion of healing in Sukabumi in West Java. Treatment with herbal medicine were short-lived because Ussy do not like feel bitter.

Red fruit oil started to be taken 2 times daily after meals at the beginning of November. At first, this presenter of Indonesian dangdut contest felt a nauseated. Understandably taste of red fruit oils such as vegetable oil. After all, it was not stopped herself to find a cure. An event like a miracle happened 2 weeks later. When preoperative examination, when being examined they found a lump in the her uterus reduced to half.

Doctors at Mount Elizabeth Hospital was shocked. "Do not know it because the red fruit or anything, but really the bump became smaller," said Ussy. Unfortunately promises already made operation requires her to undergoing surgery. Now see the effect for 2 weeks, Ussy wishing when that oil consumed more longer, the cancer would disappear without surgery.

In Jakarta, Ussy rely her hope on the red fruit oil. though the lump on the end of the uterus had been removed a year ago, until now a bottle of red fruit oil always faithful accompany Ussy step.

Uterus Cancer-2

Initially, Mrs. Rosdiati (48 years old) daily life is so ordinary. Lives of retired this civil servant's wife is beginning to change since 2000. More precisely, for a moment the doctor gave the verdict she was suffering from stage 2B cervical cancer. When examined at the Hospital in Palembang, he had to undergo chemotherapy, surgery six times. However, the healing which done by medical personnel can reduce the suffering of this woman. In fact, Rosdiati body gradually became thin, worn, hair loss, and often sickly.

After experiencing pain for more than a year, in February 2003. Mrs. Rosdiati get red fruit oil shipments from the nephew who lives in Wamena, Papua. Without thinking, she immediately took the red fruit oil three times a day and to drink a tablespoon.

After 20 days drinking red fruit oil, from her uterus out the pieces of meat (like minced meat) with red color and as big as little finger. In June, he got a red fruit oil again as much as 300 ml. Once drunk, from her uterus out more pieces of meat which allegedly cancer attacked her uterus. In September, the same way, ie from her uterus out again cuts of meat like chicken fat. Furthermore, in December is often out of a thick white fluid mixed with red spots that look rancid smell. Since then, his condition gradually improved.

Currently, the physical condition of mother Rosdiati much better than 2-3 years ago. Formerly, her weight had plummeted to 46 pounds, but now it is normal as before, namely 55 kg. Her body was looked fresh, not pale, and her hair does not fall out again. Even so, she has not done medical examination to the doctor to see the condition of uterine cancer. This is due to his belief that her cancer was cured.

Uterus Tumor -1

Mrs. Syahdariah never thought that in the uterus grow a piece of meat was not invited. Various attempts were made by removing the tumor, including medical efforts by doctors. Doctors had given the verdict he would not survive more than 1 year.

In June 2003 she gone to Bali for treatment. One time she tell Regent's wife (Habel). After consume red fruit oil it proofed able to recover her disease. She stated that this is because my regent wife gave him 7 bottles of red fruit oil. Every day she drank, in the morning, noon and night. Having finished 10 bottles, he wondered about his illness because the pain in his stomach no longer felt. Finally, he decided to go to the hospital and asked doctors to examine him, even willing to surgery. She is very suprised when hear test results prove that the cancer which in her uterus is missing. He was grateful and until now has healthy as before.

Uterus Tumor -2

Mrs. Wati have tumors uterine and enlarged abdomen like 7 months pregnant. After taking the red fruit oil of about 500 ml, his stomach became normal as previously and is now able to perform daily activities properly. Mrs. Wati also checked her uterus to the doctor and the results obtained are tumors of the uterus is not there anymore. Until now she still constantly drinking red fruit oil to cut the supply of nutrients to the tumor.

Weakness Nerves

"The weakness nerves were healed after drinking 3 (three) bottles of pandanus conoideus (red fruit / buah merah).."

Abraham couldn't do anything before, not even eat or take a bath, he always needed someone's help, now everything is OK. Pandanus conoideus (red fruit / buah merah) overcame his weakness and blood circulation.

CHAPTER IX

ANSWER THE QUESTIONS

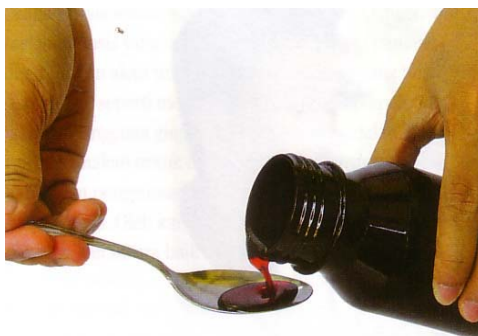
A. TUMOR AND CANCER

? *How use of red fruit oil to the cancer disease, when I take medicines from doctor ?*

For cancer patient can consume red fruit oil after one hour take medicines from doctor. For cancer stages 3 or 4, the dosage used is one tablespoon 3 times a day, on the morning and afternoon and night before take a rest. Because red fruit oil is herbal does not cause the side effects.

? *I had breast cancer and joining chemotherapy program. I want to try consume red fruit oil. how many dosage used ? and how to use? Is there any effect of chemotherapy that I do?*

✓ At the time of chemotherapy, should not directly consume red fruit oil. however, should consume red fruit oil two days after chemotherapy. The recommended dose for breast cancer as much as 3 times a day, each one tablespoon.



Recommended to take red fruit oil suitable with recommendation

? *My sister has a cyst of eggs in the womb. How dose a red fruit oil that is given?*

✓ Relatively, cyst can be cured with the red juice. To overcome it, consume red fruit oil twice a day, specifically in the morning and before take a rest at night, each one tablespoon.

? *My wife has tumor in her womb. In addition, she also has a sore waist, so every day excrete amount of liquid waste water. She go to treatment place everywhere, but unsuccessful. After consuming red fruit oil, her condition is rather weak and hot. How about your opinion?*

✓ That's no problem. It's only reaction from red fruit oil. Temperature slightly increased, but after take red fruit oil three times a day of tablespoon (morning, afternoon, and night) for two weeks, later there will be changes. Besides drink red fruit oil, eating patterns and type of food should be regulated. Avoid fatty foods. If you can, it should become a vegetarian.

? *According to your experience, how long a cancer patient can be successful in the consume red fruit oil?*

✓ I can not be sure homogeneous at all cancer patient. Based on our experience, length time of improvement cancer patients condition that match the red fruit oil surprisingly

different. This is due to metabolism power to consume red fruit oil each person is also different. For breast cancer patients which suitable with red fruit oil her condition will improved in 2 weeks. if the lump swells usually it will redden and going to smaller. In addition, cancer patients that match with red fruit oil marked with the increased appetite and weight gain. If such conditions occur, the cell cancer have started to decrease.

? *Whether red fruit oil can be used to lymph cancer ? and how many dose ?*

✓ Lymph cancer is medically quite difficult to be cured. Cancer caused by dysfunction of tissue cleavage continuously and can not be stopped. Sometimes the doctor said that there was no medicine. Please try consume red fruit oil. Although late to consume red fruit oil, it will increase cancer patient body resistance . Dose enough 3x1 tablespoon a day. In addition, eating patterns also must be considered. Avoid fatty foods, the food is burned, such as sate and toast. Burned foods that contain free radicals and carcinogenic. When consuming red fruit oil, follow it with increase vegetables and fruits consumption.

? *I suffered from brain cancer. After consuming the red fruit oil, why do I even have diarrhea? I have long consumed the medicine from doctor. How long until I have to consume red fruit oil?*

✓ The fact does not all patient that consume the red fruit oil will have diarrhea. Diarrhea that usually occurs only a few days. If consumption of the red fruit oil resumed, diarrhea does not appear again. Because of the previous consume medicine of doctor long enough then so the deposition occurs. Content of omega 3 in red fruit oil that consumed will cause the decomposition or detoxification. This process is usually through the feses that happen so quickly that diarrhea. If this process does not occur then the speed of metabolism will slow so the body resistance is weak. Conversely, if the process of detoxification occurs then cancer patient resistance will increase the body resistance and T helper cells also increase. To determine the duration of consuming red juice rather difficult. Principle, if the laboratory results showed a decrease in cancer cells, the use of doses can be derived. Consumption remains proceed to maintain that cancer cells do not spread anymore. If necessary, the consumption is continued until 1-2 years of cancer cells really lost.

? *My mother is suffering from lymph cancer, already done the operation, and at this time following the chemotherapy. However, until now the cancer has not healed. Effect of lymph node cancer is the lungs moist so that the liquid must undergo lipo. I also try to give the red fruit oil with doses 3x1 tablespoon a day. After consuming the red fruit oil, often even a cough as the result. After consuming the oil red fruit often cough as result. Because of often cough, especially at night, then my mother became less sleep. Whether the consumption of red fruit oil for cancer which had surgery and is undergoing chemotherapy is still effective? Whether after consuming the red fruit oil, there are effects cough because her albumin decreased?*

✓ For cancer patients who have surgery and in chemotherapy please try to consume red fruit oil. Active material in the red fruit oil normalize metabolism of the network affected by cancer. I honestly say that there is a successful, but there is also a total failure. I hope you don't too Euphoria against red fruit. Once the red fruit directly consume expect healed. If the total failure, it means do not match. For cancer patients who already consume more than 5 bottle and no improved, it should be stopped. In addition,if after consuming red fruit oil, 1-3 part of body become yellowish then you should stopped it. For cancer patient, the body resistance can not be weak. Therefore, the suitability of any cancer disease with red fruit oil marked with increased body resistance. For lymph cancer,we was still doing the observation of some people. From the results of the observation, red fruit oil effective for breast cancer,

bowel, uterus. Based on experience dealing with people with cirrhosis, low albumin in cirrhosis patients will increase after consuming red fruit oil. In providing the red fruit oil on your mother's you should reduce the dose and mix it with honey. Indeed, in some patients the lungs are very sensitive to oil. Sensitive patients are usually coughing when they drink the red fruit oil. In addition, the combination with honey is very important because it can neutralize fatty acid.

? *Is red fruit oil can be used for bone cancer?*

✓ Red fruit oil can be tried for the problem of bone cancer. At this time there was bone cancer therapy with high calcium. Calcium content in the red fruit oil is ideal for the bone cancer. The high contents in various types of antioxidants on red fruit oil will also provide access in preventing cancer cells.

Another thing to note for people with cancer is avoid fatty foods. High fatty foods can help accelerate the growth of cancer cells. If possible, people with cancer should become a vegetarian.

? *is red fruit oil can be used for breast cancer and whether red fruit oil can use in combination with milk ?*

✓ Cancer cells is a very voracious cell. All the nutrients in patient body will be taken by all cancer cell. Therefore, usually the cancer sufferer body weight will decrease dramatically.

From our experience, the red fruit oil can be used to treat breast cancer. Better use during the early stage than already severe. For the early stages, it can be in the consumption of 2x1 tablespoon a day. However, the stadium 3 dose increased up to a 3x1 tablespoon a day. In one case, we meet a patient with breast cancer stages 3, already inflame, and nearly burst. With red fruit oil, it can shrink or smaller. Size of cancer is going to smaller due to active ingredients in the red fruit oil that is capable of preventing supply of nutrients to cancer cells and tame until to the root. Thus, the recovery characteristics of breast cancer patient is the cancer become more smaller after consume oil red fruit

Consumption of red fruit oil combined with drink milk is a very good. Some material bio-active on red fruit oil, such as betakaroten dissolved in milk. With the combination is expected to accelerate the healing of cancer.

? *My husband suffered from brain tumor and already three times surgery, but until now his tumor still exist with length 2.3 cm. Red fruit oil is consumed almost 4 bottles. When my husband have to stop consume red fruit oil ? and when should be checked at doctor?*

✓ Consumption of red fruit oil can be up to 3 months. Especially tumor and cancer should be checked every month. If the resistance and activity increased, so the condition began to improve. In consumed the red fruit oil your husband must consume low-fat food.

? *I suffered from cancer. I follow chemotherapy and consume red fruit oil. The quantity of red fruit oil that I have consumed about 9 bottles. Packaging bottles of oil red fruit that consumed now changed. In addition, the slightly sour taste. When check in the laboratory that no changes, even to its Ca content increase. Until how many bottles and until when I need to consume red fruit oil?*

✓ The red fruit Oil of good quality is not smelly and sour taste. the taste of red fruit oil like a oil. The smell also fresh, not sour, not rancid, and not rotten. There are two possibilities that happens to you. the quality of red fruit oil that you consumed down because feel sour. Please consult with the company that issued the red fruit oil because the company must responsible this problem. Second, you may be not match to consume red fruit oil, so no

changes. As a note, the consumption of red fruit oil with chemotherapy may not be done together. Oil red fruit can be consumed after 2 days do chemotherapy

? *I have a complaint tiroid cancer in the neck as big as chicken eggs. I was breastfeeding a baby 6 months. I already consume red fruit oil, but my baby to be often defecate. If before consume red fruit oil, my baby only once defecate, but after consuming red fruit oil to 3 times defecate. The feces my baby is red. With this condition, is still possible to eat red fruit oil ?*

✓ Please try on. This is because the content of iodium in red fruit oil is almost 85%. The dose should be used 2x1 tablespoon a day. If can, it can be combined with the fish that contain iodium. For cases tiroid, red fruit oil is suitable. Problems your baby become often defecate and the feces is red, it's no problem. This condition would indicate a reaction that's great because it means that your consumption of red fruit oil successfully absorbed by your body's organs. Because your baby drinks breastmilk defecate then it was red.

? *My wife is suffering uterus cancer and is undergoing chemotherapy. How dose red fruit oil that right?*

✓ If she are undergoing chemotherapy, she can consume red fruit oil two days after done the chemotherapy. This is the consideration that some chemicals are added to the cells during cancer chemotherapy have been lost. Dose of red fruit oil consumption enough 2x1 tablespoon a day.

? *I suffered from hepatoma (liver cancer). I have experience operating and leakage in the suture for 2.5 months. Can red fruit oil used to dry out this injured ?*

✓ For your case, consumption of red fruit oil enough 2x1 teaspoon a day. After drinking red fruit oil until 2 weeks, your face will be more bright. Antioxidants, omega 3 and omega 9 contents in the red fruit oil can regenerate the damaged organ. prohibition food is fatty and should not consume on palm oil.

? *I had a tumor in the nerve so that the constriction. In the face, back, and my hands become swelling. This has occurred since birth. After consuming red fruit, there is a match and I have been somewhat improved. Until when I must consume red fruit oil and what is prohibition that should be avoided?*

✓ Because the changes are very positive and continue it. Indeed, there is no standard time period that consume red fruit oil. We recommend that each month you do a check up to doctor, to make sure your condition. If you are normal, the consumption can be stopped. Less the fatty foods, especially meat at chest and thigh part.

? *I have been infected mioma and ovarium cyst for 2 years and already surgery but there are side effects, namely hemorrhoids. I have been using red fruit oil as 2 bottles, but often my mouth swelling and difficult to sleep. My body was swollen, now after the consumption of red fruit oil, the swelling was back to normal.*

✓ This is positive, but show bit a bad effect. The causes may be due to calcium oxalic content on the last remaining processing time. Sleep may be difficult due because of your body does not receive dose with 2x1 tablespoon a day. Better way is change that dose into one teaspoon, but still two times a day.

? *I initially suffered from breast cancer and have surgery. My previous surgery, I have symptoms of kidney because my purine is high. As a result of the operation, I have increased uric acid, cholesterol, high blood and symptoms. However, after consuming the red fruit oil it turns decreased. I know the red fruit oil from a friend in Papua. I was eventually purchased from him for almost 2 years. However, after consuming the red fruit oil, scar of operation on my chest became more pain. and how dose the actual should I drink?*

✓ For people with cancer should use a good quality product. There are standards that need to be reach by red fruit oil products, among others, the content of peroxide must be maximum 0.5. Because it's base of oil, if heated too high then content of peroxide be more than 0.5. Note that this peroxide is free radicals that can be dangerous. In addition peroxide, the actual material that must be known before using the red fruit oil, among others, free fatty acid, H₂ O, soaping number, and the boiling point should be 10 ° C. To a proof can be done in a way :

- Buy a small capillary in the drugstore
- Stab to red fruit oil
- Link thermometer above or beside
- Keep in refrigerator until the next day
- Take a glass of hot water, and Put the bottle of red fruit oil which has been stored in refrigerator in a that glass.

Within 10 minutes, the red fruit oil must have been melt. If more than 30 minutes, the red fruit oil is not pure or have been mixed with other materials. Your case is very sensitive to free radicals, especially the peroxide. I suspect the product that consumed contains peroxide more than 0.5. A good idea for you to asking responsibility the to the distributors. Usually, people who undergo surgery have been no complaints of cancer pain. In fact, a pile of fat usually appear due to the operation was successful and eventually disappear over time. Doses for cancer that has been an operation two times a day, each one tablespoon.

B. DENGUE FEVER AND HIV / AIDS

? *Are red fruit oil can be used for people with HIV / AIDS? What type of material that is useful to improve stamina and immunity in people with HIV / AIDS?*

✓ Red fruit oil has been tested on people with HIV / AIDS and the results is the improvement of the condition. Giving the red fruit oil to HIV / AIDS at the same time is like a equilateral triangle. That is, red fruit oil can not be used as single therapy, but bio-active in red fruit should be interact with protein. Especially for people with HIV / AIDS, use red fruit oil should consume food containing 90% protein. From the combination of red fruit oil and protein rich foods that will cause an effect on the HIV / AIDS sufferer. From the combination of red fruit oil and protein rich foods that will cause an effect on the HIV / AIDS sufferer. Based on the observation of HIV / AIDS, in 1-2 weeks increased body weight. In addition, improvements to the condition of HIV / AIDS sufferer also marked with the face brighter, while cough, fever, and mouth arise with fungus that start decreasing. These signs are lead to a conclusion that body weight will correlate with the decreased level of infection. Due to increased of body weight, CD-4 will be increase too and the level of infection will be reduced.

The cause of the oil red fruit can increase the body's immune sufferer of HIV / AIDS is the other antioxidants content. Other active ingredients content that are important to people with HIV / AIDS, among other omega 9. omega 9 content in the red fruit oil is almost the same as the actual olive oil. Next active material that important is trace element which is dominated by calcium.

? *Currently, dengue fever cases are very much. Is with the red fruit oil can overcome the epidemic dengue fever?*

✓ For the case of dengue fever, red fruit oil can be used to increase hemoglobin and platelet. Increasing content of these components, the resistance will be increased so the infection of dengue fever will be reduced. With a dose 2 times a day, each one teaspoon, the patient will see the reaction. If defecate visible red means there is a positive reaction for people with dengue fever. Drugs that known as a drug for dengue fever is guava. Bio-active at guava content be trust a cure for dengue fever is beta-carotene. In theory, beta-carotene able to increase the body's immune. If red fruit oil compared with guava, beta-carotene content in red fruit oil higher than guava. The healing process of dengue fever is not only beta-carotene, but the absorption of protein into amino acids through the process of biochemistry in the body. Amino acid is the basis of the immune level. Consumption of red fruit oil same with insert beta-carotene and other active ingredients that will accelerate perfect formation of amino acid.

? *What if the use of red fruit oil in patients with HIV / AIDS combined with a capsule arv (antiretro virus)?*

✓ Red fruit oil not only contain antioxidants, but also micro-mineral and trace elements that play a role in metabolism as cofactor macro-molecular solution. Micro-minerals and trace elements that act to increase the body resistance, among others, potassium, nitrogen, and phosphorus. HIV / AIDS sufferer who had anemia experience will have body weight below normal. With better micro-minerals, the metabolism will get better, increased body weight, and stamina will also increase. Combination of red fruit oil with arv already been tested by doctors in Jakarta. Within a month, a CD-4 patients with HIV / AIDS, which only consume arv increased from 200 into 300. in two weeks, arv combined with the red fruit oil can increase CD-4 patient from 200 to be 550.

C. STROKE

? *Can red fruit oil be used for stroke also have hypertension pressure? Are there risks after consuming red fruit?*

✓ There are many cases about improved condition on stroke sufferer when consume red fruit. There are successful and have also failed. However, results from treatment start signs point to a positive impact. It is assumed that the actual stroke is brain damage. Red fruit oil that contains calcium, tocopherol, omega 9, and omega 3 good for regenerate damaged organs. First need to considered that the red fruit oil was not most effective drugs. Once used directly recover. Many were successful, but there also failed. There some cases of hypertension and the result is quite brisk because many are cured after consuming red fruit oil. Consume the red fruit oil 2 x 1 tablespoon a day, the development of high blood can be seen after 3-5 days. In addition to consuming red fruit oil, must be offset with the foods that lower cholesterol. If it is recommended to consume the medicine of doctor, red fruit oil can be consumed 1 hour after consuming the medicine of doctor.

? *My father 72 years old and He suffered stroke during one year. Leg and left hand can not be moved. In addition, sometimes my father is exposed to heart attack. How many dose the right to my father problem?*

✓ Please try to consume red fruit oil. Stroke cases, many already healed. For disease that suffered your father, it is suggested consume red fruit oil with dose 2 x 1 tablespoon a day (morning and night before sleep). Red fruit oil should be drunk after meals.

? *My father suffered from stroke during the 3 weeks. Red fruit oil has been consumed almost 3 bottles. Can the use of red fruit oil combined with drugs from a doctor? How do I store red fruit that correct? How do I use red fruit that is correct, before or after eating?*

✓ Use of red fruit oil can be combined with drugs from a doctor. After one hour to consume drugs from a doctor, red fruit oil can be consumed. Dose that is used twice a day each one tablespoon after meals. Storage of red fruit is done in a regular refrigerator, not freezer. If appropriate, please continue it and if it does not match, immediately stopped.

D. URIC ACID AND RHEUMATISM

? *My sister suffered from uric acid. After consuming red fruit oil, the body temperature even become hot. According to you, why the condition occurred and how to anticipate?*

✓ If the disease affects only uric acid, usually does not occur heat effect body. Heat effects are usually experienced by people with cancer. Indeed there are some people with acid in the blood vessel similar things, but they have background suffered from ulcer. Hot body that does not also experienced long. For a person with an ulcer and uric acid, their system of digestion do not normal so their stomach do not hold a strong reaction of red fruit oil. If after consume it, body temperature become heat. So the dose must be reduced become 2x1 teaspoon a day.

? *Red fruit oil rich with calcium. How do people with uric acid, is it not dangerous? The antioxidants found in the red fruit oil with alcohol or with water and where is the largest part can be found?*

✓ Uric acid is not influenced by calcium, but uric acid will related with the protein, namely purine. Therefore, people with uric acid that is over the number 8 (hyper) can not consume food nuts who contain high protein, such as tempe and tahu. Calcium will be related kidney problems. Therefore, renal patients should take low dose of red fruit oil, which is 2 x 1 teaspoon a day. However, the latest research for people with hyper uric acid will cause effects to the kidneys. Therefore, for people such as this should avoid foods with high protein. Antioxidants content found in the seed and oil from red fruit. To get the oil with high antioxidants, seeds extracted with alcohol or water. The process of extraction with alcohol cause a savory aroma. Although the tool has been vacuum, the flavor was still there so that people can cause a hiccup when consume it. Benefits of extraction with alcohol make the rendement is high, while with water is low. If viewed in terms of business, extraction with alcohol more profitable. However, because human is lives, using alcohol should be avoided because of the time consuming can choke it will be dangerous. In addition, many people that its digestion is very sensitive to alcohol.

? *How do I use red fruit oil for rheumatism and osteoporosis?*

✓ To rheumatism and osteoporosis, dose 2x1 tablespoon a day. Although in red fruit essence found a calcium contents, for both problems need to have calcium. For example, by consuming calcium 250 mg tablets. 2x1 dose tablespoon a day. In the body of osteoporosis, red fruit oil will be interaction. Red pigment in the red fruit is beta-carotene. After entering the body, 1 molecule beta-carotene will be produce 2 vitamin A, and will interact on the absorption of protein. Results obtained from this process is the body's resistance increases. A sufficient amount of protein will increase speed of calcium absorption process. Indeed, some doctors deny the theory of the healing activity in the bio-active red fruit oil. however, some facts are available. Therefore, I allows the doctors and scientists to re-examine the red fruit oil.

E. HYPERTENSION

? *My husband 45 years old. At this time, he have a diseases hypertension, uric acid, kidney stone of 2 mm on the left, and heart. Diseases has been since 2003. From 2003 until now, my husband consume drugs. I have already buy the red fruit oil, but I have not use it. Does not the red fruit oil cause dependence? What kind of food that my husband should be avoided when consuming red fruit oil??*

✓ Your husband is experienced the degenerative disease. The pattern of eating that is not balanced or excess protein. In this case, the availability of nutrition needed by the body to become uneven. Red fruit oil that is consumed will neutralize the excess nutrition in the body. Based on experience, the problem of hypertension can be reduced 2-3 days with red fruit oil consumed 2x1 tablespoon a day. Because of your husband have kidney problems then the dose is 2x1 teaspoon a day. The consumption of drugs from doctor with the followed consumption red fruit oil should be intervals of 1 hour after consuming drugs from doctor or before. Red fruit oil will not cause any dependence. This is due to red fruit oil including herbal medicine. For the case of kidneys, which avoided food is the food that high protein. This is done to avoid increasing his nitrogen content.

? *I suffered from hypertension. Besides, I also suffered from diabetes that number reached 225. I already consume red fruit oil for 2 weeks. Before I consume red fruit oil, I consume drugs from a doctor. Four times consume red fruit oil, I feel a tremendous reaction. At that time, my heart rattle faster, and dizziness. It's like spin. Stomach also does not feel comfortable so that I inevitably want to have to go to the bathroom. Feces out and only a little red. since then, I have confidence on the red fruit oil. Two weeks and then I test it. The result, hypertension 140/80 and my blood sugar 180. I also never felt the reaction of the red fruit oil after the incident. At the time I work, suddenly my body felt weak. In fact, not able to move. In this case I drank 4 bottles of sweet tea. After office hours completed, I direct to the laboratory. Why this happened to me?*

✓ Weak condition that suddenly occurred because the blood sugar you are come down too fast. If these conditions occur then the dose of red fruit oil should be taken down become one times a day, one tablespoon only. For people with diabetes should be careful in consuming red fruit oil, red fruit oil has a reaction to the rapid decrease in blood sugar. If the weak condition immediately consume sweet tea.

? *I have a father in law with hypertension, uric acid, kidney stones, and chronic ulcer diseases. Until now, my father in law road treatment while I try some alternative treatment. How many dose of red fruit oil that must be consumed and what are kind of food which prohibited for this case?*

✓ I suggest, that your father in law consume enough red fruit oil twice a day, each one tablespoon only. Should not consume nuts, such as Tempe. In addition, avoid drinking beverages with soda or soft drink.

F. DIABETES

? *My doctor convicted diabetes and acid exposed nerves. Is it red fruit oil can be used for diabetes and uric acid? How many dose the right?*

✓ In addition, the pattern food must be maintained. If the number of sugar will reach 300-400, reduce the amount of rice consumption. Rice can be replaced with the taro. If possible, taro do not boiled, but burned. This is done so that the sugar is lost. Based on experience, the consumption of red fruit can cure uric acid in 1-3 days. If this uric acid-

positive, drink red fruit oil in the night and morning already feel changes. Legs feel heavy, will be feels lighter.

? *According to the doctors, the diabetes mellitus disease (dm) can not be cured. can be cured with the red fruit oil?*

✓ According a doctor, diabetes mellitus can not be cured and this is a fixed price. However, not all correct. In fact I can found it. In one case, diabetics with the number of sugar is 650. body full of wound. After a week consume red fruit oil, his wound becomes wet and his sugars gradually decrease, the wound was healed. Consumption for one month without medication from doctor causes his sugar to be normal until now. Diabetics who consume red fruit oil, his pancreas into normal. Initially pancreas that does not to produce normal insulin, seems regeneration after supply receiving a red fruit oil.

G. HEPATITS AND CIRRHOSIS

? *How do I use red fruit oil for hepatitis A, B, C?*

✓ Hepatitis that not handled urgently will result cirrhosis even liver cancer. According to Chinese medicine, more unsaturated oils is more antibiotic quality. Red fruit oil is a unsaturated oils, so have the ability to cope with the virus causes hepatitis. Doses for people with damaged hearts enough 2x1 teaspoon a day. If the value of SGOT and SGPT are good can be increased into 2x1 tablespoon a day.

? *Can the red fruit oil be used to cure chronic hepatitis B in children under 10 years old? How many doses for children? When the red fruit oil can show the existence of a positive change?*

✓ For hepatitis patient cases, just help with red fruit oil. The condition of hepatitis patient is usually weak because the albumin that must be produced by the heart under the standard. Thus, there is a section of damaged heart can not produce albumin so well. Consumption red fruit oil may cause liver function to be optimal so the albumin increased. In this process, there was regeneration of liver cells caused by the bio-active that contained on red fruit oil. For children under 10 years, enough dose 2x1 teaspoon a day. In addition, the red juice consumption should also accompanied a high protein food so the albumin amount will be more produced. If appropriate, within 1 week have shown positive changes from his face. In addition, the resistance will increase. Every 3 weeks will need to check in the laboratory. If you have hepatitis shows negative then the consumption need to reduced. Maybe just 1 times a day.

? *My child is suffering from hepatitis with SGPT / SPGO 350. approximately 2 hours after consume red fruit oil, SGPT / SGPO to be normal. Strangely time to check in 4 laboratories, 3 of them said negative hepatitis, but the 1 laboratory said positive hepatitis. I need advice from you because I doubt?*

✓ Red fruit oil has a good reaction for people with hepatitis and cirrhosis. Someone with cirrhosis who have been convicted by doctor that his live only remaining 1-2 weeks. There people try to help calm him with red fruit oil. For a diseases which related to heart, needs be attention, 2x1 teaspoon a day is enough. Three laboratory said negative and the one laboratory said positive. I recommend you to test in the laboratory that more complete and more precise. However, if your child condition has become better, increased stamina, and the your child's face is bright due to the positive changes consume red fruit oil has occurred. Thus, diseases of

your child can be handled and consumption red fruit oil can be derived dose to 1 teaspoon a day.

? *Are red fruit can be used for liver cirrhosis and kidney? Are there any side effects from the use of excessive red fruit?*

✓ Some cases of cirrhosis have been successfully overcome with a consuming red fruit oil. Before consuming usually the number of SPOG / SGPT is high, but after consuming, it become normal number. For people with cirrhosis and kidney, dose not exceed 2x1 teaspoon a day after meals. During consume it, should consume nutritious foods and avoid fatty foods or foods high cholesterol. During the right use, red fruit oil does not cause side effects. If appropriate, continue. However, if you feel does not match then it should be stopped.

H. HEART

? *My husband suffered a heart vessel constriction which has been radiated by laser for 48 times and has been using drugs the doctor for 5 years. How dose that should be used? If want to drink red fruit oil, should the drugs from a doctor must be stopped first?*

✓ Based on experience, the dose for heart disease is 2x1 tablespoon a day. If the constriction is pure fat, about a week later, the patient can breathe more freely. This condition means that the supply of oxygen to the brain to be normal and the circulation of blood vessel become smoother. The use of red fruit oil can be combined with drugs from a doctor, but the interval should be 1 hour. After one hour consume the medicine from a doctor, the red fruit oil can be consumed.

? *My mother is 70 years old suffering from heart, kidney, blood, and tumor. How dose a red fruit oil that can be used to my mother?*

✓ For disease that affects your mother enough dose 2 times a day (every morning and night towards the bed), each one tablespoon.

I. LEUKIMIA

? *My husband has been suffering leukemia and consume red fruit oil of 1 teaspoon a day. The result is hemoglobin increased. Is the dose is less?*

✓ There are polynomial leukemia patients. That many patients recover, but there have also failed. In leukemia cases usually hemoglobin and platelet became low, while leukocytes is high. If your husband's hemoglobin increase, it means that an improvement symptoms. Treatment of leukemia with red fruit oil is not enough only 1 month, but until healed. Need a few months with the dose of 2x1 tablespoon a day. If possible, it can be combined with immunocal milk 1 glass a day. The improvement is body resistance will be better.

? *Hemoglobin elektroforesis result set that I have a talasemia disease. With BSAB declared negative, whether the red fruit can be used to overcome the disease?*

✓ Sorry once, for the thalassemia diseases I can not say anything. I never met thalassemia case. However, see the property red fruit oil that can increase the Hemoglobin, so you can use it. I suggest you consume enough to 2 times a day, each one tablespoon.

? *How many dose the right to increase platelet?*

✓ Trombosit figures, there are indications that low will lead to leukemia. Trombosit figures, there are indications that low will lead to leukimia. Case this is allegedly related to the marrow spine. Consume with red fruit oil, there will be a regeneration process on the marrow spine. Consumption should dose 2 times a day, each one tablespoon.

J. OTHER DISEASES

? *My child is 3 years old and My child had itching disease since birth due to interference from the liver. Is it can overcome with the red fruit oil?*

✓ Interference liver problem often cause cirrhosis. If the itches caused by disruption of the function liver, this means that problems can be overcome with the red fruit oil. For children who have experienced interference liver function can be treated with red fruit oil 2x1 teaspoon a day. Type of food that should be avoided, among other proteins from poultry and sea food. To fill up his nutrition needs should consume meat and vegetables and also fruits. When reaction happened with a reduction in the intensity of itch and the body temperature may be increase. If the body temperature up, immediately to drink the water white. Thus, the heat will be neutralized.

? *How appropriate dose for Parkinson's disease?*

✓ For Parkinson's disease, the dose 2x1 tablespoons a day. If followed medicine from doctor, is better if red fruit oil should be taken one hour after taking medicine from doctor. Within 1-2 weeks, shaking at hands because of a nervous breakdown will be lost.

? *Is red fruit oil can be used for patients with tonsillitis?*

✓ To tonsils in children do not need an operation. Please try red fruit oil 2x1 of a teaspoon a day. I'm sure 2 weeks later, tonsils will shrink.

? *Is can be used to cope with low blood?*

✓ If high blood pressure, cholesterol found in the patient's body, so viscosity of blood becomes thick. Red fruit oil intake causes clashes cholesterol with antioxidant, so viscosity problem can be neutralized. For low blood problem, cholesterol is not necessarily in the patient's body. Low blood disease is the result of nutritional deficiencies, especially those contained in the eggs, milk and meat. In this condition, people with slow heart rate so that the supply of oxygen to the brain becomes less. For low blood problems can be overcome with the consumption of red fruit oil. After consuming the red fruit oil 2-4 days, the patient's blood pressure low blood become normal. Sufficient dose 1 tablespoon a day.

? *My child suffered from sinusitis. After consuming the red fruit oil products, has started to improve. Until when will my child be given a red fruit oil?*

✓ Sinusitis was quite heavy, so by consuming the red fruit your child immunity will increase. If your question how long the answer is up to at any time. Despite still be improved and red fruit oil, it does not matter because the red fruit oil is safe for consumption. However, if viewed from a view to healing the moment there is a positive change in the use of reduced doses. For example, at the beginning of the dose used 2x1 tablespoons a day. After one month of consumption, and felt better or healthier, the dose is reduced to one tablespoon a day.

? *Is red fruit oil can be used for epilepsy?*

✓ Epilepsy is a neurological disorder that is suspected because the supply of oxygen in the bloodstream is not adequate. From a case that found before, red fruit oil can also be used to cope with epilepsy. For example, before taking a red fruit oil, patients relapsed 5-6 times a week, but after consuming never recur again. By consuming the red fruit oil, oxygen in the blood to be normal. Journal of the American research on calcium mention that mice that had been damaged his brain back to normal after being given adequate calcium.

? *Is red juice can be used by people with kidney failure?*

✓ At its core is the destruction of kidney failure or abnormality of kidney function. Damage or abnormalities of kidney function can be repaired if the process of regeneration can take place with a perfect and fast. Content of omega 9, omega 3, and calcium contained in the red fruit oil is useful for the regeneration of organs that are abnormal. The dose used must not exceed 2x1 teaspoon a day. After 1-2 weeks, the changes should be checked.

? *My child was exposed to Toxoplasma and started attacking the eyes. Is this red fruit oil can be used?*

✓ For this case are still rare, but please just try, may be the virus will be weakened. In theory, the unsaturated oil may act as antibiotics. With the addition of red fruit oil into the body, there is a chance that the virus which attacked immune system will weakened due to increasing of immune system and the nutrients supply to the virus can be overcome. The dosage used was 2x1 teaspoon a day. Three weeks after eating, should review its development.

? *My nephews is class 2 at senior high school, his eyes minus 9. People's opinion, if it's minus added 2 means towards to a blindness. Is red fruit oil can be used, and how many dose?*

✓ To minus eyes for kid like your nephew may be given doses 2x1 tablespoon a day, morning and evening. This dose can also be given to the patient's eyes cylinder. Giving the red fruit oil will probably require a long time.

? *My child was 4 years 2 months. When he was one year old, he avowed that he suffered spots in the lungs. Can it be treated with red fruit oil and how many doses? When convicted, was given a red powder form for 1 year 6 months in a row. Currently my son is active and the last X-rayed, he was clean spots, but the weight up little bit because of appetite is low?*

✓ For a child of that age, can be given red fruit oil as much 2x1 teaspoon daily mixed with organic honey to taste. For the case of spots, usually can be decreasing appetite. With the addition of honey, expected 2-3 days, your child appetite increases.

? *Is red fruit oil can be given to children aged 7 years who have autism?*

✓ Use of red fruit oil for children with autism were less successful, but please try. People with autism are usually very active, but difficult to sleep. To improve durability and easy to make your child sleep, autistic children can be given the red fruit oil of 1 teaspoon per day during the night or at bedtime.

? *Is red fruit oil can be used for the elderly and how far the role of red fruit oil to ward off free radicals, especially for preventive measures for the elderly?*

✓ To counteract the free radicals for the elderly, red fruit oil is perfect. This is due to decreased metabolic rate so that the elderly would be susceptible to disease. Problems that often arise in the elderly is the Calcification of bone or osteoporosis and senile. Red fruit oil with high calcium content will improve Calcification in bone. Micro-nutrient content, like beta-carotene, tocopherol, and calcium, can improve your metabolism work and functioning as a cofactor (trigger) biochemical reactions in the body. These biochemical reactions take place if meet with macro-nutrients, like fats, proteins, and carbohydrates. In this condition, immunity or endurance increased. By consuming one tablespoon a day can prevent free radicals.

? *I have been married for 8 years and not having children. Is red fruit oil can be used to cause pregnancy?*

✓ A case that happen to a married couples who have been married for 14 years and have not had children. We recommend to this couples to consume red fruit oil. Thankfully today there are already signs of success. The use of red fruit oil to stimulate pregnancy may be due to the red fruit oil contains vitamin E tocopherol and highly useful for fertility. The dosage used was 2x1 tablespoons a day and consumed them, by men and women. After one month there may change.

? *I never eat red fruit oil. according to the rules, before and after consuming the red fruit oil to drink a glass of water. After I eat, my throat was sore, coughing, and my body ached, why is that?*

✓ Sick or throat itch after eating alleged because of quality products is not good. Red fruit oil actually contain calcium oxalic. However, if the processing is true, the calcium oxalate does not enter into the final results. Therefore imperfect processing, the sap of calcium oxalic still including into the final product

If the body feels pain after drinking red fruit oil, it means there is reaction in the body. During a good quality product, 2-3 days the pain will disappear.

? *I am a mother who has a skin disease. After taking medicine from the doctor, my illness cured, but relapsed again. Is red fruit oil can be used for skin diseases such as allergies?*

✓ You had experienced skin disease with allergic of proteins type. This can be neutralized by one type of antioxidant contained in red fruit oil. In addition, you should be avoid consuming food seafood and poultry. Both these foods are rich in protein. After consuming the red fruit oil for one or two weeks, hopefully getting better. Dose sufficient one tablespoon a day at bedtime.

? *I have done surgery to lift ovarian and womb so the body does not produce hormone. As a result, I often feel pain in the joints due to hormonal. Is the red fruit oil can be consumed to overcome my problem?*

Hormonal problems are sometimes often lead to the joints. Because of the red fruit oil is rich in antioxidants that neutralize the function of substances in the body, so the red fruit oil can be consumed. Dose twice a day, each with a tablespoon. After drinking red fruit oil on a regular basis in a few months, hopefully the results are already visible.



Hair loss and baldness can be overcome by applying a red fruit oil and consume regularly.

? *Is it true that the function of red fruit oil may also grow hair?*

✓ In Papua, the red fruit oil is also used as a shampoo. The result, hair can grow so baldness and dandruff problems can be overcome. In addition, many users also have been proven. Seems tocopherol content in red fruit oil has a huge contribution. The use of red oil can be lubricated at the head. Addition can be lubricated, to overcome the problem of hair, red fruit oil should also be consumed. After taking one tablespoon a day, the rest which are still attached to the spoon applied to the head.

K. RESTORING STAMINA

? *Is red fruit oil can be used to increase sexual desire?*

✓ People who have ED (Erectile Dysfunction) will usually feel decreasing of vitality, these conditions more typically experienced by older people. In Papua, elderly people who consume red fruit oil can increase sexual arousal. By consuming the red fruit oil endurance and stamina will increase so that the automatic sexual arousal would be increased.

? *Is red fruit oil can be consumed by healthy people?*

✓ Healthy people can consume red fruit oil as much as a tablespoon a day. The benefits include health care, increase stamina, and maintain normal metabolism of the body including the digestive system. This is caused by antioxidants in red fruit oil that serves to ward off free radicals. These free radicals which sometimes serves as a trigger the emergence of various diseases.

? *I have been consume red fruit oil. If consumed in a long time, is there are side effects contra indications?*

✓ Papua society whom consume red fruit oil, since in the womb until old age there were no side effects. Of course, it was only for good quality products. It caused by the oil contained in the red fruit was 85% unsaturated oil. In addition, the content of omega 3 and omega 9 in this oil is also high.

? *How about if after consume red fruit oil become diarrhea and frequent defecation?*

✓ Diarrhea can occur due to 2 things. First because detoxification. Usually cancer sufferer was given the drug as a painkiller. If the drug is consumed, defecate will be disturbed, only 3-4 days and usually only a few. After drink red fruit oil, the defecate will be smooth and even as diarrhea. If this happens, the red fruit oil consumption was discontinued 1-2 days until a normal bowel movement. After the diarrhea, the metabolism became normal and

increases endurance. Diarrhea was actually a process of detoxification or expenses that are not useful materials (poisons) from the body. Both could be due to good product will not contain the bacteria E. Colli above normal.

? *I am a mother who was breastfeeding a baby. Is red fruit can I use?*

✓ For breastfeeding mothers, actually expected to breast milk quality. With red fruit oil consumption, the antibodies contained in breast milk will be increased so that both consumed by the baby. After consuming the red fruit oil, breast milk will not be pale and yellow, but there will be a reddish color. This indicates the high content of vitamin A in it.

? *Are pregnant women can consume red fruit oil? I heard someone said for a pregnant woman, it can help smoothing the childbirth process. Is that right?*

✓ It is right. Basically, people who consume red fruit oil immunitas or body endurance will be increased. Including for pregnant women who consume red fruit oil. by consuming the red fruit oil, platelets and hemoglobin increased, so pregnant women endurance increases. Consumption dose sufficient one teaspoon at bedtime. The use of red fruit oil by pregnant women in Papua can suppress maternal mortality rate of childbirth.

CHAPTER X

BRIEF OUTLINE OF BUAH MERAH EXTRACT PROCESS

Step 1

The red fruit harvested are thoroughly cleaned and sterilized before mixing with water for extraction. The mixture will be boiled in special machine under 50°C for 5 hours.



Mixer and boiling Machine

Step 2

The oil will be at top and will extract to other container and will be filtered 5 times to make sure there will be no particle inside the oil.



Filtering machine

Step 3

Next process is bottling process. All process including bottling are using machinery, a very little contact with human, it make the products clean and healthy



Bottling Process

OUR BUYER



Indigenous fruit in Papua New Guinea

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Abstract

This paper describes some of the indigenous fruit species of Papua New Guinea (PNG), that is, species which were grown and eaten prior to settlement by other Pacific islanders, Europeans and Asians from about 1870 AD onwards. A list of 40 species that are eaten as fruit in PNG is presented, but the list is by no means complete. Information is given on ten of the most commonly eaten indigenous fruits grown by the rural population, and six other indigenous fruit species. The following attributes are covered for each species: how the fruit is consumed; global distribution; distribution within PNG; altitudinal range in PNG; the number of rural people who live in locations where the species is common; production pattern (crop seasonality); marketing; and potential for further development.

The species discussed are *bukabuk* (*Burckella obovata*), coastal pandanus (*Pandanus tectorius*), golden apple (*Spondias cytherea*), *kumu musong* (*Ficus copiosa*), *Ficus dammaropsis*, *Ficus tinctoria*, *Ficus wassa*, Malay apple (*Syzygium malaccense*), *marita* (*Pandanus conoideus*), *mon* (*Dracontomelon dao*), parartocarpus (*Parartocarpus venenosa*), pouteria (*Pouteria maclayana*), rukam (*Flacourtia rukam*), *ton* (*Pometia pinnata*), watery rose apple (*Syzygium aqueum*) and traditional mango (*Mangifera minor*).

1 With the exception of Table 1, references to tables and figures in this paper are to those in the paper 'An overview of edible fruit and nuts in Papua New Guinea' in this volume.

2 Population figures are derived from the 2000 census data, with a total rural village population of 4.2 million people.

Introduction

Indigenous fruits are defined here as species that were grown and eaten by Papua New Guineans prior to settlement by other Pacific islanders, Europeans and Asians from about 1870 AD onwards. The species include fruits that are endemic, native or introductions from other locations prior to 1870. Villagers eat a significant number of indigenous fruit species that are local to the area in which they live, but are poorly known elsewhere. For example, in the Cape Vogel area of Milne Bay Province, villagers eat fruit of more than ten self-sown species, including *Antidesma platyphyllum* and *A. ghaesembilla* (J. Mogina, UPNG, pers. comm. 2005).

There is no single complete list of the indigenous fruit species grown and eaten in PNG. The most complete sources are Table 3.1 ('Plants used as food') in Powell (1976); the listings of fruit species in French's (1986) book, *Food Plants of Papua New Guinea*; and the table 'Fruits and nuts eaten from New Guinea to the Cook Islands' in *Fruits of Oceania* (Walter and Sam 2002:277–82). A list of 40 species that are eaten as fruit in PNG is given in Table 1. This is drawn from my fieldwork (with identifications by staff from the former Division of Botany, Department of Forests in Lae), supplemented by the three sources named above. The list is by no means complete and the sources cited above list other species. The botanical names can be confusing for a non-specialist as there are many synonyms and many species are obscure and poorly described.

The purpose of this paper is to give some information about the most commonly grown species. It is not clear what potential there is for commercialisation of the indigenous fruit species. The flavour of some species suggests that the fruit is unlikely to be widely accepted outside PNG or even by people in PNG who are not familiar with the fruit. *Ton* (*Pometia pinnata*) is seen by many as having significant potential for further commercialisation in PNG. There may well be non-food products which could be developed. For example, participants at the Fruit and Nut Workshop identified *marita* pandanus fruit (*Pandanus conoideus*) as being worth testing for the properties of its oil.

Information is given here on ten of the most commonly eaten indigenous fruit in PNG, and six other indigenous fruit species. Those ten species were selected as they are grown by 2% or more of the rural population (Table 6).¹ Banana is an indigenous fruit, but it is included in my paper on introduced fruit in this volume rather than here, as the cultivars with the greatest potential for further sales are introduced cultivars. Breadfruit (*Artocarpus altilis*) is an indigenous species with both the flesh and seed eaten. It is considered in my paper on indigenous nuts in this volume.

Where available, information is given on the following attributes for each species: how the fruit is consumed; global distribution; distribution within PNG; altitudinal range in PNG; the number of rural people who live in locations where the species is common;² production pattern (crop seasonality); marketing; and potential for further development. The distribution data is from the Mapping Agricultural Systems of PNG (MASP) database (Bourke et al. 1998) and the author's field observations; data on altitudinal range is from Bourke (1989) (see Table 4); and data on production patterns is from Bourke et al. (2004). The figures for the number of people who grow each species are from the MASP database (see Table 6). I use the term New Guinea to refer to the island and Papua New Guinea (PNG) to the state. Similarly, New Britain is an island, while East or West New Britain are provinces on that island.

Some commonly grown indigenous fruit species

Bukabuk (Burckella obovata)

Bukabuk is consumed as uncooked ripe fruit. It is distributed from the Moluccas Islands (west of New Guinea) through the island chains as far east as Vanuatu (Walter and Sam 2002:125). In PNG, it is mainly grown on small to medium sized islands, although it does occur on larger islands. It is most common in the islands of Milne Bay Province. It is also grown on New Ireland, the island groups north and east of New Ireland, on Buka and nearby small islands in Bougainville Province, on the Duke of York Islands in East New Britain and on the islands west of Manus. It grows from sea level to about 300 m. The highest bearing plant that I recorded was at 390 m on the Gazelle Peninsula of East New Britain Province.

Bukabuk is commonly grown by about 230,000 people or 6% of the rural PNG population. There is no recorded longitudinal data on the production pattern, but reports by villagers in Milne Bay, East New Britain and West New Britain provinces indicate that the harvesting season occurs between December and March each year. This seems to be fairly consistent from year to year.

Small quantities are sold in local markets in the island provinces of Milne Bay, New Ireland, Bougainville and New Britain. It is a pleasant fruit, although the aroma may not suit everybody. It may have some potential for sales on the New Guinea mainland, including the highlands. The fruit is moderately resistant to bruising when unripe, but it would still require careful handling to move fruit from small islands to the highlands or urban centres.

Coastal pandanus (Pandanus tectorius)

The globular fruit of coastal pandanus is sucked when fully ripe to obtain a sweet juice, perhaps more by children than by adults. The use of this fruit seems to be less common than in past decades as villagers now have access to sweet drinks, either carbonated (soft drinks, cola, etc.) or non-carbonated (cordial). In recent years, I have only seen it being used on remote islands where people do not have access to purchased drinks. The species (actually a complex of species) is distributed from the Philippines in the north-west to eastern Polynesia and from the Caroline Islands in the north to the tropical coast of northern Australia (Walter and Sam 2002:217). Within PNG, it is used on Manus, the south coast of New Britain, on Bougainville, New Ireland and in a few locations on the New Guinea mainland, for example, near Daru Island off Western Province and near Tufi in Oro Province. It commonly grows as self-sown plants on the shoreline, but I have seen trees up to an altitude of 240 m on Umboi Island, Morobe Province.

The MASP database indicates that some 66,000 people (1.6% of rural villagers) use it as a minor snack food. However, this figure probably overestimates its use. There is no data on the production pattern, but it is probably non-seasonal. The fruit is not sold in food markets as far as I know. There is probably little further potential for use of coastal pandanus as it is currently consumed, but there may be other uses for the fruit.

Golden apple (*Spondias cytherea*)

The flesh of golden apple is eaten raw. It is widely distributed in the region from Malaysia and the Philippines through New Guinea and the islands as far east as Tahiti (Walter and Sam 2002:245). Within PNG it is mostly confined to the islands, although it does occur on the New Guinea mainland. It is commonly grown in the islands of Milne Bay Province, Manus Province and New Ireland. It is also grown on Bougainville and New Britain. Golden apple grows from sea level up to a mean of 950 m, and occasionally as high as 1070 m.

It is commonly grown by about 177,000 people or 4% of the rural PNG population. Information from Milne Bay, Pomio on New Britain and Musau Island north of New Ireland indicate that fruit ripens in about December to February each year. Small quantities of golden apple are sold in food markets in Milne Bay and in the Islands Region. It has potential for processing into jams and chutneys. It is not known whether it could be sold in the highlands, but some fruit could probably be sold in Port Moresby and other urban centres on the New Guinea mainland.

Kumu musong (Ficus copiosa) and other Ficus species

The main economic product of the indigenous figs in PNG is the young leaves which are used as a green vegetable, but the fruit of a number of species is also eaten, particularly fruit of *Ficus copiosa*. (This species is known as *kumu musong* in Tok Pisin, literally, hairy vegetable). Other *Ficus* species with edible fruit include *F. dammaropsis*, *F. tinctoria* and *F. wassa* (Table 1). *F. dammaropsis* is a highland species, and the others grow in the lowlands and highlands. All species are self-sown and I am not aware of villagers planting trees, but they may protect self-sown seedlings. Fruit of *F. copiosa* is eaten raw. Fruit of *F. wassa* is either cooked or eaten raw in the Nipa area of Southern Highlands Province (Sillitoe 1983:75). Fruit of *F. dammaropsis* is rarely eaten, but can be used as an emergency food.

F. copiosa grows widely within PNG, in the Islands Region, in the New Guinea lowlands and in the highlands. *Ficus wassa* has a distribution that extends from east Indonesia through New Guinea, the Bismarck Archipelago and the Solomon Islands to Vanuatu (Walter and Sam 2002:168). *F. dammaropsis* is restricted to the highlands and highlands fringe of New Guinea. The altitudinal range of *F. copiosa* is sea level to 2200 m (and occasionally up to 2450 m); the usual range for *F. dammaropsis* is 800– 2750 m (and the extreme range is from sea level up to 2820 m). *F. wassa* grows from sea level to 2520 m, under extreme conditions. The usual upper altitudinal limit of *F. wassa* is not known, but is probably about 2200 m (Bourke 1989).

Leaves of *F. copiosa* in particular are widely used as a green vegetable. There are no estimates of the number of people who consume the fruit. It is likely that many people consume small quantities of fruit occasionally. For example, in Upa village in the Nipa area, one survey recorded eight *F. copiosa* trees per household (Table 7). In Milne Bay Province, fruit of *F. copiosa* are available in about January–February. Fruit of the various *Ficus* species are not sold in markets. I do not see any potential for commercial development of the fruit of any of the PNG *Ficus* species, but there may be novel non- food uses such as for medicinal purposes.

Malay apple (*Syzygium malaccense*)

The fruit of Malay apple is eaten fresh, generally soon after being harvested. The species is widely distributed from South-East Asia to the eastern Pacific (Whistler and Elevitch 2005). The pre-European distribution was from Malaysia, the Philippines and Indonesia in the west through New Guinea and the Pacific Islands as far east as Samoa and north to Hawaii (Walter and Sam 2002:251). It is widely grown in the lowlands of PNG, especially in the Islands Region and Milne Bay Province, but it is also grown in some locations on the New Guinea mainland. It is common in the following provinces: East New Britain, Bougainville, Milne Bay, Central, West New Britain, Morobe, New Ireland and Manus. On the island of New Britain, villagers ranked it as the fourth-most important fruit or nut tree in one survey (Table 2). It grows from sea level to a mean of 850 m, and occasionally as high as 1580 m (Table 4).

An estimated 909,000 people grow the crop, which represents 22% of the rural population (Table 6). The fruit ripens sometime between September and February, particularly in December–January. However, the available information is somewhat diverse, suggesting that the seasonal production pattern is not well defined (Bourke et al. 2004:26–7). Malay apple is widely consumed in the lowlands, especially in the Islands Region and fruit is commonly sold in fresh food markets. There is probably some potential for further sales, particularly if clones with sweeter fruit were available.

Marita (*Pandanus conoideus*)

Marita fruit is cylindrical in shape, up to a metre long, usually red in colour, but sometimes yellow. The pericarp (outer layer) of the fruit is rich in oil. The fruit is cut into pieces then boiled, roasted or cooked in a stone oven. The pulp and seeds are removed from the core, mashed with water and strained to produce a thick, rich red sauce. This is used to flavour other foods such as sweet potato, banana and green vegetables. *Marita* grows best in moist locations, often under shade, and tolerates waterlogged soils (Tarepe and Bourke 1982:92–3). Villagers maintain a number of named cultivars. For example, in a community west of Nipa in Southern Highlands Province, people have four cultivars, with people living at lower altitudes growing more cultivars (Sillitoe 1983:112–13).

Distribution of *P. conoideus* is limited to New Guinea and some of the islands to the west (Ceram, Buru and Ternate) (Walter and Sam 2002:211). It is present on Manus Island, but it is not clear whether this is a recent or an ancient introduction from New Guinea (Kennedy and Clarke 2004:20–21). In recent decades it has been introduced to West New Britain from the New Guinea mainland by settlers on oil palm blocks. A number of related species are grown on New Guinea and the islands to the east and west (Kennedy and Clarke 2004:19–21).

Within PNG, *marita* is grown in all mainland provinces, particularly in the highlands and in the Momase Region, and sometimes on Manus and West New Britain. It is most common in the following provinces: Eastern Highlands, Morobe, Western Highlands, Southern Highlands, East Sepik, Simbu, Madang and Sandaun (Table 6 and Figure 2). It is not usually grown near the ocean, but grows from low altitudes in inland situations (10–50 m altitude) up to 1700 m.³ It occasionally is grown as high as 1980 m (Table 4).

³ As with all crops, there is some variation in the altitudinal range between locations, as indicated by the standard variation figures in Table 4. The altitudinal ranges of *P. conoideus* (*marita*) and *P. julianettii*

Marita is most common over the altitudinal range of 500 m to 1400 m. It is an important dietary item as coconut is uncommon or does not grow in that zone and there are few other sources of oil or fat in villagers' diets.

Marita is grown by 1.5 million people, which is 59% of the rural population. This makes it the third-most commonly grown fruit in PNG, behind banana and pawpaw (Table 6). There is a clear relationship between the length of the fruiting season and altitude in PNG. Near sea level, production is continuous and non-seasonal. With increasing altitude, the producing period becomes increasingly shorter. Near the top of its altitudinal range at 1500–1700 m, fruit ripens over a four-month period, usually January to April (Bourke et al. 2004:29–30).

The number of *marita* trees per household is often high, especially in the 500–1400 m zone. For example, in one area near Simbai in Madang Province at 700–1100 m, Clarke (1971:81, 157) recorded that there were about 400 m² of *marita* per person. Even at 1600–1700 m near the crop's upper altitudinal limit, there were 19–29 trees per person in two highland villages (Table 7). The importance of *marita* in villagers' diets in the intermediate altitude zone is highlighted by one consumption survey in a community on the Great Papuan Plateau. *Marita* pandanus contributed 44% of fat in the diet, 15% of food energy and 11% of protein (Odani 2002). (See the section on consumption in my overview paper in this volume for more detail on this and other consumption studies). *Marita* fruit is commonly sold in food markets on the New Guinea mainland, especially in the highlands.

There may be some limited potential for further sales in urban locations, especially to people who are familiar with the food and live in Port Moresby. It is unlikely to be adopted by people who have not grown up with the taste. There may be non-food uses for the oil or other extracts from the fruit.

Mon (Dracontomelon dao)

The fruit is consumed fresh. Globally, the species is distributed from India, through South-East Asia to New Guinea and Solomon Islands (Walter and Sam 2002:158). In PNG it is widely distributed, but not widely consumed, except in Madang Province where it is commonly eaten. It is also eaten in some of the small islands of Manus Province, some of the islands in the south-east of Milne Bay Province, on Nissan Island in Bougainville Province, on the Duke of York Islands in East New Britain and on the Schouten Islands off the mouth of the Sepik River. It is a lowland species and its upper altitudinal limit is not known.

The MASP database indicates that some 230,000 people live in locations where the species is moderately common, and most of those live in Madang Province (83%). The very limited available information on the production pattern suggests that fruit is available in October–December. The fruit is commonly eaten in the lowland part of Madang Province and appears in Madang town market. The limited geographic consumption suggests that it does not have much potential for expansion, but that might depend on the availability of clones with superior flavour.

(*karuka* nut pandanus) rarely overlap, with the lower limit for *karuka* typically about 100 m higher than the upper limit for *marita*.

Parartocarpus (*Parartocarpus venenosa*)

This self-sown species produces a fruit with an irregular shape. The fruit is eaten ripe. It is grown on New Guinea, the Bismarck Archipelago and Solomon Islands. I do not know if it is grown on islands to the west of New Guinea. In PNG it is most common on New Britain, except on the north-east lowlands of the Gazelle Peninsula. Fruit is eaten on a number of small islands off the north and south coast of Manus and some islands off the New Guinea north coast, including Kairiru Island (Borrell 1989:109) and those in the Schouten group in East Sepik Province. It is a lowland species, but the upper altitudinal limit is not known.

The MASP database indicates that 145,000 people live in locations where the fruit is eaten, mostly on the island of New Britain (4% of all rural villagers in PNG). There is only scattered information on the production pattern, but the species appears to fruit in a discontinuous and non-seasonal manner. *Parartocarpus* is a minor food source on New Britain, where villagers rank it as a moderately important fruit species (Table 2). It is not sold in food markets and probably has very limited potential for commercial development.

Pouteria (*Pouteria maclayana*)

The yellow-fleshed fruit of this self-sown species is occasionally eaten raw. The species grows on several small islands off Sumatra in Indonesia, as well as on New Guinea, on small islands north of New Guinea and in the southern Solomon Islands (Walter and Sam 2002:233). Within PNG it is eaten on Karkar Island, along the Rai Coast and in the Schrader Range of Madang Province; and on Kairiru Island and in the Schouten Islands in East Sepik Province. The species grows near sea level and in foothills. Its upper altitudinal limit is not known, but the distribution of where it is eaten indicates that this is over 500 m. There is no data on the production pattern apart from a single report from Karkar Island that fruit is available seasonally in August–October.

Around 62,000 people live in locations where the fruit is eaten. Most of these are in Madang Province, with some on the off-shore islands in East Sepik Province and adjacent coastal locations in Morobe Province. That figure is 1.5% of the PNG rural population. However, this exaggerates the importance of the fruit as it is only eaten occasionally by some people. Villagers on Karkar Island say that *pouteria* was a more important fruit in the past (Allen et al. 2002:50). Fruit is not sold in markets as far as I know. It probably has very limited potential for subsistence consumption or as a commercial crop.

Rukam (*Flacourtia rukam*)

The fruit of this self-sown tree is eaten raw occasionally. The species is native from Malaysia, the Philippines through New Guinea to the Solomon Islands (Walter and Sam 2002:174). In PNG it is a minor fruit and is consumed mainly in the islands and on the mainland of Milne Bay Province. It grows near sea level and its upper altitudinal limit in PNG is unknown. The MASP database indicates that a little over 100,000 people live in locations where it is eaten. This is 2% of the rural population (Table 6). However, *rukam* is eaten only by some people, so the MASP figure exaggerates the number who consume it. Information gathered on four islands in Milne Bay Province suggests that fruiting is discontinuous, but not seasonal. It is not sold in local markets as far as I know. It probably has limited potential for commercial production, but it may be possible to sell fruit in some urban markets.

Ton (Pometia pinnata)

This fruit belongs to the same botanical family (Sapindaceae) as the litchi, rambutan and lasan. *Taun* is an alternative spelling for its common name, but *ton* is adopted here as his better reflects the pronunciation in Tok Pisin. The fruit is eaten raw. The species is distributed from Sri Lanka, Thailand, southern Yunnan (China), Indonesia and Taiwan through Indonesia, New Guinea and the Pacific Islands as far as Tonga (Walter and Sam 2002:229). Within PNG, *ton* is common along the New Guinea north coast and in the Islands Region. In Momase Region, it is frequently grown in East Sepik, Madang and Iandaun Provinces, and to a lesser extent in coastal or inland locations in Morobe and Oro Provinces. In the Islands Region, it is most common in East New Britain, New Ireland and Manus and less common in West New Britain and in Bougainville provinces. Unlike some other indigenous fruit, it is commonly grown on the larger islands (New Guinea, New Britain, New Ireland) as well as the smaller islands.

The tree grows from sea level up to about 1700 m, but the usual upper altitudinal limit here the fruit is eaten in PNG is 800 m. The highest that I recorded the fruit being grown and eaten was at 1120 m on the Karimui Plateau in Simbu Province. Above about 800 m, villagers say that the tree bears fruit, but the fruit is 'not sweet' and hence they do not eat it. Superior large fruit is reported from the Tanga Island group off New Ireland, as well as other locations in the South Pacific (Thomson and Thaman 2005).

Almost a million people live in locations where *ton* fruit is commonly eaten (955,000 people according to the MASP database). This represented 23% of the rural population in 2000. Fruit is available seasonally for about two or three months at some time between August and April each year, most commonly in the period November to February. *Ton* is widely eaten along the north coast of New Guinea, the inland areas of the north coast (up to 800 m altitude) and throughout the Islands Region. It is sold in markets in those locations. Many observers consider that *ton* has excellent potential for commercialisation for sale within PNG and possibly overseas. *Ton* has been bottled in sugar syrup in Fiji experimentally, but there was no follow-up and no commercial interest, so this did not advance to a commercial product (Bill Aalbersberg, University of South Pacific, Suva, pers. comm. 2005).

Watery rose apple (Syzygium aqueum)

The species produces a white, pink or red bell-shaped fruit which is eaten raw. The species is distributed from Thailand to Solomon Islands (Walter and Sam 2002:251). Within PNG it is grown and eaten occasionally in the lowlands and the intermediate altitude zone, for example, in New Ireland, New Britain and Milne Bay Province. It grows up to 1600 m altitude. Overall, it is a minor fruit species in PNG and is not eaten by many people. The limited available information on the production pattern indicates that the supply is discontinuous and non-seasonal in both the lowlands and the highlands. The fruit is sold in some lowland markets. It may have some potential for further sales in urban locations as the appearance is attractive, although most fruit in PNG have a rather insipid taste. As with other fruit species, the potential for further sales would be greater if clones with superior fruit were available.

Traditional mango (*Mangifera minor*)

This minor fruit is widespread in PNG.⁴ The introduced mango (*Mangifera indica*) is preferred to the traditional one, but the traditional species is still consumed. The introduced species needs a drier period each year to bear, whereas the traditional species does not. Hence *M. minor* is mainly eaten in locations where *M. indica* does not bear regularly. *Mangifera minor* is found in the Celebes, Moluccas, Lesser Sunda Islands, Luzon, New Guinea, Solomon Islands and Carolines (Kostermans and Bompard 1993:132–5). Within PNG, traditional mango is widely dispersed in the lowlands and highlands on the New Guinea mainland, on New Britain and on the islands in Milne Bay Province. It grows from sea level to 1750 m, and occasionally up to 1900 m. Fruit ripens at about the same time as for the introduced species, that is, in about September to December.

The number of people who consume traditional mango is not known, but more people eat the introduced species. It is not sold in markets. It is unlikely that the fruit could be developed for commercial production.

Discussion

Sixteen indigenous fruits have been discussed here, out of more than 40 that are consumed in PNG. Some are consumed in a limited number of locations, while others, including *marita* pandanus, *ton* and Malay apple are widely consumed in PNG. There is probably limited potential for a significant expansion in production and sale for most species. It is possible that more fruit of *bukabuk*, golden apple, Malay apple, *mon*, *ton* and watery rose apple could be sold in urban lowland and highland markets, especially if the fruit came from selected, sweeter clones.

The species that perhaps has the greatest potential for expanded production and sales, including for an export market, is *ton* (*taun*). The flavour is comparable with some of the better-known fruit from South-East Asia. The oily extract from *marita* pandanus may have uses other than for consumption (Roger Leakey, pers. comm. 2005). The oily extract needs to be evaluated so that this possibility can be explored. It is important that the use of the lesser-known species is documented. Particular note should be made of any clones selected by villagers that may have potential for production and sale in other parts of PNG, including the highlands and urban areas and, in the longer term, for the export market.

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⁴ There are two species of traditional mango in PNG, *Mangifera minor* and *M. foetida*. The former seems to be more common and our observations are presumed to be on the former, but it is possible that some relate to the latter species as trees were not identified by a botanist from botanical specimens.

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Table 1. Some of the indigenous fruit species grown in Papua New Guinea

Family	Scientific name	Common name
Elaeocarpaceae	<i>Aceratium oppositifolium</i>	–
Euphorbiaceae	<i>Antidesma ghaesembilla</i>	–
Euphorbiaceae	<i>Antidesma platyphyllum</i>	–
Moraceae	<i>Artocarpus altilis</i>	Breadfruit
Euphorbiaceae	<i>Baccaurea papuana</i>	–
Euphorbiaceae	<i>Bridelia tomentosa</i>	–
Rhizophoraceae	<i>Bruguiera gymnorhiza</i>	–
Sapotaceae	<i>Burckella obovata</i>	Bukabuk
Rutaceae	<i>Clymenia polyandra</i>	–
Corynocarpaceae	<i>Corynocarpus cribbianus</i>	–
Anacardiaceae	<i>Dracontomelon dao</i>	Mon
Moraceae	<i>Ficus copiosa</i>	Kumu musong
Moraceae	<i>Ficus dammaropsis</i>	Kapiak (Highlands Tok Pisin)
Moraceae	<i>Ficus tinctoria</i>	–
Moraceae	<i>Ficus wassa</i>	–
Flacourtiaceae	<i>Flacourtia inermis</i>	–
Flacourtiaceae	<i>Flacourtia rukam</i>	Rukam
Clusiaceae	<i>Garcinia hollrungii</i>	–
Myristicaceae	<i>Horsfieldia sylvestris</i>	–
Anacardiaceae	<i>Mangifera foetida</i>	Traditional mango
Anacardiaceae	<i>Mangifera minor</i>	Traditional mango
Melastomataceae	<i>Melastoma</i> sp.	–
Rubiaceae	<i>Morinda citrifolia</i>	–
Musaceae	<i>Musa cvs</i>	Banana
Pandanaceae	<i>Pandanus conoideus</i>	Marita
Pandanaceae	<i>Pandanus tectorius</i>	Coastal pandanus
Moraceae	<i>Parartocarpus venenosa</i>	Parartocarpus
Chrysobalanaceae	<i>Parinari nonda</i>	–
Urticaceae	<i>Pipturus argenteus</i>	–
Sapotaceae	<i>Planchonella</i> sp.	–
Sapindaceae	<i>Pometia pinnata</i>	Ton or taun
Sapotaceae	<i>Pouteria maclayana</i>	Pouteria
Rosaceae	<i>Rubus fraxinifolius</i>	Red raspberry
Rosaceae	<i>Rubus moluccanus</i>	Red raspberry
Rosaceae	<i>Rubus rosifolius</i>	Red raspberry
Anacardiaceae	<i>Spondias cytherea</i>	Golden apple
Myrtaceae	<i>Syzygium aqueum</i>	Watery rose apple
Myrtaceae	<i>Syzygium malaccense</i>	Malay apple
Myrtaceae	<i>Syzygium samarangense</i>	–
Combretaceae	<i>Terminalia megalocarpa</i>	Dausia (Kiriwina name)

**BARRIER TUMORIGENESIS TEST OF
RED FRUIT OIL (PANDANUS CONOIDEUS LAM.)
AGAINST FEMALE WHITE RATS
WHICH INDUCIBLE 7.12 DIMETILBENZ(a)
ANTRASEN (DMBA)**

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ABSTRACT

Red fruit (Pandanus conoideus Lam.) has been known by public as a medicine for any kind of diseases, among of them is for cancer. To determine the carcinogenesis inhibition effect of red fruit extract, we have examined the effect on 7,12- dimethylbenz[a]anthrasene (DMBA)-induced rat lungs cancer model in female Sprague-Dawley rats. The extract was tested at 0.21 ml/200 g bw; 0.43 ml/200 g bw and 0.88 ml/ 200 g bw. The experiment was terminated at day 120. Lung histology was used to evaluate carcinogenesis inhibition. The result showed that the extract at 0.21 ml/200g bw improved lung carcinogenesis inhibition than other dose.

Key words : *red fruit extract, DMBA, lung cancer, Pandanus conoideus*

INTRODUCTION

The number of cancer patients while increasing, and ranks sixth as the cause of death (Hariani R, 2005). Red fruit (Pandanus conoideus Lam.) is one of the alternative cancer treatments more and more known in the society (Irma & Gilang, 2005). The high content of antioxidants in red fruit alleged to have anticancer activity. These compounds in the body will catch free radicals causing cancer (Lee JY et. Al. 2004).

Many testimonies of people will savor red fruit, one of them as anticancer (Siswono 2005; Khomsan, Ali 2005). However, due to lack of scientific data, its efficacy has not been recognized in medical circles. Based on this, then do research to prove the efficacy of red fruit as a barrier to carcinogenesis in mice induced by DMBA (7.12-dimetilbenz (a) antrasen) (Constantinou AI et. Al. 2003; Cheng JL et. Al. 2003).

MATERIAL AND HOW TO WORK

Experimental animal that used in this study were female white rats (*Ratus norvegicus*) strains Sprague-Dawley five weeks old, weighing 100-150 grams. Materials used test is the preparation of red fruit oil obtained from the Center for Natural Medicine Study Material (PSOBA) FMIPA UI. Chemicals used during the experiment is DMBA and sesame oil (Sigma), Bouin solution, alcohol, paraffin, benzyl benzoate, benzol, xilol, haematoxylin, Eosin Y, and entellan (Merck).

HOW TO WORK

Rats in acclimatization for two weeks were given food and drink the same on a regular basis. At this stage carried out observations of general condition and body weight of mice. Diseased mice not included in the experiment. After acclimatization, the test animals divided at random with simple random sampling method. Rats divided into 6 groups, each of 20 tails, except for the normal group 10 tails. Treatment of test animals can be seen in Table 1.

Tabel 1. Dose in each treatment group

Group	Description	Number of rats
I (Normal control)	Given 1 ml of sesame oil and then only given water until the end of the study	10
II (DMBA control)	Induced by DMBA without giving materials testing	20
III (preventif)	Given a red fruit with a dose of 0.43 ml/200g starting two weeks before DMBA induction until the end of the study period.	20
IV	After DMBA induced, continued provision of red fruit with a dose of 0.21 ml/200 g BB until the end of the study period.	20
V	After DMBA induced, continued provision of red fruit with a dose of 0.43 ml/200 g BB until the end of the study period.	20
VI	After DMBA induced, continued provision of red fruit with a dose of 0.86 ml/200 g BB until the end of the study period.	20

During the trial period, mice are weighed each week and do palpation to observe the development of tumors. The existence of death experimental animal and clinical conditions of daily according to the research are noted. At the end, do a surgery in rats and liver, heart, lung, colon, stomach, ovary, uterus, kidney and skin with mammae gland and formed tumors are taken out to make histology preparations.

Observations Histology

Observations were made by comparing the preparations of lung histology between treatment groups with the normal control group and the DMBA control group. Assessment of the degree of lung damage done qualitatively by comparing the alveoli of the normal control group with treatment group. Degree of lung damage into four categories, namely:

- 0 = no damage to the alveoli (normal)
- 1 = thickening of alveolar cells
- 2 = proliferation of alveolar cells
- 3 = occurrence of malignancy / cancer cell

RESULTS AND DISCUSSION

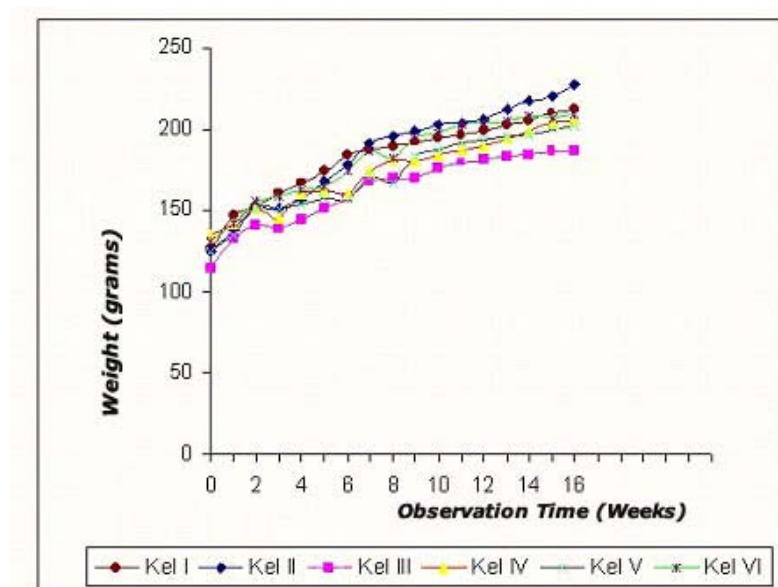
The number of deaths of test animals can be seen in Table 2. Measurement of body weight of experimental animals that is conducted every show an average increase in weight in all treatment groups. At week 15, started happening loss weight in the group III. The data can be seen in Figure 1.

Tumor incidence observations and palpation performed during the study data showed that there were no lump can be felt or tumor growth on the surface of the experimental animals from all groups. While the results of palpation of the organs after the surgery done on experimental animals on day 120 obtained observation data are listed in Table 3.

In the group I found no abnormalities in the organs of the lungs or other organs. In group II there are two test animals which have a lump in the lung and experimental animals that have a round lumps under the skin. The first test animals have lungs accompanied with severe swelling 2.39 g weight, whereas

Tabel 2. Mortality data of experimental animals during the research period

Group	I	II	III	IV	V	VI
Number of dead mice	0	3	7	7	7	10



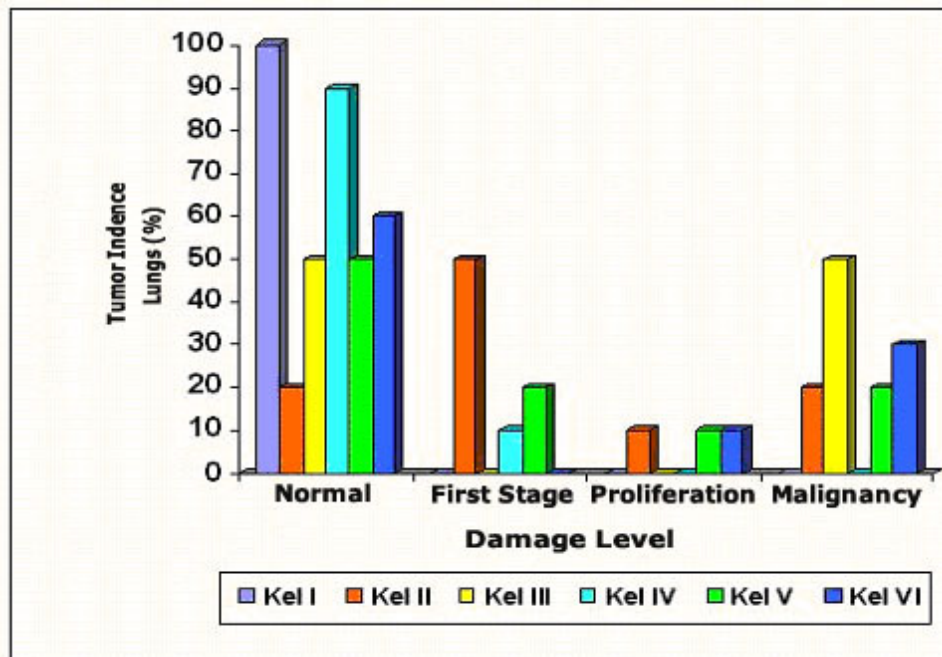
Picture 1. The average mouse weight during the observation period

Tabel 3. Tumor incidence data on the organ after surgery

Group	Palpation after surgery		Lung histology
	Lump in the lung	Lump in the skin	
I	-	-	-
II	+ 2 tails	-	+ 8 tails
III	+ 1 tails	-	+ 5 tails
IV	-	+ 1 tails	+ 1 tails
V	-	-	+ 5 tails
VI	+ 1 tails		+ 4 tails

Keterangan :

+ = have tumors, - = have not tumors



Picture 2. The percentage incidence of lung tumors in test animals

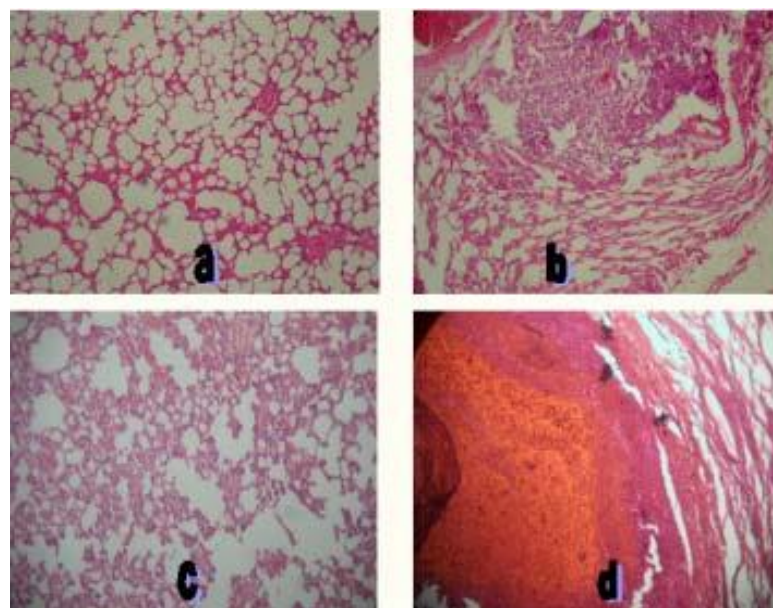
the second animal had lung weighing 1.98 g is accompanied by three white bumps that are not too large. Lump formed under the skin found on the thorax and groin, with weight of tumors respectively 2.059 g and 0.318 g..

In the treatment group obtained by the results of a lump in the organs of the lungs and skin. In group III there is only one test animals that have a lump in the lung weight 7.12 g. In group IV did not find any lumps in the lungs, but there are bumps under the skin of the thigh with a weight of 0.528 g. In group V can not find a lump that appeared organs lung and skin.

While the VI group of test animals there is one that has a lump in the lung weight 5.2 g.

Histological observation of lung system for the group I do not seen abnormalities in the alveolar and bronchial. In the historical observation group II logic abnormalities seen in some treatment. As many as 20% normal, 50% experienced early stage of thickening alveolar cells, 10% had proliferation and 20% had reached malignancy.

In the third group of data obtained by 50% normal and 50% had experienced malignancy. In group IV



Picture 3. Histopathology of lung system to alveoli (a) normal, (b) of thickening, (c) the proliferation of the tumor and (d) cancer.

data obtained 90% of the normal test animals and 10% had experienced the early stages of cell thickening. In group V data obtained by 50% normal, 20% had early stage cell thickening, 10% had proliferation, and 20% had malignancy. In group VI the data obtained by 60% normal, 10% had proliferation, and 20% had reached malignancy. The data can be seen in table 4.

Based on statistical analysis conducted on lung histology observation data for the ten samples from each treat-

ment group by Kruskal-Wallis, the results obtained there is no significant difference between treatments.

Analysis conducted on body weight measurements during the study conducted by Kruskal-Wallis obtained the result that in week 1 there were no significant differences between all treatments, while at the end of the study there were significant differences.

In this study used female white rats Sprague-Dawley strain as experimental animals and 7.12-Dimetilbenz (a) antrasen

Group	The level of system damage			
	Normal	Thickening of the cell	Proliferation	Malignancy
Normal Control	100%	0%	0%	0%
DMBA Control	20%	50%	10%	20%
Preventif Dose	50%	0%	0%	50%
Dose ½	90%	10%	0%	0%
Dose 1	50%	20%	10%	20%
Dose 2	60%	0%	10%	30%

Tabel 4. Observational data of lung histology of experimental animals

Group	The level of System damage			
	Normal	Thickening of the cell	Proliferation	Malignancy
Normal Control	100%	0%	0%	0%
DMBA Control	20%	50%	10%	20%
Preventif Dose	50%	0%	0%	50%
Dose ½	90%	10%	0%	0%
Dose 1	50%	20%	10%	20%
Dose 2	60%	0%	10%	30%

(DMBA) as a substance induced cancer.. Based on several studies that have been made potent carcinogen DMBA is a primary target in rodents is mammae skin and glands, and is widely have been used primarily to induce cancer mammae (Constantinou AI et. al. 2003; Cheng JL et. al. 2003; Jae Jung K, et. al. 2005).

Based on the results of surgery and visual observation data showed that the tumor incidence in experimental animals occurred in the lung organs and under the skin. Other organs are also taken as the liver, heart, colon, stomach, ovary, uterus, and kidney visual and palpation also showed no abnormalities.

In this study, doses of DMBA 15mg/ml not cause mammae tumor incidence. The results are not in accordance with the results of several

previous studies that also using DMBA at a dose of 15 mg / ml during the observation period of 120 days to produce a tumor incidence reached 94.7%. In other studies with long observation period, but using the same dose of 20 mg / ml DMBA tumors also can cause palpable mammae which began on day 110 after induction.

Selection of lung organs caused by visually can be observed as well as the lung is a vulnerable organ by carcinogens and often the place metastasis cancer. The existence of tumor incidence in several places due to the possibility of DMBA induction peroral done, so the possibility can attack several networks in experimental animals.

The average weight gain during the study period from the treatment group was lower than the average

weight of the control group. Based on observations about the weight data of test animals, each group does not decline after the induction until the 16th week, whereas in group III began to decline at week 15. This is probably can be followed by an increasing of tumor volume that grow continuously in the body of test animals. Group VI show the greatest weight gain if compared to other dose groups. The results of weight analysis Kruskal-Wallis showed results that there is no significant difference in the first week after the DMBA induction, was in the last week in the moments before surgery there were significant differences. In some other studies generally average weight treatment group is lower than the control group and began to decline at about 13 weeks. While the research has been done there weight-loss of about 9 weeks and then there is no significant increase.

From the observations the number of deaths during the study period, the group VI (2nd dose) showed that the mortality rate compared with most other dose groups and controls. While the histology of the ten samples from each group that most experienced on malignancies are group III. Occurrence of death experimental animals during the study period usually begins with weight reduction inclination. This is probably due to pain caused by tumors that affect appetite test animals.

By observing the morphology of tumors in test animals, it appears that the treatment group had a bigger bump than the DMBA control group. This possibility can be caused by high levels of beta-carotene in red juice, thereby increasing tissue damage dan tumors growth in the lungs.

Based on research that has been done on the effects of beta-carotene on the growth of lung tumors tested in mongoose, stated that giving beta-carotene at high doses (2.4 mg / kgBB per day) for six months can lead to the development of alveolar cell proliferation and squamous metaplasia keratinisasi (Wolf, George 2002).

Histological analysis performed on ten samples from each group. Based on statistical analysis of histology data from the cancer tissue was tested with Kruskal-Wallis analysis and the results there is no significant difference between treatments.

CONCLUSION

Based on research results that have been conducted on lung histology of experimental animals showed that administration of red fruit juice did not cause statistically significant difference, but at a dose of 0:21 ml / 200 g BB can inhibit cancer growth in mouse lung as results of Dimetilbenz induction 7:12 (a) antrasen (DMBA).

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ブアメラの世界 *from Papua, Indonesia*

ブアメラ研究会 : 公式サイト

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モニター募集

ブアメラニュース

体験報告

ブアメラ共和国

PATPI学会発表

場所 : インドネシア、バンドン市 (AsiaAfricaバンドン会議で歴史的な都市)
Grand Hotel Preanger

開催日: 2007年7月17、18日

学会参加報告:

PATPI (The Indonesian Association of Food Technologists) とは、インドネシア政府、食品工学講座を有する大学や食品工業分野の会社の食品工学研究者が集う学会。毎年、各都市で開催される。本年は、1955年にインドネシアのスカルノ大統領の指導で開催された第一回Asia Africa会議 (通称バンドン会議) 開催都市、西ジャワ州のバンドン市、Grand Hotel Preangerにて約250名の参加者を得て開催された。インドネシアは農業生産物の輸出国であり、政府も本分野に力を入れ、本会議の1時間の冒頭演説は農業省のAnton Apriyantono大臣によって行われた。農業大臣は、学会発表者Ingrid Waspodo博士の教え子でもある。

ブアメラはインドネシアの研究者が注目しているところですが、この発表に間に合うように出版された私たちの著書である「ブアメラ」のインドネシア語版を受付に置いたところたちまち50冊が完売となった。

発表内容について、ボゴール農業大学 (IPB)の多くの研究者から質問攻めに合った。特にβクリプトキサンチンの発見とその重要性 (肺がん予防) についての報告は、参加者に多大な刺激を与えたようである。IPBの研究者とは、さまざまな分野で共同研究ができそうである。

発表内容: 以下に記載

Novel Chemopreventive Herbal Plant Of Red Fruit (*Pandanus conoideus*) for Lung Cancers

1 Association of Tropical Medicinal Plants, Japan
2 SEAMEO TROPMED-RCCN University of Indonesia

ABSTRACT

Red fruit (*Pandanus conoideus*) has been utilized by Papuan inhabitants for 60,000 years as energy and vitamin sources rich in oil and carotenoids as well as Vitamin E. Recently, Red fruit was taken into account for its health values in Indonesia and some countries. We have first found out a novel ingredient, beta-cryptoxanthin in its extract oil and unveiled the nutritional features of the extract. Many epidemiological studies revealed that beta-cryptoxanthin is a key carotenoid which plays an important role as probable chemopreventive agent against lung cancers, especially associated with smoking. We will address the characteristics of red fruit exploratively examined and epidemiological reports on beta-cryptoxanthin.

Key words : red fruit, beta- cryptoxanthin, lung cancer

Introduction

Red fruit (*Pandanus conoideus*) is exclusively distributed in Papua island and its neighboring areas, and was recently re-emerged and taken into account for its health values in Indonesia and some countries. From the cultural anthropological examination, we think that red fruit has been utilized by Papuan inhabitants for 60,000 years as essential energy and vitamin sources rich in oil and carotenoids as well as Vitamin E (1).

Many books have been published in Indonesia concerning usefulness of red fruit. However, nutritional features and medicinal property of red fruit remain poorly understand.

We have first found out a novel ingredient, beta-cryptoxanthin in its extract oil and unveiled the nutritional features of the extract. Many epidemiological studies conducted worldwide or undergoing in Japan revealed that beta-cryptoxanthin is a key carotenoid which plays an important role as probable chemopreventive agent against lung cancers, especially associated with smoking (2~8).

In this paper, we report the characteristics of red fruit preliminarily examined and epidemiological evaluation of beta-cryptoxanthin against lung cancers, and discuss the possibility of red fruit as chemopreventive agent for malignant tumors, especially lung cancers.

Nutritional Feature

Table 1 shows typical nutritional and hygienic analyses of red fruit extract oil that was produced by the procedures developed at the CABI, Bogor and supplied from a company at Papua. The analyses were conducted at Japanese government-authorized laboratories in Japan .

About 94 % in the extract is oil. The remaining around 5 % is carbohydrates and no protein is detected. As carotenoids, alfa- and beta-carotene, and beta-cryptoxanthin are found. No lutein, zeaxanthin and lycopene are detected in the red fruit extract oil.

Beta-cryptoxanthin is found in green-yellowish vegetables and fruits and now most notable carotenoid from the reason of possible chemopreventive agent for lung cancers. M&K Laboratories Inc., Japan is the first to discover its presence in Red fruit.

Even using HPLC, it is very difficult to separate alfa- and beta-cryptoxanthin each other from foods. This value of beta-cryptoxanthin contains partly alfa-cryptoxanthin. Therefore, we are now developing a new method to separate and measure actual beta- and alfa-cryptoxanthins contents from red fruit in Japan .

One of features of red fruit is rich in Vitamin E. Considering that almost all of food supplements of Vitamin E use synthetic chemical, but not natural origin, Red fruit is a good source of natural Vitamin E.

There are no microbiological problems and no heavy metals are detected in Red fruit oil.

Japanese Quarantine Office requires to be absent of artificial red dyes and antioxidative agents. Red fruit extract oil from Indonesia meets Japanese regulation.

Table 1 Nutritional profile of Red fruit extract oil

Item	Value per (100g)	Item	Value per 100g)
Moisture	0.7 g	α -Carotene	130 μ g
Energy	868 kcal	β -Carotene	1,980 μ g
Protein	0	β -Cryptoxanthin	1,460 μ g
Lipid	94.2 g	Lutein	Not detected
Carbohydrate	5.1 g	Zeaxanthin	Not detected
Ash	0	Lycopene	Not detected
Sodium	3 mg	Vitamin E (α -Tocopherol)	21.2 mg

From the results of microbiology, heavy metals and additives, Red fruit extract oil can be imported to use for food in Japan .

Due to technical issues, β -Cryptoxanthin partly contains α -cryptoxanthin.

Red Fruit Oil

Another feature of red fruit is rich in oil, reaching more than 94% (Table 1). Fatty acid profiles were determined. Palmitic acid, oleic acid and linoleic acids are main components in the oil. Fatty acid profile of red fruit oil is very similar to that of oils from animal sources, but not from vegetable sources, and suggest that Red fruit has been very important nutritional source of quality oil in poorly animal breeding areas of Papua.

The extraction developed by CABI (Center of Agro-Based Industry), Ministry of Industry does not generate trans-fatty acids which are not present in nature and causes atherosclerosis, obesity, Diabetes Mellitus, breast cancer, etc

Stability of Red Fruit

In general, carotenoids are susceptible to ultraviolet ray, oxygen and temperature. The susceptibility of novel ingredients must be considered in extraction, storage and product form.

We have developed fish gelatin-capsulated red fruit product in Japan which was subjected to stability study, and compared with liquid form of red fruit oil. Both products were kept in an incubator at 50~70℃, and exposed to room light and air. Before treatment and 1, 3 and 12 months after the incubation, total carotenoids, Vitamin A (retinol equivalency), alfa- and beta-carotene, and beta-cryptoxanthin were analyzed. Alfa- and beta-carotene and beta-cryptoxanthin of the liquid form were relatively rapidly decomposed 1 month after storage of these conditions and not detected 12 months. On the contrary, the carotenoids in the gelatin capsules of red fruit were stable until 12 months. Thus, red fruit is recommended to be encapsulated for marketing.

Lung Cancers associated with Smoking

Lung cancers and smoking are now most social and economical issues in all the countries. It is evident that smoking is closely associated with occurrence of lung cancers and cancers of the oral cavity, esophagus and other organs. In Japan , the mortality due to lung cancers is notable from 1955 and lung cancers are the first cause of tumor death in men, and third in women. In 2004, around 70,000 people died from this disease. From the statistics in Japan , it is known that current smokers have higher risk of lung cancers in a proportional way of increased number of daily cigarette numbers and duration of smoking, in comparison with non-smokers (7).

Epidemiology in Lung Cancers and beta-Cryptoxanthin

After it was found that (synthetic and or over-dosage) beta-carotene was not a candidate of lung cancers preventive agent, many epidemiological studies on the inhibitory effects of beta-cryptoxanthin for lung cancers have been carried out worldwide. In Shanghai study with more than 18,000 men and 12 years monitoring period (3), it was clearly demonstrated that the smokers with higher beta-cryptoxanthin blood level showed significant lower risk of occurrence of lung cancers (Table 2). The other micronutrients were not related to prevention of lung cancers. The results of all other studies coincide that beta-cryptoxanthin is closely related to inhibition of lung cancer incidences.

Table 2 Shanghai study in lung cancers in 2001

Micronutrient	Quartile				P value
	1st	2nd	3rd	4th	
Total carotenoids	1.00	1.11	0.49	0.84	0.20
α -Carotene	1.00	1.28	0.66	1.15	0.79
β -Carotene	1.00	0.86	0.68	0.74	0.20
β -Cryptoxanthin	1.00	0.72	0.42	0.45	0.02
Lycopene	1.00	0.85	0.84	0.59	0.15
Lutein/Zeaxanthin	1.00	1.58	1.05	0.97	0.53
Retinol	1.00	0.51	0.66	0.65	0.18
Total tocopherols	1.00	0.81	0.90	0.83	0.61
α -Tocopherol	1.00	0.85	0.91	0.84	0.65
γ -Tocopherol	1.00	1.04	1.23	0.88	0.83

Each value represents Odds Ratio compared with 1st quartile (lowest serum level). Serum level of β -Cryptoxanthin in each quartile is <1.81, 1.81-3.00, 3.01-4.53 and ≥ 4.54 (μ g/dl), respectively.

Lung Cancers and Red fruit

Red fruit oil was applied to human cancer cell line, A549, in vitro and demonstrated that 500 mg of Buah Burah/mL prohibited the growth of A549 cells. The concentration of beta-cryptoxanthin in red fruit oil was equivalent to 0.015 μ g/mL. From this study, it is suggested that very small quantity of beta-cryptoxanthin may cause the growth inhibition of lung cancer cells.

Discussion

It is said that about 600 carotenoids exist in various foods and that those who take frequently green-yellowish vegetables and fruits are very rare in onset of lung cancer. Therefore, carotenoids and anti-oxidative micronutrients in the blood have been investigated for possible chemopreventive agents for lung cancers. Beta-carotene was denied and beta-cryptoxanthin has become most probable candidate (9). Many epidemiological studies has disclosed that beta-cryptoxanthin only, but not the other micronutrients, plays a significant role in lower risk of lung cancers, especially associated with smoking (2~8). In fact, it is well-established sense that smoking is main cause of lung cancers.

We have found out that red fruits, red fruit (*Pandanus conideus*) naturally grown in Papua areas is a good source of carotenoids including alfa- and beta-carotene, and beta-cryptoxanthin. Of which all can be converted to essential Vitamin A in the body. Beta-cryptoxanthin level in red fruit is relatively high, more than 1mg per 100g extract oil. Red fruit oil prohibits the growth of lung cancer cell, A549. From these studies, we conclude that red fruit must be a novel chemopreventive food for lung cancers. Main ingredient in red fruit is likely to be beta-cryptoxanthin. while the mode of action remains further examined.

Beta-cryptoxanthin exists in an ester-form in the fruits, and easily digested and rapidly absorbed in its free form to the blood circulation. In the blood, beta-cryptoxanthin is esterified, distributed into the body and circulated at small blood level. It is believed that carotenoids or Vitamin A penetrate into the nucleus and retinoic acid combines with retinoic acid receptors (RPRs), and then finally contributes to cellular differentiation. However, detailed mode of action remains further examined.

Considering in its nutrients and mode of action of carotenoids via RARs, we can expect that red fruit may work as novel healthy food for the other type of malignant tumors and metabolic diseases. Recently, the other research groups in Japan reported that beta-cryptoxanthin extracted from orange peel enhanced re-modeling of the bone (10) and prohibited development of liver cancer from liver cirrhosis caused by Hepatitis B or C viruses (News release, Sankei, May, 2007). Our preliminary and ongoing study shows capsulated red fruit oil indicates improvement of hyperglycemia and emaciation when given combination red fruit capsules with 100% pure noni juice to the volunteers.

We have developed the soft capsule red fruit product that resists against high temperature, oxygen or sunlight. However, absorption and blood levels of carotenoids remain unsolved. We hope that interesting parties and academia and government offices in Indonesia collaborate for further studies of novel chemopreventive agent against lung cancers and other ailments.

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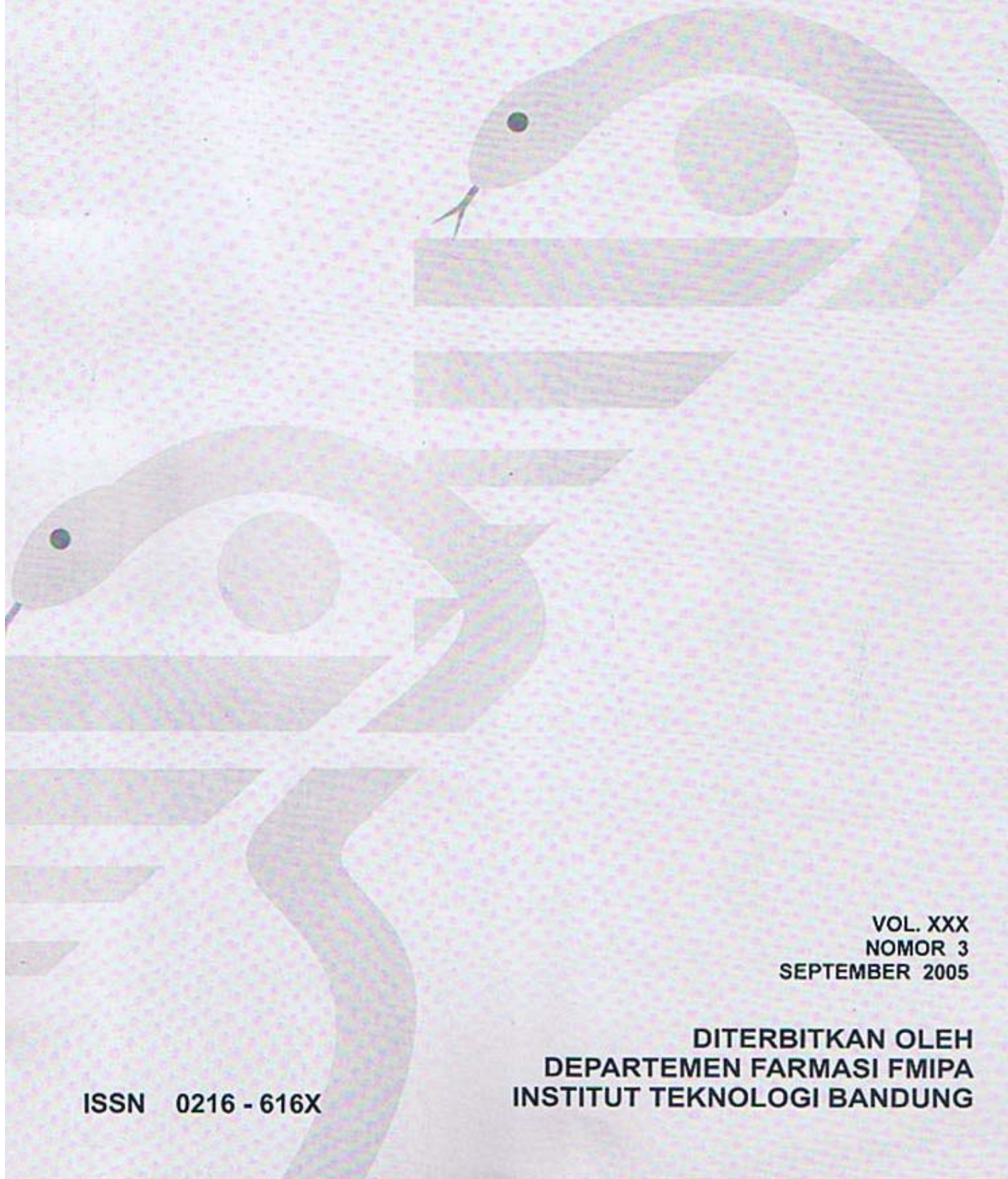


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EDITORIAL

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Penyerahan artikel untuk dimuat dalam Acta Pharmaceutica Indonesia merupakan jaminan bahwa artikel tersebut tidak akan diserahkan untuk dipublikasikan dalam suatu medium komunikasi lain. Dewan Redaksi hanya mempertimbangkan artikel yang dapat dimuat dalam salah satu rubrik yang isi dan susunan ilmiahnya memenuhi syarat Acta Pharmaceutica Indonesia

Editorial

Mahluk yang hidup di alam Indonesia luar biasa keragamannya, sebagian di antaranya sudah dimanfaatkan sesuai dengan bukti ilmiah hasil penelitian oleh yang memang ahli di bidangnya, namun sebagian lain yang jumlahnya jauh lebih banyak belum dimanfaatkan, namun ada sebagian lagi yang pemanfaatannya masih dipertanyakan, apakah sudah tepat atau belum, dan ini perlu dibuktikan secara ilmiah. Jamu yang dalam bahasa iklan sekarang ini sering disebut obat herbal (maksudnya herba) menambah anggotanya dengan suatu bahan dari alam Indonesia bagian timur yang disebut buah merah, begitu kita menamakannya berdasarkan warna buahnya. Tanaman ini (*Pandanus conoideus*) banyak tumbuh di Maluku dan Irian Jaya dengan sebutan yang beragam; minyaknya yang mengandung beta-karoten dan tokoferol, zat-zat yang bersifat antioksidan, terbukti mempunyai efek antiradang. Kuersetin, senyawa berstruktur utama flavonoid, juga terbukti mempunyai efek antiradang.

Proses pembuatan sediaan obat, terutama obat dengan lebih dari satu macam zat aktif dapat menimbulkan masalah yang mungkin selama ini tidak terpikirkan, terutama perubahan laju disolusi zat aktif dari sediaan. Secara kristalografi sekelompok peneliti mengamati apa yang terjadi jika ibuprofen dan asetaminofen, keduanya termasuk golongan analgetika, dicampur dalam suatu sediaan.

Kadar zat aktif obat dalam darah harus dipertahankan agar tetap pada konsentrasi terapeutik, itulah sebabnya frekuensi pemberian obat diatur. Untuk zat aktif dengan waktu paro singkat tentu memerlukan pemberian berulang yang agak sering. Kenyataan ada saja pasien yang tidak mematuhi pengulangan pemberian obat ini, sehingga perlu diupayakan cara-cara untuk mengurangi frekuensi pemberian obat, di antaranya ada yang mencoba menyalut zat aktif dengan teknik yang disebut mikroenkapsulasi, dengan bahan yang dapat mengendalikan pelarutannya. Sekelompok peneliti mencoba memanfaatkan kitosan, zat hasil isolasi dari kulit kepiting, digabung dengan natrium alginat, untuk menyalut glibenklamid.

Pengendalian pelarutan zat aktif dari sediaan ada yang melalui penggunaan matriks yang tidak larut dalam sediaan bentuk tablet. Namun ada beberapa faktor yang kemungkinan dapat mempengaruhi kelarutan zat aktif dari sediaan, antara lain pH medium di sepanjang saluran cerna dan tentunya wujud senyawa aktifnya sendiri apakah merupakan suatu senyawa netral, asam, atau basa, dan berapa kekuatan pKa senyawa obat tersebut. Hal ini dicoba ditelaah dalam upaya agar pengendalian pelarutan obat berjalan efektif.

Metode pemisahan yang mengalami perkembangan relatif cepat adalah kromatografi yang tekniknya demikian beragam. Di bidang farmasi yang paling sering diterapkan adalah kromatografi gas dan kromatografi cair kinerja tinggi. Tidak diragukan lagi perlunya kita mengetahui bagaimana membandingkan kinerja atau 'mutu' kolom kromatografi yang ditawarkan oleh berbagai perusahaan. Cara untuk ini dicontohkan oleh sekelompok peneliti dengan melihat berbagai parameter kinerja sistem kromatografi yang menggunakan kolom-kolom tersebut.

Negara kita memang merupakan negara besar, besar dalam ukuran geografi, keanekaragaman mahluk hidup atau hayatinya, apalagi permasalahan kehidupan masyarakatnya. Di antara yang terus menjadi perhatian banyak pihak adalah masalah ekosistem dengan pencemarannya, termasuk sisa-sisa pestisida dalam bahan pangan. Sepertinya kurang rasional kalau kita memperhatikan pencemar-pencemar berkadar kecil seperti pestisida ini, namun berbagai pencemar kadar besar yang mungkin lebih *life-threatening* tidak kita tangani secara maksimum, seperti menggunungnya sampah di berbagai tempat tidak jauh dari pemukiman yang relatif padat, serta asap knalpot kendaraan bermotor dan asap rokok di tempat-tempat umum. Itulah di antara permasalahan negara kita.

Amir Musadad

Uji Aktivitas Antiinflamasi Minyak Buah Merah (*Pandanus conoideus* LAMK.) pada Tikus Wistar Betina

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Abstrak

Telah diuji aktivitas antiinflamasi minyak buah merah (*Pandanus conoideus* LAMK.) pada tikus Wistar betina. Minyak buah merah dosis 0,9 ml/kg bobot badan tikus menekan radang secara bermakna ($p < 0,05$) dibandingkan terhadap kelompok kontrol pada 3, 4 dan 24 jam setelah induksi radang dengan karagenan dengan nilai inhibisi radang masing-masing sebesar 72,5%, 69,2% dan 85%. Minyak buah merah dosis 1,8 ml/kg bobot badan menekan radang secara bermakna ($p < 0,05$) pada 2,5 jam, 3, 4 dan 24 jam setelah induksi radang dengan nilai inhibisi radang masing-masing sebesar 76,7%, 82,4%, 78,4% dan 97%.

Kata kunci: minyak buah merah (*Pandanus conoideus* LAMK), aktivitas antiinflamasi

Abstract

Antiinflammatory activity of *buah merah* (*Pandanus conoideus* LAMK.) oil in Wistar female rats had been tested. *Buah merah* oil at a dose of 0.9 ml/kg of rats, suppressed inflammatory reaction significantly ($p < 0,05$) compared to that of control ($p < 0,05$) at 3, 4 and 24 hours after carrageen inflammation induction with inhibition percentage of as high as 72.5%, 69.2% and 85 %, respectively. *Buah merah* oil at a dose of 1.8 ml/ kg of body weight decreased inflammatory significantly ($p < 0,05$) compared to that of control at 2.5, 3, 4 and 24 hours after inflammation induction with inflammatory inhibition of as 76.7%, 82.4%, 78.4% and 97% respectively.

Key word : buah merah oil, *Pandanus conoideus* LAMK, antiinflammatory activity

Pendahuluan

Akhir-akhir ini buah merah menjadi terkenal sebagai obat herbal yang banyak digunakan masyarakat sebagai obat alternatif. Buah merah adalah buah dari pandan yaitu *Pandanus conoideus* LAMK, suku Pandanaceae. Tumbuhan ini berasal dari Papua dan dikenal dengan berbagai nama yaitu *sauk eken* atau *tawi* di Wamena atau *kaef* sebutan oleh suku Ngalun dan *bitam* sebutan di Timika. *Pandanus conoideus* dikenal pula dengan nama *Pandan spiran* dan tumbuh pula di bagian utara Maluku dari pantai hingga pegunungan [1].

Buah merah mengandung β -karoten, tokoferol dan beberapa mineral. Melihat kandungannya adalah kombinasi beberapa antioksidan kemungkinan dapat digunakan untuk menekan berbagai penyakit seperti inflamasi, diabetes, pirai, dapat pula mencegah terbentuknya radikal bebas yang dapat menyebabkan kanker. Tapi semua efek ini harus dibuktikan terlebih dahulu di laboratorium pada hewan percobaan sebelum digunakan pada manusia agar khasiatnya jelas.

Pada penelitian ini diuji efek antiinflamasi menggunakan tikus. Efek antiinflamasi diamati berdasarkan penurunan radang yang dinyatakan dalam persen radang dan penghambatan pembentukan radang yang dinyatakan dalam persen inhibisi radang [2,3].

* Penulis yang dapat dihubungi untuk korespondensi



Gambar 1. Pohon dan buah merah (*Pandanus conoideus* LAMK)

Percobaan

Bahan

Minyak buah merah (PT. Prima Baliem Subur), asetosal sebagai pembanding, larutan karagenan 1% sebagai induktor radang.

Alat

Pletismometer air raksa, kandang tikus, alat suntik dan peralatan lain yang biasa dipergunakan di laboratorium farmakologi.

Hewan Uji

Tikus Wistar betina usia 3 bulan yang diperoleh dari Laboratorium Perhewan, Departemen Farmasi, FMIPA ITB.

Prosedur

Pemeriksaan karakteristik minyak buah merah (*Pandanus conoideus* LAMK.)

Pemeriksaan karakteristik meliputi penentuan bobot jenis, bilangan asam, bilangan penyabunan dan bilangan ester.

Pengujian efek antiinflamasi buah merah (*Pandanus conoideus* LAMK.)

Tikus percobaan dibagi menjadi empat kelompok yaitu kelompok kontrol, kelompok uji (dua dosis) dan pembandingan. Tiap kelompok terdiri dari 5 ekor tikus. Telapak kaki tikus dibuat radang dengan menyuntikkan 0,05 ml larutan karagenan 1% secara intraplantar. Sebelum digunakan suspensi karagenan diinkubasi pada suhu 37 °C.

Sediaan uji diberikan secara oral 30 menit sebelum induksi karagenan. Pengamatan dilakukan setiap 30 menit selama 4 jam setelah induksi karagenan. Pengamatan dilanjutkan pada keesokan harinya yaitu pada waktu 24 jam setelah diinduksi radang. Kelompok pembandingan diberi asetosal (45 mg/kg bb), kelompok uji diberi minyak buah merah 0,9 ml/kg bb (D1) dan 1,8 ml/kg bb (D2).

Perkembangan radang diamati setiap 30 menit selama 24 jam setelah induksi radang. Radang kembali diamati pada 24 jam setelah induksi radang. Hasil uji dinyatakan dalam persentase radang yang menunjukkan perkembangan radang kaki tikus setelah diberi sediaan uji dan persentase inhibisi radang terhadap kontrol yang menunjukkan kemampuan sediaan uji dalam menghambat pembentukan radang

Hasil dan Pembahasan

Hasil pemeriksaan karakteristik buah merah (*Pandanus conoideus* LAMK.) dirangkum pada Tabel 1.

Tabel 1. Karakteristik minyak buah merah (*Pandanus conoideus* LAMK.) yang digunakan pada penelitian ini

Pemeriksaan	Hasil
Bobot jenis g/mL	0,900
Bilangan asam	18,76
Bilangan penyabunan	26,49
Bilangan ester	7,73

Perkembangan radang kaki tikus ditampilkan pada Tabel 2 dan persentase inhibisi radang ditampilkan pada Tabel 3.

Berdasarkan hasil pengukuran dan perkembangan radang pada tikus kelompok pembandingan (asetosal) terlihat bahwa pada 1,5; 2,5; 3; 4 dan 24 jam setelah induksi radang, persen radang lebih rendah dan berbe-

da bermakna secara statistik ($p < 0,05$) dibandingkan terhadap kelompok kontrol. Hal ini menunjukkan bahwa asetosal memiliki efek penekanan radang. Adanya efek penekanan radang dari asetosal menunjukkan bahwa metode uji yang digunakan adalah valid dan dapat diterapkan untuk mengevaluasi efek antiinflamasi minyak buah merah tersebut.

Hasil pengukuran perkembangan radang pada tikus menunjukkan bahwa minyak buah merah dosis 0,9 ml/kg bb (D1) menurunkan radang yang bermakna terhadap kontrol ($p < 0,05$) pada 3, 4 dan 24 jam setelah induksi karagenan. Persen inhibisi radang pada 3 jam setelah induksi karagenan sebesar 72,5 %. Satu jam berikutnya persen inhibisi radang tersebut menurun menjadi 69,2%. Persen inhibisi radang tertinggi teramati pada 24 jam setelah induksi radang yaitu sebesar 85 %.

Minyak buah merah dosis 1,8 ml/kg bb (D2) menunjukkan penurunan radang yang bermakna terhadap kontrol ($p < 0,05$) pada 2,5; 3; 4 dan 24 jam setelah induksi karagenan. Persen inhibisi radang pada 2,5 jam setelah induksi karagenan sebesar 76,7 %. Setengah jam kemudian, persen inhibisi radang tersebut meningkat menjadi 82,4 %. Selanjutnya, 3 jam setelah induksi karagenan, persen radang menurun menjadi 78,4 %. Persen inhibisi radang tertinggi teramati pada 24 jam setelah induksi radang yaitu sebesar 97 %.

Kelompok yang diberi asetosal menunjukkan penurunan radang yang bermakna ($p < 0,05$) terhadap kontrol pada 1,5; 2,5; 3; 4; dan 24 jam setelah induksi karagenan. Persen inhibisi radang pada 1,5 jam setelah diinduksi karagenan sebesar 69,8%. Satu jam kemudian, persen inhibisi radang tersebut meningkat menjadi 87,8%. Selanjutnya, berturut-turut 3 jam dan 4 jam setelah induksi karagenan, persen radang menurun menjadi 84,7 dan 78,4%. Persen inhibisi radang tertinggi teramati pada 24 jam setelah induksi radang yaitu sebesar 89,5%.

Berdasarkan data di atas, terlihat bahwa minyak buah merah dosis D2 mulai menunjukkan efek penurunan radang pada 2,5 jam setelah induksi inflamasi dengan karagenan. Sedangkan minyak buah merah dosis D1 baru menunjukkan efek penurunan radang pada 3 jam setelah induksi inflamasi dengan karagenan. Hal ini menunjukkan bahwa minyak buah merah dosis D2 lebih cepat menimbulkan efek penurunan radang dari pada dosis D1.

Jika diamati pada waktu yang sama, terlihat bahwa persen inhibisi radang dari kelompok yang diberi minyak buah merah dosis D2 selalu lebih tinggi dibandingkan kelompok yang diberi dosis D1. Hal ini menunjukkan bahwa kemampuan Menghambat ra-

dang dari minyak buah merah dosis D2 lebih baik dibandingkan dosis D1.

Berdasarkan hasil pengamatan di atas, efek menurunkan radang dari asetosal muncul 1 jam lebih cepat dibandingkan minyak buah merah dosis D2. Jika diamati pada waktu 2,5 jam sampai 3 jam setelah induksi karagenan, terlihat bahwa persen inhibisi radang dari kelompok yang diberi minyak buah merah dosis D2 lebih rendah dibandingkan kelompok yang diberi asetosal. Satu jam berikutnya persen inhibisi radang kelompok yang diberi minyak buah merah dosis D2 sama dengan kelompok yang diberi asetosal. Sedangkan 24 jam setelah diinduksi karagenan, persen inhibisi radang kelompok yang diberi minyak buah merah dosis D2 lebih tinggi dibandingkan kelompok asetosal. Hal ini menunjukkan minyak buah merah dosis D2 menunjukkan efek penghambatan pembentukan radang dengan durasi yang lebih baik dibandingkan asetosal, meskipun munculnya efek (onset) lebih lambat dibandingkan asetosal.

Kesimpulan

Minyak buah merah dosis 0,9 ml/kg bobot badan dan 1,8 ml/kg bobot badan pada pemberian secara oral menurunkan radang pada kaki tikus yang diinduksi dengan karagenan. Minyak buah merah dosis 0,9 ml/kg bobot badan menekan radang secara bermakna ($p < 0,05$) pada 3, 4 dan 24 jam setelah induksi radang dengan nilai inhibisi radang masing-masing sebesar 72,5; 69,2 dan 85 %. Minyak buah merah dosis 1,8 ml/kg bobot badan menekan radang secara bermakna ($p < 0,05$) pada 2,5 jam, 3, 4 dan 24 jam setelah induksi radang dengan nilai inhibisi radang masing-masing sebesar 76,7; 82,4; 78,4; dan 97 %. Minyak buah merah dosis 1,8 ml/kg bobot badan menunjukkan efek menurunkan radang dan menekan pembentukan radang yang lebih kuat dibandingkan dosis 0,9 ml/kg bobot badan, tetapi lebih rendah dari pembanding asetosal 45 mg/kg bobot badan tikus.

Tabel 2. Perkembangan radang kaki tikus pada uji aktivitas antiinflamasi buah merah

Kelompok	% radang kaki tikus setelah diberi karagenan									
	0,5 jam	1 jam	1,5 jam	2 jam	2,5 jam	3 jam	3,5 jam	4 jam	24 jam	
Kontrol	8,21±3,96	10,91±4,36	19,03±6,08	19,21±14,10	27,27±17,11	46,36±8,35	42,66±26,17	51,14±13,20	30,23±10,33	
Buah merah dosis 0,9 ml/kg bb	13,85±6,50	12,56±2,74	10,96±4,11	12,05±4,93	9,23±3,77	12,76*±2,10	13,93±6,66	15,73*±5,83	4,53*±5,58	
Buah merah dosis 1 ml/kg bb	11,43±3,10	11,05±9,31	8,47±5,09	10,29±6,72	6,36*±7,61	8,18*±9,85	9,23±9,01	11,05*±12,19	0,91*±4,53	
Asetosal (45 mg/kg bb)	10,06±6,05	11,88±2,78	5,74*±2,78	6,61±2,92	3,33*±4,64	7,09*±4,49	7,09±4,49	11,05*±5,65	3,17*±4,37	

Keterangan : * = lebih rendah dan berbeda bermakna terhadap kontrol pada $p < 0,05$, $n = 5$ sediaan uji diberikan 0,5 jam sebelum pemberian karagenan

Tabel 3. Persentase inhibisi radang kaki tikus pada uji aktivitas antiinflamasi minyak buah merah

Kelompok	% Inhibisi radang kaki tikus setelah diinduksi dengan karagenan									
	0,5 jam	1 jam	1,5 jam	2 jam	2,5 jam	3 jam	3,5 jam	4 jam	24 jam	
Buah merah dosis 0,9 ml/kg bb	-68,70	-15,10	42,41	37,27	66,14	72,48	67,34	69,25	85,02	
Buah merah dosis 1 ml/kg bb	-39,22	-1,29	55,50	46,44	76,66	82,35	78,35	78,39	96,99	
Asetosal (45 mg/kg bb)	-23,02	-8,88	69,82	65,57	87,78	84,71	83,36	78,39	89,52	

Keterangan : $n = 5$, tanda - = % radang lebih tinggi dari kontrol

Ucapan Terima kasih.

Terima kasih disampaikan kepada Majalah Trubus yang telah menyediakan bahan uji minyak buah merah

Pustaka

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LAB NO : CLA,II 173II/2006

DATE OF REPORT : 20th December 2006

SAMPLE DESCRIPTION: one (1) sample of red fruit oil

RECEIVED DATE : 1 March 2006

PH test of red fruit

PH test	
Description	Percentage
Oleate Acid	58%
Linoleic Acid	8.8%
Linoleate Acid	7.8%

Pandanous Conoideus 's Ingredient

Description	Total Amount
Total of carotenoid	12.000 part per million
Total of Tocopherol	11.000 part per million
Beta carotene	700 part per million
Alpha Tocopherol	500 part per million
Decanoat	2.0%
Pb	Below 0.1 milligrams per litter
Cu	0.61 milligrams per litter
Zn	4.61 milligrams per litter
Sn	Below 1.2 milligrams per litter
Hg	Below 0.001 milligrams per litter
As	Below 0.002 milligrams per litter
Ethanol	Not detected
Methanol	Not detected
Total bacteria	1.6×10^3 colony per milliliter
Coli form	Below 3.6 MPN per milliliter
E. Coli	Below 3.6 MPN per milliliter
Salmonella Sp	Negative

Person in charge,

Dr.Ir.M.Ahkam Subroto, M.App.Sc.,APU

REPORT OF ANALYSIS

Parameters	Units	Results	Methods
Heavy Metals :			
Pb	mg/l	Below 0.1	AAS
Cu	mg/l	0.61	AAS
Zn	mg/l	4.61	AAS
Sn	mg/l	Below 1.2	AAS
Hg	mg/l	Below 0.001	AAS
As	mg/l	Below 0.002	AAS
- Ethanol	-	Not detected	Gas Chromatography
- Methanol	-	Not detected	Gas Chromatography
Microbiological :			
- Total Bacteria	Colony / ml	1.6×10^7	BAM 8 th Ed Chapter 3
- Coliform *	MPN / ml	Below 3.6	BAM 8 th Ed Chapter 4
- E.Coli *	MPN / ml	Below 3.6	BAM 8 th Ed Chapter 4
- Salmonella sp	Colony / 25 ml	Negative	BAM 8 th Ed Chapter 5
- Staphylococcus aureus	Colony / ml	Nil	BAM 8 th Ed Chapter 12
- Enterococci	Colony / ml	Nil	Pour Plate

* Based on the MPN table

Socofindo Laboratory,



MUCITABUDIN
 NYP BUK. 0078

Mu. Kim /



**PEMERINTAH KOTA JAYAPURA
DINAS KESEHATAN**

Jl. Perhutut No. 3 Cigombong Kotaraja Jayapura Papua 99225
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**SERTIFIKAT PRODUKSI PANGAN
INDUSTRI RUMAH TANGGA**

P-IRT No. 214917102151

Diberikan Kepada :

Nama Perusahaan : CV. Bali Spot International
Nama Pemilik : Samuel Nehemiah
Alamat : Jl. Sorong Abepura Jayapura
Jenis Produk : Sari Buah Merah

Yang telah memenuhi Persyaratan Sertifikasi Produksi Pangan Industri Rumah Tangga (SPP-IRT) Berdasarkan Surat Keputusan Kepala Badan Pengawas Obat dan Makanan Republik Indonesia No. HK.00.05.5.1640 tanggal, 30 April 2003 yang diselenggarakan di :

Kabupaten/Kota : Jayapura
Provinsi : Papua
Pada Tanggal : 2 -3 Juni 2005

Jayapura, 11 Oktober 2006



Drg. Sujono Angkasa, MPH
PEMBINA TK I
NIP. 140 090 025



PEMERINTAH KABUPATEN JAYAWIJAYA
DINAS KESEHATAN

Jl. Trikora No 120 PO.Box 108 Telp (0960) 31142 Fax (0969) 32550 Wamena 99511



SURAT KETERANGAN ASAL

Nomor : 441 / 464 /2007

Yang bertanda tangan dibawah ini, Pejabat Kepala Dinas Kesehatan Kabupaten Jayawijaya, dengan ini menerangkan bahwa:

NAMA PERUSAHAAN : CV. BALI SPOT INTERNATIONAL
JENIS USAHA : Produksi Buah Merah
NAMA : SAMUEL NEHEMIAH
PEKERJAAN : SWASTA
ALAMAT TEMPAT USAHA : Jl. Ahmad Yani No. 29 Wamena

Perusahaan tersebut diatas memproduksi buah merah di Kota Wamena, Kabupaten Jayawijaya, Provinsi Papua – Indonesia.

Demikian Surat Keterangan ini dibuat untuk dipergunakan sebagaimana mestinya.

Dikeluarkan di : Wamena
Pada Tanggal : 30 Juli 2007.

Kepala Dinas Kesehatan
Kabupaten Jayawijaya



[Handwritten Signature]
PERRY YIGIBALOM
NIP. 140 121 824



PEMERINTAH KOTA MALANG
DINAS PERINDUSTRIAN PERDAGANGAN DAN KOPERASI

TANDA DAFTAR PERUSAHAAN
PERSEKUTUAN KOMANDITER

BERDASARKAN UNDANG-UNDANG NOMOR 3 TAHUN 1982
TENTANG WAJIB DAFTAR PERUSAHAAN

NOMOR TDP 130835201784	BERLAKU S/D TANGGAL 30 JUNI 2013	0	1
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NAMA PERUSAHAAN	: " BALI SPOT INTERNATIONAL " CV
STATUS	: KANTOR PUSAT
ALAMAT	: JL. BURANGRANG NO. 18 MALANG
NOMOR TELEPON	: (0341) 551209 FAX :
PENANGGUNG JAWAB / PEMILIK	: SAMUEL NEHEMIAH
<u>KEGIATAN USAHA POKOK</u> (KBLI : 52381)	: KERAJINAN DARI KAYU, BAMBU, ROTAN, RUMPUT DAN SEJENISNYA

M A L A N G , 23 OKTOBER 2008

KEPALA
DINAS PERINDUSTRIAN, PERDAGANGAN DAN
KOPERASI KOTA MALANG



Drs. H. SUGIANTORO. MSI
Pembina Utama Muda
NIP 510 060 766

Keterangan
Asli : Yang bersangkutan
LEMBAR 1 : Arslp

CV Bali Spot International Co., Ltd

Jalan Puncak Yamin 1

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