



BAMBOO SHOOTS AS FOOD SOURCES IN THE PHILIPPINES: STATUS AND CONSTRAINTS IN PRODUCTION AND UTILIZATION

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Oral paper presented during the 10th World Bamboo Congress
"Bamboo for a Greener Future"
sponsored by the World Bamboo Organization in Damyang, South Korea
17-23 September 2015

Outline

1. Introduction
2. Status of bamboo shoot
3. Bamboo species for bamboo shoot
4. As FOOD

The healthy food-source

- a. As vegetable
 - b. Peeled bamboo shoots
 - c. Cyanide content
 - d. Nutritive value
5. Bamboo recipes
 6. Challenges
 7. Current Prospects
 8. Recommendations



Popularly known before as the “poor man’s timber”, it is now hailed as the “climate change plant” and retaining its famous descriptive line “the tallest grass”.

Wonder Grass

Grass of Life

Shaman of an Ailing Land

Protector of Life

**the plant for all seasons
with thousand uses**



This paper aims to:

- 1) assess the status and prospects of bamboo shoots as potential food source or as vegetable in the Philippines;
- 2) enumerate the problems in bamboo shoot R&D and constraints in production and utilization;
- 3) present some published/unpublished data and observations on shoot characteristics and plantation establishment of some local bamboo species; and
- 4) document the economic benefits of bamboo shoot farming based on previous studies and
- 5) Continue promoting the use of bamboo shoots as food source in the Philippines.



Status

- * Bureau of Agricultural Statistics
- * 2002-2007 -annual average of 7,722 ha of bamboo was harvested for bamboo shoots (BAS 2007).
- * Supply of bamboo shoots in the local market in different provinces are mostly from fresh whole bamboo shoot, sliced fresh shoots and cooked sliced shoots.
- * Canned bamboo shoots from China and Japan are available in the supermarkets and most food stores in the business district of Divisoria, Metro Manila.
- * As of this writing, all bamboo shoots are manually processed and there is no available factory for bamboo shoot processing..



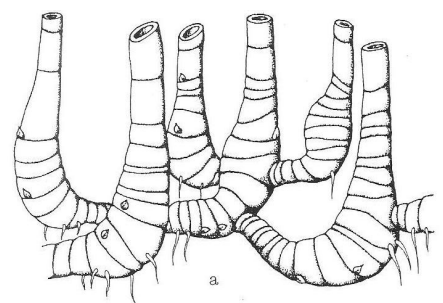
Problems in bamboo shoot R&D and constraints in production and utilization

- * only few studies have been done for bamboo shoot research and development (R&D) under Philippine conditions
- * Dwindling natural stands = underutilized food source
- * Not popular to the new generation of Filipinos
- * Most of the work focused on culm propagation, production, harvesting and marketing. As such, with the lack of basic information on shoot characteristics, it will be difficult to formulate a business venture on bamboo shoot production. The lack of funds for basic research on bamboo shoots is also a major reason for the lack of baseline information.

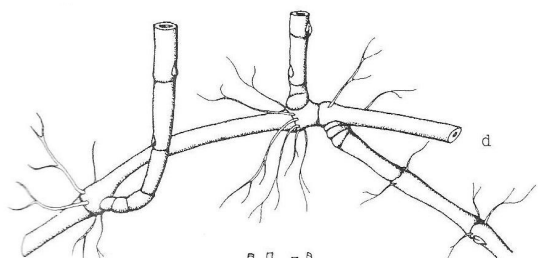
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BAMBOO RESOURCES IN THE PHILIPPINES

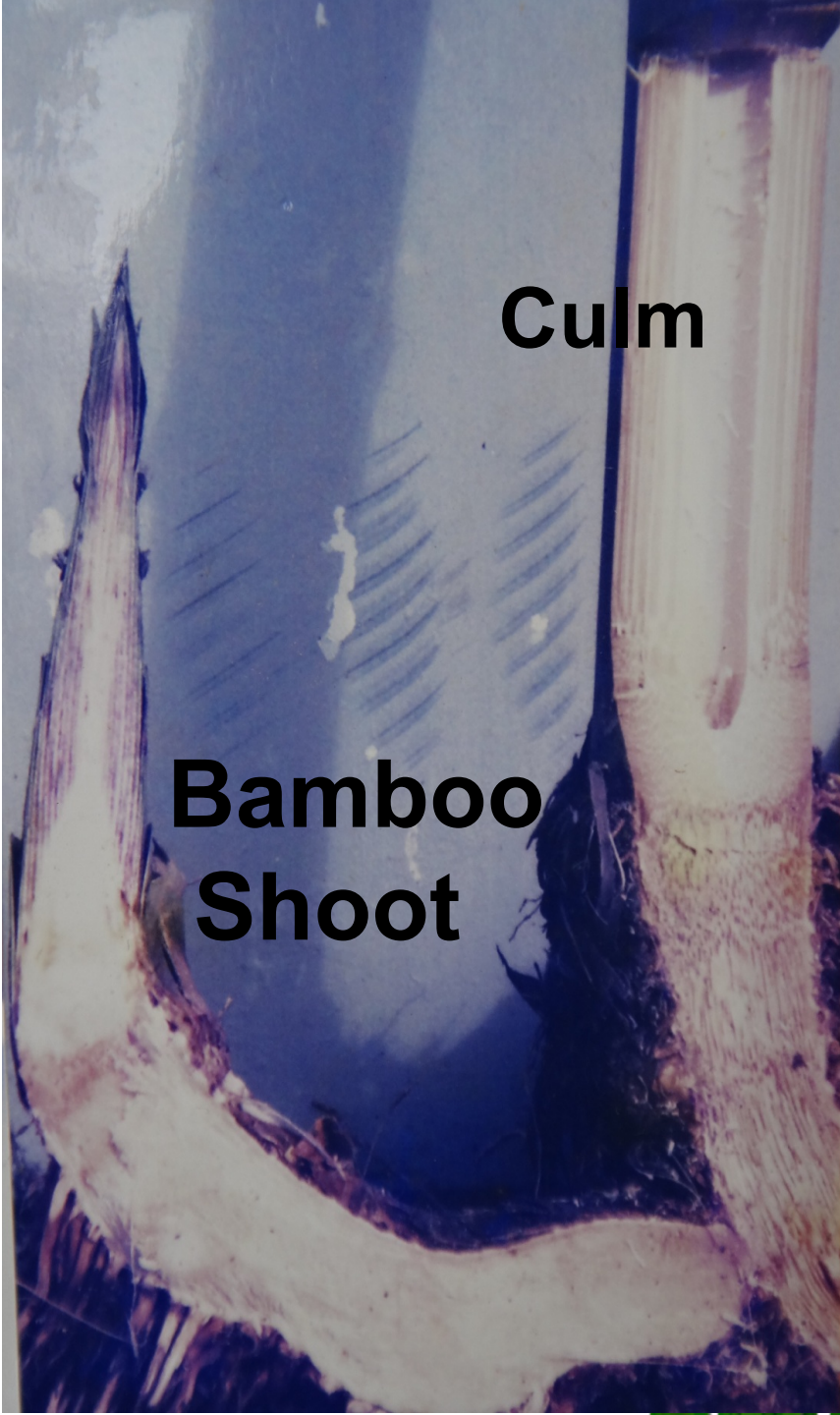


SYMPODIAL.CLUMPING -TROPICS



MONOPODIAL RUNNING -TEMPERATE

Redrawn from Rojo et al. 2000
(Wong 1995/McClure 1941)



Culm

Bamboo Shoot

Kawayan Tinik

Bambusa blumeana



Bambusa merrilliana – Bayog



Gigantochloa levis

'Bolo'/'Kawayan-Tsina (Tagalog);
Kabolian (Bikol);

'Patong'/'Botong' (Bisaya)



Dendrocalamus latiflorus - Machiku



Kayali
Gigantochloa atter



Laak

*Bambusa
philippinensis*



Dendrocalamus asper

Giant Bamboo

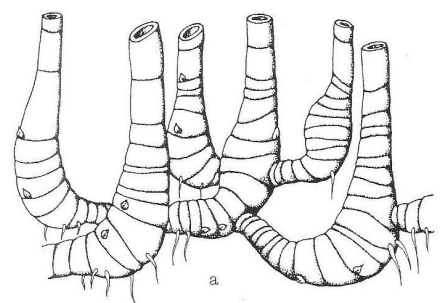
Bukawe(Tagalog)

Botong (Bisaya)

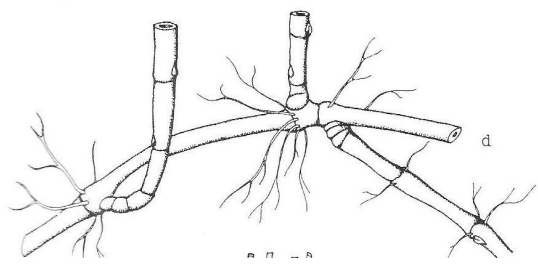
Patong (Cebuano)



BAMBOO SHOOT MORPHOLOGY



SYMPODIAL.CLUMPING -TROPICS



MONOPODIAL RUNNING -TEMPERATE

Redrawn from Rojo et al. 2000
(Wong 1995/McClure 1941)



Culm

Bamboo Shoot



BAYOG

Bambusa merrilliana

LABONG

RABONG

DABONG

KAWAYAN TINIK

Bambusa blumeana



(Caasi-Lit et al 2010
Philippine Journal of Crop Science 35(2): 54-68.)



KILING

Bambusa vulgaris

LABONG

LAMBO

LAMBONG

PUWAG

CAMARINES SUR

LAAK

Bambusa philippinensis





DABONG

VISAYAS MINDANAO

UVUG

TUMBU

Ibanag

HUBWAL

HAREPENG

Ifugao

Mountain Province



BOLO *Gigantochloa levis*

KAYALI *Gigantochloa atter*

GIANT BAMBOO

Dendrocalamus asper

Bamboo shoots are
used as food sources
in the past
around the Philippines!!!





Gigantochloa *Dendrocalamus* *Bambusa*



YELLOW/GOLDEN BAMBOO – *Bambusa vulgaris* cv *vittata*



Kawayang tinik – *Bambusa blumeana*



Bayog (endemic in the Philippines) – *Bambusa merrilliana*



Gigantochloa atter
Kayali



Gigantochloa levis
Bolo



Thyrsustachys siamensis
Thailand bamboo



Laak (endemic) – *Bambusa philippinensis*



Kiling – *Bambusa vulgaris vulgaris*



Giant Bamboo – *Dendrocalamus asper*



Machiku – *Dendrocalamus latiflorus*

CYANIDE ON BAMBOO SHOOTS

Always in the growing shoots

Bitter chemical is called hydrocyanic acid or cyanide(CN)

Cyanide occurs widely in nature and it is even present in human blood at low concentrations (Montgomery 1980).

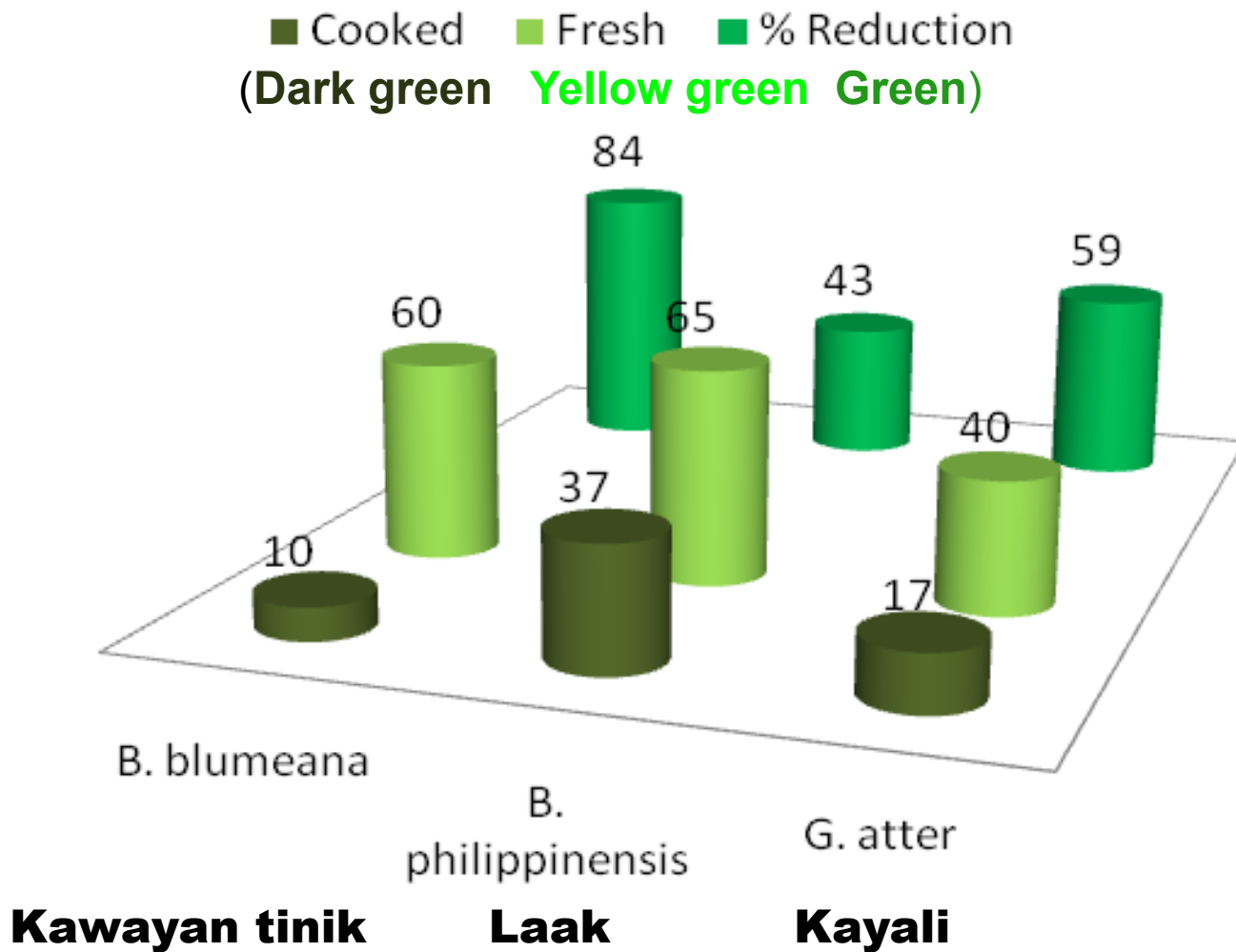


CYANIDE ON BAMBOO SHOOTS

However, high concentration of cyanide is lethal to humans.

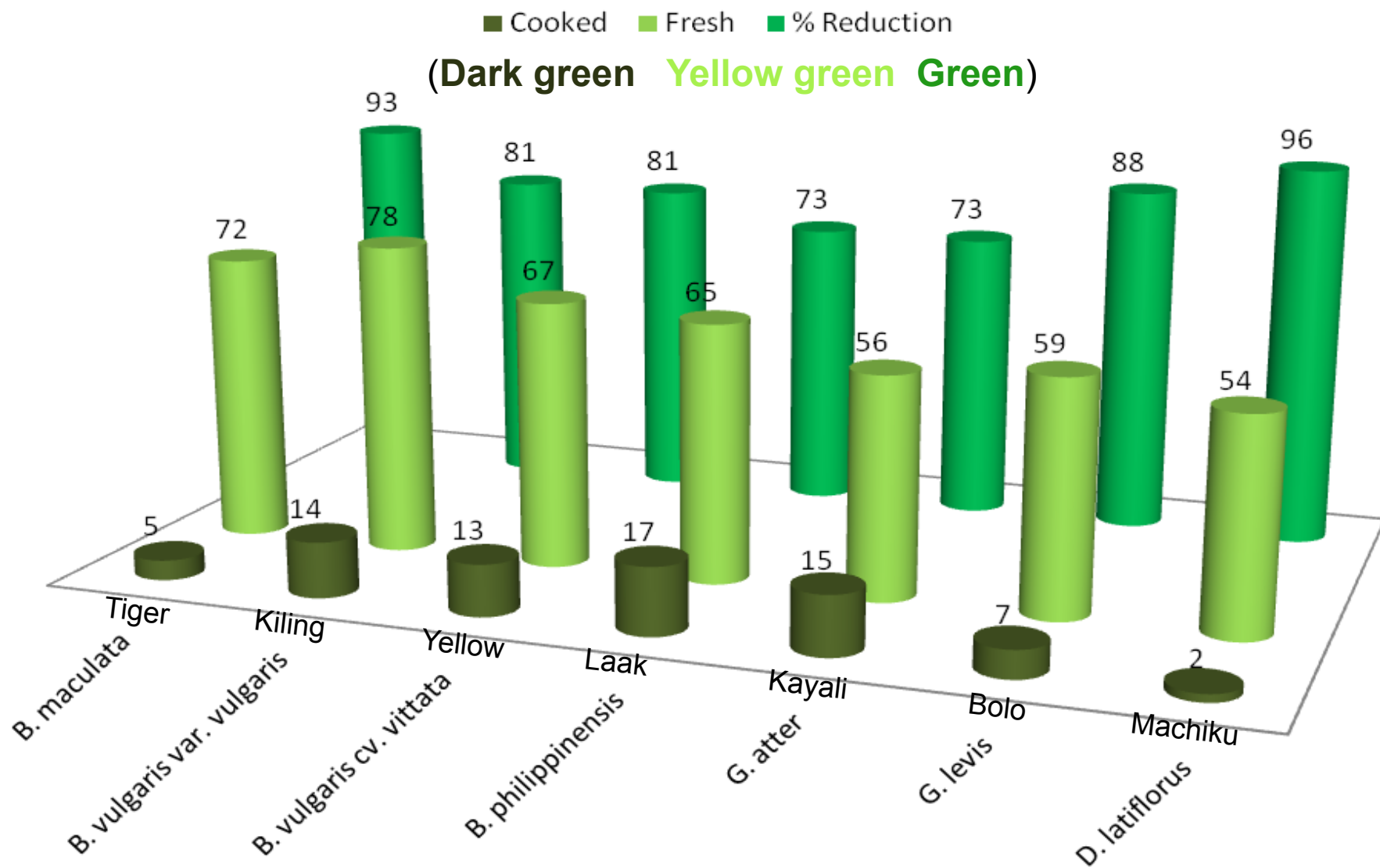
Oral lethal dose for humans ranges from **0.5-3.5 mg/kg body weight** (Bradbury and Holloway 1998).





Percent reduction (green bars) in cyanide content of fresh shoots after boiling for 15 minutes from Sta. Cruz Bamboo Plantation. Values for fresh and cooked shoots are cyanide contents in ppm

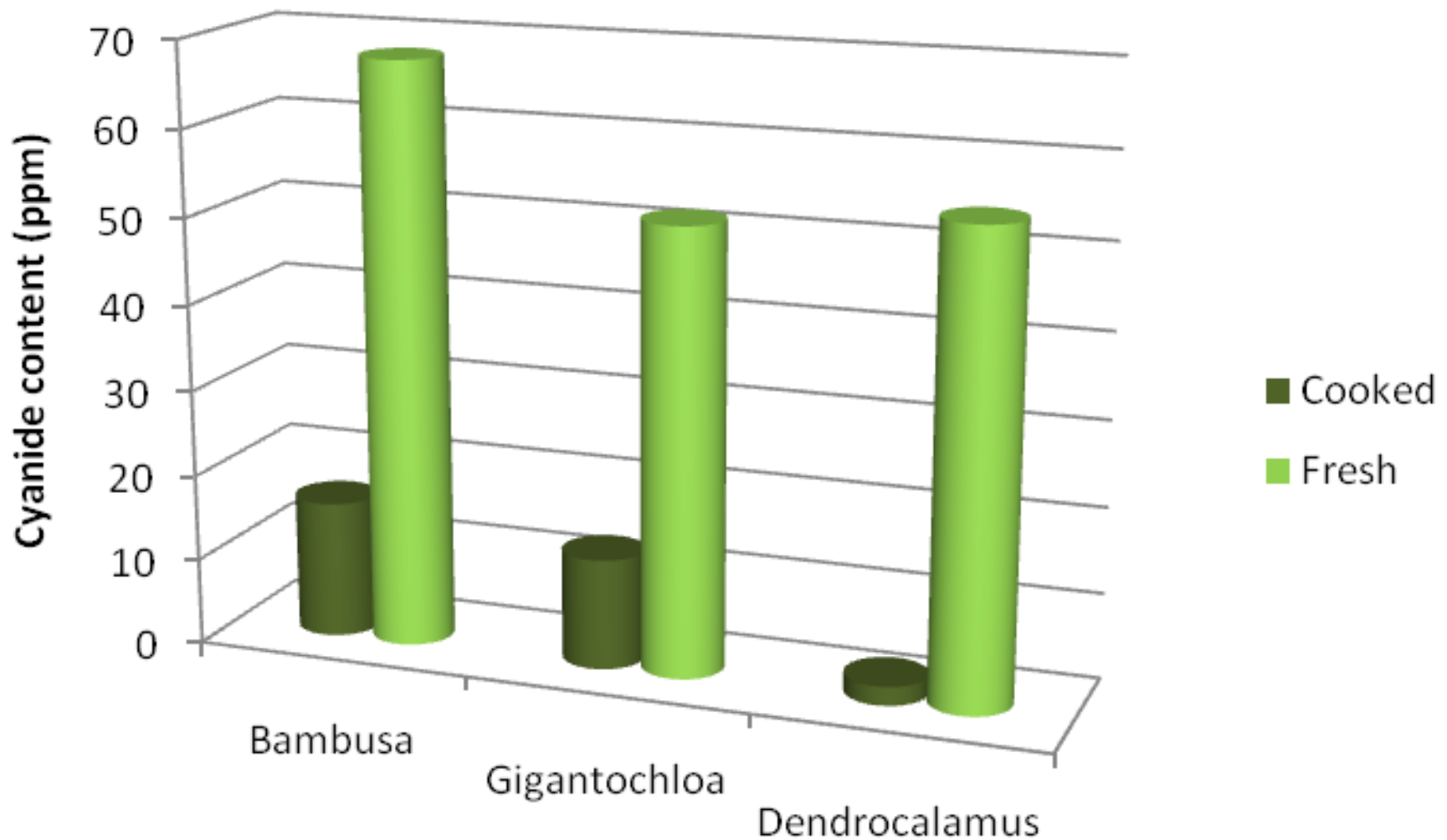
(Caasi-Lit et al 2010 Philippine Journal of Crop Science 35(3): 9-18.)



Percent reduction in cyanide content of fresh shoots after boiling for 15 minutes from Davao Bamboo Plantation.

Values for fresh and cooked shoots are cyanide content in ppm.

(Caasi-Lit et al 2010 Philippine Journal of Crop Science 35(3): 9-18.)



Comparison of the cyanide content (pooled means from the two sites) of the three most common bamboo species in the Philippines used as edible shoots

Bamboo shoot

**Manual
Processing
(Household
Backyard)**







BAMBOO SHOOT RECIPES

Traditional food

Lumpiang labong, Dinengdeng na labong

Adobong labong, Bamboo shoot shrimp soup

Guinisang labong, Pickled labong and many more.....

Caasi-Lit, M.T. 1999. Bamboo as food, pp 42-65. In Bamboo + Coconut [Kawayan + Lubi]. Philippine Coconut Research and Development Foundation, Inc., Pasig City. vi + p. 82.

Innovative/Creative food products

native delicacies, viands, breads, pastries, desserts, pasta, snacks and beverages

Atty Dulce Blanca T. Punzalan

Filbamboo Exponents Inc. & Crea 8 Innov 8 Marketing



FilBamboo Initiatives

- ★ Innovative/creative food products from bamboo shoots







Awards

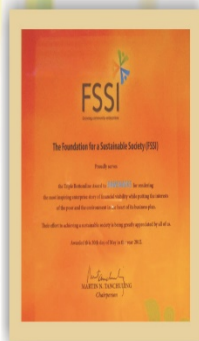
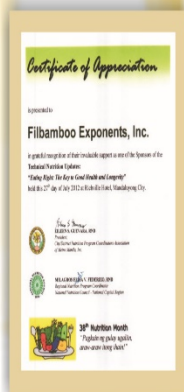
*Grand Prize, Food Category

International Network for Bamboo And Rattan (INBAR) Product Ideas Competition, Shanghai World Expo 2010. One hundred twenty (120) entries from 27 countries participated in the said event.

*Winner – Philippine Business for Social Progress Business in Development (BiD) Challenge 2011; awarded May 30, 2012.

*Winner - Triple Bottom line Award given by the Foundation for A Sustainable Society Inc.; awarded May 30, 2012.

Certificate of Appreciation from the Nutrition Program Coordinators Association of Metro Manila Inc. & the NCR National Nutrition Council (July 27, 2012 Technical Nutrition Updates: "Eating Right: The Key to Good Health and Longevity" event).



FILBAMBOO EXPONENTS INC. was established and envisioned as a social enterprise devoted to promoting bamboo in the pursuit of health, wellness, and beauty to address each individual's needs and care for the environment. The company aims to create sustainable livelihood for rural farming communities in the Philippines. FILBAMBOO manufactures and provides high quality bamboo products (food, beverages, health supplements) through an integrated and holistic approach to propagation, processing, production, sales, and marketing of these products via traditional and non-traditional channels.

ADVOCACIES:

Sustainable Livelihood & Development for Rural/Farming Communities, Alleviation of Hunger & Poverty, Environmental Protection, Health & Wellness.

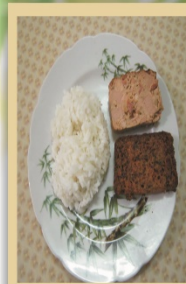
BAMBOO TRAINING/ SEMINARS with ECO-CULTURAL TOURS & COMMUNITY CRAFT WORKSHOPS:

Includes trekking & rafting, river tubing, swimming, videoke, arts & crafts workshops using indigenous materials, mineral make-up demo, massage therapy, healthy bamboo food & beverages, planting of bamboo seedlings, visit to historical sites, etc.

BAMBU VALUE MEALS



A. 1 Slice Bambutido,
Bambu Suman
and Rice Php65.00
w/ Beverage Php95.00



B. 1 Slice Bambutido,
1 Slice Bambu Banana
and Rice Php85.00
w/ Beverage Php115.00



C. 1 Slice Bambutido,
1 Slice Bambu Carrot
and Rice Php100.00
w/ Beverage Php130.00



D. Bambu Seafood Pancit,
and Bambu Puto Php65.00
w/ Beverage Php95.00



E. Bambu Seafood Pancit, Crispy Bambu Pusitos,
1 Slice Bambutido, Rice and
1 Bambu Banana Muffin Php200.00
w/ Beverage Php230.00
or a choice of

F. Bambu Seafood Pancit, Crispy Bambu Pusitos
1 Slice Bambutido, Rice, and
1 Bambu Carrot Walnut Muffin Php215.00
w/ Beverage Php245.00



G. Heart Shaped Ensaymada with
2 pieces Bambu Lumpia Php90.00
with Beverage Php125.00



H. Crispy Bambu Pusitos Php60.00

Why Bamboo is Good For You

Bamboo is low in Saturated Fat, and very low in Cholesterol. It is also a good source of Dietary Fiber, Protein, (17 amino acids), Zinc, Beta Carotene, Vitamins B1 (Thiamine), B6, B2 (Riboflavin), B3 (Niacin), A, C, Potassium, Calcium, Iron, Copper and Manganese.

For fast delivery order:

by phone: +63.0917.8525538,
(632) 332.7885, 332.9858
or online: filbamboo@yahoo.com

Unit 9D Mahinhin St., UP Village Quezon City, Phil.

Also available at
Human Nature PQ:

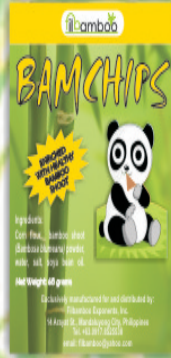
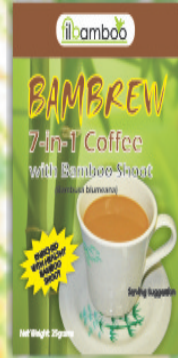
Unit SFRO9 Santana Grove, 7202 Soreena Drive corner
Dr. A Santos Ave., (formerly Sucat), Paranaque City, Phil.

Tel No.: (632) 828.4572, 400.3665

Pricelist of Food Products

- Bambu Heart-Shaped Ensaymada w/ Cheese & Salted Egg Php40.00
- Bambu Pandesal Pack of 6s Php24.00
- Bambu Spanish Bread Pack of 6s Php24.00
- Bambu Pan de Coco Pack of 6s Php24.00
- Bambu Puto Pack of 10pcs. Php60.00
- Bambu Seafood Pancit (1 Serving) with Bambu Puto Php65.00
- Bambu Chara (small bottle) Php90.00
- Bambu Puto Pack of 20s Php120.00
- Bambu Suman Pack of 10s Php150.00
- Bambu Banana Loaf Php270.00
- Bambu Suman Pack of 20s Php300.00
- Bambu Carrot Loaf Php385.00
- Bambutido Php395.00
- Bambu Fruitcake (500 gm) Php400.00
- Bambu Coffee 7 in 1 (250 gm per box) Php300.00
- Bambu Chips Party Packs (250 gm) Php150.00
- Bambu Crispy Pusitos Php60.00
- Bambu Pastillas (20 pcs) Php150.00

BAMBU COFFEE & CHIPS



MUFFIN MADNESS



Bambu Carrot Walnut Muffin 40 php



Fruity Cup Cake 55 php



Bambu Banana Muffin 30 php



Bambu Puto Muffin 20 php



Bambutido Muffin 45 php



Gift Box of 6 pieces
Bambu Banana Muffins
Php200.00



Gift Box of 24
Bambu Carrot Walnut
Muffins Php990.00



Sampler Gift Pack A
Php220.00



Sampler Gift Pack B
Php360.00



Now Available

ALL NATURAL

BAMSNACKS

A variety of coffee, breads and treats with the added health benefits of bamboo



Bambu Suman



Bambu Puto



Bambu Ensaymada



Bambu Spanish Bread



Bambu Pandesal



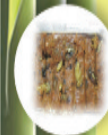
Bambu Coffee



Bambu Lumpia



Bambu Pan De Coco



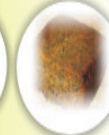
Bambu Carrot Loaf



Bambu Pastillas



Bambu Chips



Bambu Banana Loaf



Bambu Fruit Cake



Bambu Tido



Bambu Pancit



Bambu Chara

Rich in Fiber.
Essential Vitamins and Minerals

Innovative food products

**BAMSNACKS chips and candies
garnered the Grand Prix in the
Food Category of the INBAR Ideas
Competition in the
Shanghai World Expo 2010.
Over 120 entries from 27
countries competed in the said
event.**



Innovative food products

- Bamchips and Bamcandy lines are just a few possibilities in making snacks and sweets using bamboo shoots.





BamSnacks was also featured among the TOP 10 winners in the BiD Challenge 2011 Book "Growing SMEs: Connect. Exchange. Invest." (Published in October 2012)



Challenges in Bamboo Shoot R& D

- * Lack of basic local knowledge and information on bamboo shoots, including identification, shelf life, cyanide content, nutritional properties, etc.
- * Lack of information on other local bamboo species with potential shoot quality because shoot production techniques are very specific and species-specific
- * Difficulty in propagating the species which produce quality shoots *Dendrocalamus* spp and *Gigantochloa* spp.
- * Limited knowledge and information on site preparation, cultural management practices, suitable bamboo species for food, propagation techniques; harvesting and product development, socio-economics of utilization and marketing



Challenges in Bamboo Shoot R& D

- * Insect pests and diseases of bamboo shoots should be continuously studied especially yield loss assessment
- * Lesser appreciation on the potential of bamboo shoots as a viable small scale industry for rural farmers or even larger business ventures
- * Rampant pilferage of young shoots during the conduct of studies and research implementation
- * Only few researchers are working on R&D of bamboo shoot production which need careful study and a lot of expertise, practice and experience
- * Lack of funding for basic research on bamboo shoots and low priority by funding agency



Current Prospects in Bamboo Shoot Initiatives

- * Growing movement towards **innovative, healthy, nutritious and affordable food enriched with bamboo shoots** such as native delicacies, viands, breads, pastries, desserts, pasta, snacks and beverages.
- * **Like-minded individuals, environmental advocates, academe, cooperatives, private organizations, NGOs and public institutions** actively take part in sustainable livelihood and inclusive growth for poor & marginalized communities
- * through **bamboo agri-ecotourism and training of communities in social entrepreneurship, propagation, plantation management, food safety and quality, good manufacturing processes, fair trade, processing, production, packaging, marketing and development of food products made from bamboo combined with indigenous materials.**



Current Prospects in Bamboo Shoot Initiatives

These endeavors are featured online and via multimedia (TV/radio/print), cooking demos, local & international expos/trade fairs/conferences, arts and cultural events, educational scholarships, feeding programs, medical missions, healthcare, peacebuilding initiatives, disaster relief/ reduction/risk management and rehabilitation programs.

- ★ Some financial institutions have opened credit facilities for community based-micro and small bamboo enterprises.
- ★ **Draft Philippine Bamboo Industry Roadmap has been submitted and stakeholders' roundtable discussions/consultations are ongoing.**
- ★ There is also a huge potential for global Halal certified bamboo shoot food & beverages.



Recommendations

- * Priorities:
- *
- * Continue survey of more species with bamboo shoot potential and evaluation of their cyanide content and nutritive properties, postharvest processes,
- * Research and development on off-season bamboo shoot production to cater the supply of bamboo shoots during the dry season
- * More funding and investments for bamboo shoot R&D and capacity building of community based- bamboo agri-social enterprises in various aspects of the value chain
- * Include bamboo shoot as vegetable crop in agricultural system and disseminate its importance as food and as a climate change crop.
- * Approval of the upgraded Philippine Bamboo Industry Roadmap.



**“We need to
PROMOTE BAMBOO SHOOTS in the context of environmental protection,
a holistic approach to
GREENER FOOD, A TRULY GREEN ECONOMY
BAMBOO FOR A BETTER FUTURE!”**



CAASI BAMBOO FARM 2009, TAGUM CITY
Started planting bamboo in mid 1970's
AFTER ALMOST 40 YEARS

*Wolf Robe in
June 1909*



Only
when the
last tree
has died
and the last river
been poisoned and
the last fish been
caught will we
realise we cannot
eat money.

Cree Indian saying





BAMBOOLLY YOURS

Thank you