



Letter from the Publisher

Hibiscus is an ostentatious flower whose lush, vibrant, tropical blooms evoke images of a Hawaiian beach or wrought iron fences in southern Mexico. On a recent visit to San Diego, my husband and I walked past walls of thriving hibiscus lining the street. Many of us recognize hibiscus as a symbol of tropical paradise and relaxation, but most are totally unsuspecting of its medicinal benefits.

Hibiscus has been used in the tropics for hundreds of years for both food and medicine. The vibrant red “zinger” tea made from its calyx is pretty widely familiar, but what are its health benefits, anyway? And what else might this plant yield? Its flower petals are edible and delicious. The leaves are also used medicinally and as food, and the stems have been used to make a lightweight cordage. It is quite a useful plant to have around!

I set up shop at a weekly local farmers market, and I’ve noticed lately there has been a trend of people asking for herbs to support cardiovascular health and decreased blood pressure and cholesterol. It is also that time of year when people are getting summer colds, and they need some extra Vitamin C and antioxidant love to keep the immune system strong. Hibiscus fits the bill with all of these, and I don’t have to worry about it interacting with blood-pressure medication! This gentle, generally safe herb is supportive to the body, with very little in the way of interactions.

Hibiscus also has a delightfully sour flavor, almost like cherry juice, that pairs well with citrus and berry flavors. Many cultures drink hibiscus tea with a lot of sugar, but I find a pinch of stevia leaf from the garden makes it delightful, without mitigating the health benefits. Enjoy a cup of hibiscus tea, and join us in getting to know this herb of the month!

Green blessings,

Amanda

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Hibiscus Monograph

Amanda Klenner

Despite its relative absence in the zeitgeist of medicinal plants and superfoods, I noticed as I was writing this piece how many people have hibiscus flowers tattooed onto their skin or printed on their clothing. Its image is widespread, and we westerners may even run across the occasional *agua de jamaica* in our local Mexican restaurants, but there's so much more to discover! Hibiscus is a medicinal herb, traditionally used in food and medicine across the world's tropical and subtropical regions. As is the case with so many things, a lot of traditional wisdom around this plant has been lost to colonialism; but we seek here to uncover what we can of both ancient and contemporary uses.

I feel it is important to start off by distinguishing between the two most commonly used species--*Hibiscus sabdariffa* and *Hibiscus rosa-sinensis*. Both species' flowers and leaves can be used

interchangeably. The subtle but important difference between the two is with the calyx, which is the outer whorl that protected the bud and is left behind after the flower's petals fall.

We get a beautiful, deep-red medicinal and edible calyx from *Hibiscus sabdariffa*. This is the most common medicinal species, and it is what you're most likely to get when you order hibiscus online. When you see dried *H. sabdariffa* flowers for sale, it is 99.5% likely to actually be the calyx, not a "flower" in the strictest sense. The same is true for any recipes calling for hibiscus flowers—they most likely mean the calyx. If one (calyx or flower of *H. sabdariffa*) is used in place of the other--no harm, no foul!

The other species you'll read about here, *Hibiscus rosa-sinensis*, is the emblematic motif you see on surf shorts and cartoon hula girls. It is big, bold, and beautiful; but its calyx is **not** the medicinal and culinary part of the plant. Only the flowers and leaves are used in this case.

Latin name: *Hibiscus sabdariffa*, *Hibiscus rosa-sinensis*

Other common names: rose mallow, China rose, musk mallow, rose of Sharon, sour tea, gumamela (Philippines), flor de jamaica (Mexico/Central America), arhul (India), zobo (Nigeria), roses of Althea, African mallow, Indian sorrel, roselle (Australia), gongura (Telugu), bissap (Senegal, Guinea Bissau, Mali, Burkina Faso, Ghana, Benin, Niger, Congo, and France), sorrel (Caribbean), Luo Shen Hua (China)

Family: Malvaceae

Geographical distribution: There are over 300 hibiscus species in the Malvaceae family that grow across temperate and tropical regions in the world. It is unknown where *H. sabdariffa* and *H. rosa-*

sinensis originated, but they have been cultivated and used as food, medicine, decoration, and ceremony throughout tropical regions for thousands of years. This includes but is not limited to areas of North Africa, China, Japan, the Pacific Islands, India, Malaysia, Thailand, Mexico, and Portugal.

Botanical description: *Hibiscus sabdariffa* var. *sabdariffa*, is an herb most likely native to South Africa. It is an erect, branched, annual shrub with a deep, penetrating tap root, and mostly red stems. It can grow up to 11 feet tall in the tropics. The leaf color is anything from dark green to red. Leaves are alternate, glabrous, long-petiolate, and palmately divided into 3–7 lobes, with serrate margins. The flowers can range from red to yellow with a dark brown or red center. The seed capsules are ovoid, beaked, hairy, and about 5cm long.



Hibiscus rosa-sinensis, the most common medicinal species, is a perennial evergreen shrub in tropical and subtropical regions, which is not cold hardy and will die during cold winters. It can get up to 30 feet tall in the wild under ideal conditions. Hibiscus has a smooth, easy-to-peel, light-gray bark. The stems are hollow. The leaves are simple ovate and occur sparingly

along the stock. Flowers are bisexual, large and showy, grow up to 10 inches wide, stalked, and arising singly from the upper leaf axils. They have five free petals that are joined at the base, which can be white, yellow, or red. Sepals are joined in a five-lobed cup with an

epicalyx of five to seven lobes. The superior ovary has five stigmas with a long style. The plant flowers perennially. After the plant blooms, the flower petals fall off; and 24-48 hours later, the plant forms a calyx (the fruit) which is harvested, dried, and processed for tea, food, or medicine. The ovoid fruit has up to 20 seeds, is beaked, and splits into five parts.¹

To use the calyx from a hibiscus flower for medicine, first slit the bottom and remove the seeds, then dehydrate it and use for delicious hibiscus recipes!

Parts used: In the United States, we generally use the calyx, but the leaves, seeds, petals, roots, and flowers are used in different cultures for food, medicine, worship, and decoration.

Herbal actions: antiviral, antibiotic, cholesterol lowering, antidiabetic, anti-atherosclerotic, digestive tonic (helps assimilate nutrients better), anticancer, antioxidant, hypotensive, urinary tract tonic, refrigerant, demulcent, diuretic, anti-inflammatory

Energetics: sweet, sour, bitter, cool

Constituents: Vitamin C, β -carotene, calcium, iron, flavonoids, polysaccharides, mucilage, Phenolic acids (esp. protocatechuic acid), organic acid (hydroxycitric acid and hibiscus acid), and anthocyanins (delphinidin-3-sambubioside and cyanidin-3-sambubioside), alkaloids, tannins, saponins, glycosides, phenols

Hibiscus Health Benefits and Uses

Anticancer

The more research I do on herbs in the medical realm, the more I realize how often researchers will try to find anticancer benefits in

plants. Thankfully, many herbal remedies do have some benefits against certain cancers. This is why I tell my clients to eat and drink more plants! As always, I don't like to make "cure" claims. Cancer is a big thing, and one herb (no matter the herb) probably won't solve the problem, but it is always good to know what herbs can support us.

Hibiscus sabdariffa was found by one study to have, "impaired cell growth, exerted a reversible cytostatic effect, and reduced cell motility and invasiveness,¹" on human squamous cell carcinoma and multiple myeloma.¹ This was an *in vitro* study done using specific cancer cell lines, not a study on any living organisms, but it does give us an idea that the combination of nutrients and antioxidants in hibiscus can be supportive to slow cancer cell growth and reduce its invasiveness. Another study showed that *H. sabdariffa* extract induced human melanoma cell death (apoptosis) and autophagy.² This was an aqueous extract of the polyphenols, or antioxidants, of hibiscus in direct contact with the cells. Since hibiscus is typically ingested, topical application would have to be used in this case. Another *in vitro* study found that an ethanol extraction of *H. sabdariffa* leaf contained the highest level of antioxidants, anti-inflammatory compounds, and was most cytotoxic to prostate cancer cells.³

Extracts of *H. syriacus* (rose of Sharon, or Chinese hibiscus) root bark was found to inhibit non-estrogen-dependent breast cancer cell viability and induce apoptosis in an *in vivo* study³.

Though all of these studies are in very preliminary stages, we can see that the antioxidant and polyphenol content, as well as the free-radical-scavenging action,⁷ of hibiscus is considered desirable to researchers in terms of cancer treatment and prevention. As far as I know, hibiscus is not used in this way either traditionally or

currently in common herbal practice, but I will anxiously await more studies.

Antimicrobial

One well-known traditional use of hibiscus in the tropics is as an antimicrobial to help prevent and recover from infectious diseases. Studies have found, for example, that hibiscus is effective against *Helicobacter pylori*^{4,6} (it may be a good treatment alone, or in combination with antibiotics⁶), *Staphylococcus aureus*, *Bacillus stearothermophilus*, *Micrococcus luteus*, *Serratia marcescens*, *Clostridium sporogenes*, *E. coli*, *Klebsiella pneumoniae*, *Bacillus cereus*, *Pseudomonas fluorescens*, *Salmonella enterica*, and *Listeria monocytogenes*.⁵ This makes hibiscus a great friend to have on hand when you are traveling, or when you've consumed questionable food.

Antioxidant

Hibiscus' high antioxidant content is no surprise to us herbalists. The vibrant red color is a great sign that this herb is high in Vitamins A and C, and the tangy flavor gives us a good idea about its use as an antioxidant and free-radical scavenger.^{7,3} In fact, many of the health benefits of hibiscus, including its anticancer, antimicrobial, cardiovascular, digestive, and urinary tract support properties, all boil down to the fact that it is so good at fighting inflammation while nourishing and protecting the cells from oxidative and free-radical damage. One study found that supplementation with both hibiscus and green tea leaf extracts were beneficial to reduce oxidative stress in male athletes.⁸ An herbal formula including hibiscus would be a good addition to those who do a lot of physical exercise or have physically strenuous jobs.

Cardiovascular Health

This is where both the modern research and traditional use of hibiscus really shine. Hibiscus works as a cardio-protectant (antioxidants), hypotensive (diuretic), and anti-atherosclerotic, and it can reduce LDL cholesterol. It has also been shown to reduce weight and fat accumulation, thereby reducing the stress put on the heart.

Hibiscus tea is used traditionally to lower blood pressure, and science backs up this practice. A meta study found that *H. sabdariffa L.* had a “significant effect” of lowering both systolic and diastolic blood pressure in both men and women.¹⁰



Hibiscus has a few different mechanisms of action when it comes to controlling blood pressure. One study found that hibiscus reduced the blood pressure, serum angiotensin-converting enzyme (ACE), and plasma aldosterone in mild-to-moderate hypertensive patients in Nigeria, and did so as effectively as the drug Lisinopril,⁹ probably due to hibiscus’ high anthocyanin content. Another study done in Nigeria found that it was also more effective than hydrochlorothiazide, a diuretic used to lower blood pressure.¹¹ Not only was it more effective than hydrochlorothiazide, but it did not create an electrolyte imbalance like diuretic medications do, and, over a longer period of time, helped to regulate blood sodium levels, which also contributes to maintenance of healthy blood pressure.

Another study speculated that hibiscus’, “antioxidant, anti-inflammatory, and endothelium-dependent effects explain the

beneficial actions. Notably, polyphenols induced a favorable endothelial response that should be considered in the management of metabolic cardiovascular risks,"¹² making hibiscus a great choice for those with metabolic disorders, to help manage any impact on the cardiovascular system that high blood glucose levels cause.

Another study had an interesting discovery that hibiscus, both in rats and humans, down-regulates the sympathetic nervous system, allowing the parasympathetic nervous system to do its job.¹³ Basically, it takes us from "fight or flight" to "rest and digest," which also can lower blood pressure and regulate body functions, including digestion, mental function, urinary function, cardiovascular regulation, and adrenal health.

Now that we know hibiscus is very well-studied and useful for regulating blood pressure, how else does it support the cardiovascular system? Well, multiple studies have shown that it is actively anti-atherosclerotic, helping to lower LDL, or "bad" cholesterol, while maintaining healthy HDL, or "good" cholesterol, levels.^{14,2,15} Meanwhile, it protects blood vessels from damage due to oxidative stress caused by LDL accumulation.¹⁴ 500mg of hibiscus powder daily "significantly reduced" serum triglycerides in patients with metabolic syndrome.¹⁵

In fact, hibiscus has also been shown to inhibit obesity and fat accumulation, not only in the arteries, but in the body, and it improves liver function and may be helpful to treat non-alcoholic fatty liver disease.¹⁶ Healthy liver function is also directly related to cholesterol production, along with blood sugar regulation, which makes hibiscus a nice herb to include in metabolic syndrome and blood sugar management protocols.

Digestive Tonic

The sour, astringent flavor of hibiscus is almost like that of cranberry. It is stimulating to the digestive system, especially for sluggish digestion and constipation. Its cooling properties can calm a hot and inflamed digestive system, and the combination of its astringent and mucilaginous properties help to tone and soothe the gut. It is a wonderful aid for those with chronic inflammation and irritation of the digestive tract, especially during an elimination diet, to soothe hot, irritated tissues. Combine this with the fact that hibiscus is healing to the liver and helps the body transition to a parasympathetic, or “rest and digest” state, and you have a wonderful remedy for people with gut issues related to anxiety, nervousness, or anger, and those who are overworked. Hibiscus has also been found to increase the bioavailability and absorption of certain nutrients, like Vitamin B12, important for cardiovascular and nervous system health and blood sugar regulation.¹⁸

Urinary Tract Tonic

We have already discussed how hibiscus is a diuretic, and this can be useful to treat high blood pressure, but we haven't discussed how that impacts the urinary tract. Herbal diuretics work differently than drugs. Many medications tend to create an imbalance of electrolytes in the body, which can cause muscle weakness, fatigue, nerve twitching, and sometimes heart problems. Hibiscus does not deplete electrolytes, making it a wonderful drink for those with excess fluids and hypertension.

It also works to flush the bladder and kidneys and move infections or calculi out of the urinary tract. Hibiscus almost works like cranberry juice does for UTIs, but instead of being acidic and possibly damaging the lining of the bladder, the mucilage works as a protective soothing

barrier. I like to combine hibiscus, rose hips, usnea, echinacea, and marshmallow root for a cooling, soothing, bladder-supporting remedy for UTIs.

Side Effects

If you are on antihypertensive medications, be sure to consult your doctor and monitor blood pressure carefully, as daily use of hibiscus may mean you will need to reduce your medication usage.

If you are on blood glucose lowering drugs, monitor your blood sugars closely, as your medications might need to be adjusted.

Hibiscus rosa-sinensis, or rose of Sharon has been used traditionally, and tested clinically for its anti-conceptive properties. It was found that the tea drunk daily on days 7–21 of a woman’s cycle did appear to prevent pregnancy. Because of this, it is not advised to drink *Hibiscus rosa-sinensis* while trying to conceive. There is no traditional or clinical use that states this for *Hibiscus sabdariffa*, but if conception has been difficult, perhaps avoid it during the fertile weeks.¹⁷

There is traditional use of very high doses of *Hibiscus rosa-sinensis* as an emenagogue, and to induce miscarriage. No studies have found this to be effective, but they have been small cohort studies, not controlled clinical trials. Again, *Hibiscus sabdariffa* in moderate doses seems to be safe for pregnancy, but avoid *Hibiscus rosa-sinensis* in delicate pregnancies.¹⁷

Dosages

Capsule: 500–1000 mg/day

Tea: 2–3 cups of infusion a day

Vinegar or glycerin extract (less ideal): 1 Tbsp a day



HIBISCUS
HIBISCUS SABDARIFFA



Hibiscus History

Stephany Hoffelt

I often hear that hibiscus is interchangeable with marshmallow because they are in that same Malvaceae family. It does have a similar diuretic effect and is actually better at clearing oxalic acid from the body, but hibiscus leaf and calyces are full of the organic acids that we recognize as the sour taste, and it is a tonifying astringent, while marshmallow root has a salty flavor and an emollient action. If I were going to compare hibiscus' actions to that of other plants I would choose rose hips, or perhaps sumac berries.

I think this misunderstanding might result in part from the confusing history of the name. The Greek *hibiskos* (ἰβίσκος),¹ which

held a prominent place in ancient medicine, was *Althea officinalis*, which today, we commonly call marshmallow.² This continued through into the Middle Ages; the Ibiscus that physician John Gerard mentions in his 1597 *Herball* is in fact althea, although he is said to have been growing a variety of hibiscus due to his position as curator of the physic garden of the Royal College of Physicians. Our modern hibiscus was not known to Western Europe prior to the age of exploration.

That was not uncommon. Many new plants entered the western materia medica as they were brought back to Europe for physicians to study and establish in physic gardens. These doctors and scientists would often study a plant's properties and try to fit them into their current medical paradigm, which was at the time largely based on Greek medical theory as refined over the centuries—first by the Persians, and then at the Salernitan school.

By the time botanist John Hill's herbal was published in 1751, there were several varieties known to Europeans, being written about as hibiscus, with marshmallow now being referred to as althea. Hill mentions nine different varieties of hibiscus, some of which had yellow flowers, one that had pale red flowers, and the *Rosa sinensis*, which had "flowers of a beautiful red color." The only note of use that Hill makes of any hibiscus is that the seeds of the Egyptian variety abelmoschus were used by shops to make a cordial, but that they had gone out of use.

It wasn't until a couple of centuries later when colonization was in full force, and physicians who were stationed in foreign countries were also tasked with documenting the natural history of their posts, that we learned more of the plant's traditional uses.

There are so many varieties of hibiscus with interesting histories. There's a great story about Darwin learning to use a bow drill to start fires with *Hibiscus tiliaceu* from some Tahitians he encountered.³ There's also the very interesting abelmoschus mentioned in Fenner's Formulary, but for the purposes of this article, I will stick with passing along what I've learned about the two varieties that are likely to be purchased and used today.



Roselle

The dried calyces of *Hibiscus sabdariffa* are what Frontier or Mountain Rose will send you if you order hibiscus. A good deal of the world still calls this variety roselle.⁴ *Hibiscus sabdariffa* was so named because the Italians introduced it to the rest of Europe as *Sabdarifa*.

Some early botanists erroneously said it originated in the Americas because the plant has been used for centuries in Jamaica. Now it is believed to be a native of tropical Africa brought to the Caribbean Islands by enslaved populations.

The first manuscript I have found mentioning *sabdarifa* was L'Obel's *Stirpium Historica* which was published in 1576.⁵ He briefly mentions the plant's acidity but does not expand on any medicinal uses. And, while Gerard was growing the plant in 1597 as part of his job curating the Royal Botanic Garden at Kew,⁶ he didn't write about it. Thomas Johnson added *sabdarifa* to the 1633 edition of *The Herball*, referring to it also as "thorn mallow," saying that its usefulness in physic had yet to be determined.⁷

Jacques Dalechamps calls the plant *sabdariffa* in what was undoubtedly the largest botanical work of the 17th century, *Historia generalis plantarum*,⁸ while many other pre-Linnaean botanists referred to the plant as *Alcea indica* or *Alcea Americana*, depending on where they thought the plant originated. But again, nothing much about the medicinal use of the plant comes up in these manuscripts.

We start to find more information when we look at information collected in the colonies by doctors. The older books speak of alcoholic drinks brewed from roselle as medicinal preparations.

Sir Hans Sloane refers to the plant as “sorrel” in his *Natural History of Jamaica*, saying that the calyces were used for making wines that were to be given for, “Fevers and Hot Distempers, to allay Heat and quench Thirst.” He also wrote that the root was given as a purgative.⁹ It undoubtedly got the name because the sour taste of the leaves is comparable to that of garden sorrel (*Rumex acetosa*).

Eventually, cooling beverages made from the plant were spoken of as a social drink. In *Natural History of Barbados*,¹⁰ we read: “The red Leaves, and Flower-cup, being thick and very juicy, are, when ripe, seethed in boiling Water, which in a few Hours extracts both their Colour and Strength. This Decoction, work'd with Sugar, makes a very strong reddish heady Wine.”

While in Jamaica: “The decoction of them, sweetned and fermented, is what people commonly call, Sorrel Cool-drink... it is a small diluting liquor, that is much used in all our sugar-colonies, and reckoned very refreshing in those sultry climates.”¹¹

As time went on, they seem to have left off fermenting the drink. In 1801, Thomas Dancer, an English physician who lived in Jamaica, wrote of a cooling diuretic drink made from red sorrel that promoted

urination and cooled fevers. Today, you find references to non-alcoholic versions of it from all around the world.

In Jamaica, they often brew it with ginger root. In the Guianas, they use mint, while in Egypt and the Sudan, it is called karkadeh, and it is traditionally brewed with cinnamon. When these spices are added, you often see it being recommended for coughs and other lung complaints.¹²

Roselle has been used for other interesting purposes: In Indonesia it is called rosella; and *H. sabdariffa* v. *altissima* was aggressively cultivated there by the Dutch because the stems contain a soft wood fiber known as bast fiber,¹³ which was used for making sugar sacks. This undoubtedly accounts for the common name roselle.

In Southern India, Telugu cuisine uses the sour leaves of *H. sabdariffa* and *H. cannabinus*, which they call *gongura*, in many recipes. In this area, it is an important ingredient in *gongura pacchadi*, a dish served during *Gauri Puja*, an annual festival honoring a deity called *Mahalakshmi* or the *Tripura Sundari*.

At one point in Burma, it was one of the most commonly grown vegetables, which they called *chin baung ywet* and a popular ingredient in foods like *chin baung kyaw*, a mixture of *chin baung* leaves, shrimp, bamboo shoots, hot chiles, and garlic.¹⁴

Jawa Flower

Hibiscus rosa-sinensis is believed to be native to India, despite its name. In 1731, the curator of the Chelsea Physic Garden introduced a double red *Hibiscus rosa-sinensis* to the garden. At that same time, it was cultivated



in the Royal Botanic garden by curator Phillip Miller. Both men documented the origin of the plant as the East Indies.¹⁵ It seems likely that was dispersed throughout the South Pacific Islands through Indian migration (which accounts for its use in various cultural celebrations throughout that region) and found its way to China, where it was cultivated extensively.

This variety produces a large red flower that has been dried and utilized in medicinal blends for coughs. The roots also have a history of medicinal use. An infused oil of the root was used to staunch menorrhagia while leaf decoctions made with wine were used for strangury.¹⁶ Strangury is an archaic medicinal term that refers to painful urination and is often equated to urinary tract infections, so this makes sense, based on the diuretic properties.

Ship's doctors often used native botanic remedies, which were undoubtedly more effective against diseases of the tropics than English herbs. A formula made of equal parts *H. rosa-sinensis* root, luffa root, and ananthamoola (*Hemidesmus indicus*) was steeped in

milk and flavored with cumin and sugar to be given to sailors for gonorrhoea.¹⁷

Nineteenth century pharmacognosist Dr. William Dymock also called it the *javá* flower and said it was a common Indian garden plant. In *Useful Plants of India*, Heber Drury refers to this species using the common name of *jawa*.¹⁸ *Jawa* loosely translates to the “celebratory flower,” and there is a song attributed to the Munda people, which references wearing the flower on the head:¹⁹

Kekara mure hardi rangal phita re

On whose head beautifies the turmeric colored ribbon

Kekara mure jawa phul re-2

On whose head is the jawa flower

Rani ka mure hardi rangal phita re

On the head of the queen lies the turmeric colored ribbon

Raja ka mure jawa phul re-2

On king's head bloom the jawa flower

Note: Because of the very vague translation, you may see the word *jawa* also associated with other plants or aspects of cultural celebration.



Growing Hibiscus

Nina Judith Katz

Two years ago, a friend of mine was preparing to move and invited me to transplant a variety of herbs from her yard to mine. Hibiscus was among them. I was surprised to see it flourishing in the shadiest part of her yard, where it had spread out with mild abandon. She had planted them from seeds. I wasn't sure how easily it would transplant, so I dug up one fairly sizeable plant about 2 or 3 feet high and one slender baby about 1 foot long and scarcely a centimeter in diameter. I felt fairly confident that the larger plant would survive the transplant, but dubious about how the littler one would fare. Inspired by their obvious comfort in a shady area of her yard, I transplanted them to an equally shady section of my own. To my surprise, the two seemed to be doing equally well, at least through last fall.

I am writing this in early spring, and we have had several fierce storms in the last month. When I went out this morning to inspect them, I could easily find the larger one, which is now over 6 feet tall, but I couldn't find the smaller one. It may have come down in a storm, or it may still be indistinct enough for me not to recognize it yet; last year also, the first couple of times that I looked at them, I could recognize only the larger one, but when the leaves appeared, I found the baby, which had also grown a few inches since I transplanted it. The leaves don't show up until June. As of last summer, neither had bloomed; I'm hoping for blossoms this summer.

Hibiscus refers to a genus within the mallow, or Malvaceae, family. There are more than 220 different species of Hibiscus.¹ Many of these species grow as perennials only in tropical climates, zones 9–10; you can try growing them as annuals in colder climes, or grow them in containers that you can bring indoors in the fall (before the temperatures drop into the 40s), and bring outside again in the summer. The one that gardeners in my vicinity tend to prefer is *Hibiscus syriaca*, also known as rose of Sharon or hardy hibiscus, although the moniker "hardy hibiscus" also applies to *Hibiscus moscheutos*, or swamp mallow.² *Hibiscus moscheutos* grows in zones 4 and warmer, but, as its English name suggests, prefers swamps and similarly damp environments.³ *Hibiscus syriaca* is also called Althea, presumably in honor of its membership in the mallow family, since *Althea* also means mallow.



Hibiscus syriaca is hardy to zones 5 through 8 or 9. Its original range is in Asia, where it grows from China to India, but nowadays it volunteers in Southern Europe as well.⁸ A deciduous tree or shrub, it grows from 8 to 10 feet tall and 4 to 12 feet wide.^{2,4} While it prefers full sun, it will tolerate some shade, as I found in my friend's yard and confirmed in my own. *Hibiscus syriaca* prefers richer soil with good drainage but is reasonably tolerant of poorer soil as well.

In general, for the lovely cousin of a tropical plant, this is a remarkably fuss-free companion for humans, bird, and butterflies.³

Hibiscus syriaca flowers vary in color from white to pink to red to purple to blue, and they often have a deeper color in the center than on the five petals. The trumpet-shaped flowers have a conspicuous white stamen column in the center. The leaves are three-lobed, coarsely toothed, and up to 4 inches long. Japanese beetles sometimes damage the leaves, as do rust, blight, and canker.⁵ Canker tends to be a problem only with older plants.⁶ The plants develop multiple stems branching from the ground but remaining upright; they eventually take on the shape of a vase. Mine hasn't branched yet, but I'm hoping it will soon. The flowers begin to bloom in late July. Each flower generally lasts only a single day,⁷ but once they start coming, they keep on until early autumn. They self-seed, which is why I found so much of it in my friend's yard. You can also grow them from stem cuttings, or by planting the seeds. Once you plant them in the ground, be patient. Because the leaves and flowers show up later than those of other plants, you may think the plant has died or vanished when it's just biding its time.



Hibiscus sabdariffa

Gina Gibbons

When most people think of hibiscus, they instantly think of a red, showy flower, synonymous with tropical locales and the sultry, sensual magic of humid climes. *Hibiscus rosa-sinensis*, for example, is the classic, colossal-flowered tropical species you might be picturing. Though these jewel-colored flowers are edible and medicinal in their own right, the hibiscus species I will be referring to in this article is likely native to West Africa and is characterized by smaller leaves and flowers. *Hibiscus sabdariffa*, known throughout the world for its rich, ruby-colored tea, is also known as roselle, sorrel, *rosa de jamaica*, and other names.

Though both plants are members of the Malvaceae family, it's important to make the distinction, as the parts used are different. In the case of *H. sabdariffa*, we technically don't use the flowers and petals, but instead the calyx left behind when the petals fall off. These are then harvested for home use (fresh or dried); or in a commercial setting, they're dried and sold throughout the world. I typically purchase mine at a Mexican grocery because they are usually higher quality and more affordable than other options. While traveling in Asia, I also purchased some in Thailand, a locale said to have superior hibiscus in comparison to the other largest exporter of the plant, China. I didn't see much of a difference between the Mexican and Thai hibiscus, they were equally satisfying.

Personally, I use unsweetened hibiscus tea as a delicious electrolyte drink. I find it helps replace lost minerals and hydrates in a deep way. I truly love this plant and appreciate that it can be found throughout most of the world. It is an affordable medicine and a drink that most people can access; and though it is somewhat underrated in the US, I hope that increasing knowledge of this potent plant ally will lead to wider use. The color itself is reason enough to fall in love.

I had the pleasure of listening to renowned herbalist Susun Weed talk for hours about hibiscus, which happens to be one of her favorite, most-utilized plant friends. A large group of us gathered around at Medicines from the Edge, an herbal conference in Costa Rica, in a story-telling fashion and learned so much about this miraculous plant. We learned that the Malvaceae family is quite safe, and there are no toxic members. Susun passionately went on to express that the regular consumption of just three cups of a strong hibiscus tea per day will significantly lower blood pressure

and is safe to use in conjunction with other drugs. It supports the liver so well that one will clear other drugs out faster than normal, so this is something to be aware of. She also said it's, "great for anyone who doesn't have a gallbladder."³

Medicinally speaking, the plant supports the kidneys and is high in potassium, which makes it an alternative to sugary electrolyte drinks. One of my favorite suggestions of the day was to use hibiscus tea as a mouthwash. If you drink it unsweetened like I do, then all you have to do is remember to swish it around your mouth before swallowing, to get all the nooks and cracks between the teeth and the gums. It reduces plaque, strengthens the enamel, astringes the gums, and also freshens the breath. It really does feel like it cleans and supports the mouth in a powerful way.

Another herbalist, Juliet Blankenspoor, clearly has a deep love for this plant. She has grown it in her own garden for years now and has found many ways to utilize its versatile and highly nutritive properties. She says, "I try not to foster any regrets in life. But I must confess that I waited too many years to plant hibiscus, thinking the temperate climate unsuitable for its success, and for that, I am sorry. It is, in fact, easy to grow and harvest if you have the right variety and get a head start on the season."¹ Later in the article, you will find Juliet's recipe for a tangy chutney, in which she uses the fresh calyces from her garden; though you can also soak dried ones and use those instead if you don't have access to fresh.

Juliet also adds hibiscus and pomegranate to a more traditional fire cider recipe that imbibes it with a deep, rich ruby color and makes it a bit sweeter than other recipes. Another idea she has shared, is to freeze the tea into ice cube trays and then add them to hibiscus tea, rather than dilute its potency with water ice cubes. The cubes

could be added to many different iced teas or cocktails, adding a gorgeous splash of color and a burst of tart flavor.

Used throughout the world, especially in warmer climates, *Hibiscus sabdariffa* is known in Jamaica as sorrel. Brewed as a tea extensively throughout the island, you will often find it paired with rum, which locals claim also aids some health issues in small doses.

Whether the addition of rum is truly good for one's health or not depends on each individual's relationship with alcohol. One thing is for sure: On the island where reggae beats flow, and almost every single plant has a medicinal or culinary use, sorrel shines brightly as a cooling tea in the humid air. Along with rum, Jamaicans also sometimes add warming spices such as cinnamon, allspice, cloves, and fresh ginger. The addition of citrus, including orange peel or lime juice for extra flavor, is quite common as well. Typically, this drink is served around holidays.

In Thailand, hibiscus quite common, though they refer to it as roselle. China and Thailand are the world's top suppliers of these tangy calyces. Though many other countries grow their own, these two are the largest suppliers in the global market. Tea is the most popular use of hibiscus, followed by jams and chutneys. Due to its cooling effect on the body and plethora of health benefits, it's no surprise this plant is used by people all over the globe. It is relatively affordable and supports a no-fuss healthy lifestyle.

Zobo⁴

In Nigeria, locals make a drink called zoborodo, or zobo. Their version is unique in that it uses the flower of *H. sabdariffa* instead of the calyx, fresh ginger and garlic, and pineapple as a natural sweetener. It's also common to use artificial flavoring, though

there's not much need in my opinion, so I've omitted it from the recipe.

Ingredients

- 2 C dry hibiscus flower (the calyx is easier to find dry, and can be substituted)
- 1 clove fresh garlic, roughly chopped
- 1 large thumb-sized piece of fresh ginger, roughly chopped
- 1 large, very ripe pineapple, peeled and roughly chopped
- fresh water, enough to fill a large stock pot



Directions

1. Start by washing the hibiscus in cool water to remove any dirt or debris.
2. Place the washed flowers and the pineapple into a large stock pot.
3. Cover everything with water and add a little extra water, as some will evaporate.
4. With medium-high heat, bring the tea to a boil and let simmer for 5 minutes.
5. Next, add the garlic and ginger, along with additional water if needed.
6. Boil for 30 minutes.

7. Once complete, allow the tea to cool enough that you can touch it with bare hands.
8. Using gloves, if you like, to keep from dyeing your hands, ring out the juice from the pineapple and hibiscus flowers.
9. Pour the juice through a strainer to remove large particles, and if you prefer, strain through cheesecloth or a thin cotton towel to remove the tinier particles.
10. Pour into bottles and refrigerate.
11. To serve, pour over ice and garnish with any type of citrus.

Hibiscus Chutney²

Utilizing the tangy, tart flavor and rich, crimson color of the hibiscus, this chutney is a unique, savory alternative to cranberry sauce that can be made any time of year. It pairs well with most Indian dishes, as well as the typical Thanksgiving spread.

Ingredients

- 1lb fresh hibiscus calyces or 3 ounces (85 grams by weight) dry hibiscus flowers*
- 1 tsp dried ginger powder OR 1 Tbsp finely chopped fresh ginger
- 1½ tsp black pepper
- 2 tsp cinnamon powder
- 2 tsp coriander powder
- 1 tsp fine sea salt
- 2 jalapeño peppers
- 10 ounces onion
- 18 ounces apple, red or green
- 1½ C organic whole cane sugar
- 1½ C apple cider vinegar

*If using dried hibiscus, add 6 cups of water.

Directions

1. If using fresh plant material, peel the hibiscus calyces from the green ovaries.
2. Chop the onions coarsely, core the apples, and chop them coarsely as well.
3. Blend the onions, apples, hibiscus (dry or fresh), and jalapeños in a food processor.
4. In a large pot, place the blended hibiscus mixture and stir in the remaining spices and ingredients.
5. Let simmer for two hours, stirring often.
6. Allow to cool and store in glass.
7. Serve cool and store any unused portion in the refrigerator for up to two weeks.

Hibiscus Leaf Pickle-Gongura Pachadi⁵

Though the use of the calyces is by far the most popular way to enjoy this plant, the leaves are also edible and can be appreciated in their own right. They are sautéed and used like spinach in Senegal. In the Telangana state of southern India, a fermented pickle is made from the leaves of *Hibiscus sabdariffa*.

Ingredients

- 6–7 small bunches of *gongura* (hibiscus) leaves
- 4 Tbsp oil
- 20 dried red chiles
- 1 tsp coriander seeds
- 1½ tsp cumin seeds

- 3–4 fenugreek seeds
- salt to taste
- 6–7 garlic cloves
- ½ tsp chana dal
- ½ tsp urad dal
- ½ tsp mustard seeds
- 6–7 curry leaves

Directions

1. Remove the *gongura* leaves from the stem, wash them, and set them aside to dry a little.
2. In a large pan, over medium heat, add 1 Tbsp oil of your preference (ghee or coconut oil would be mine) and cook until the leaves are tender and soft.
3. In a separate pan, add 1 Tbsp oil and sauté the coriander, fenugreek, 15 chiles, and 1 tsp of cumin together for one minute.
4. Remove the spices from the pan and set them aside to cool.
5. Add the cooked spices to a blender along with some salt and blend until you have a fine powder.
6. Add the garlic and blend well.
7. Combine the spice mixture with the cooked leaves and stir well.
8. In a separate pan, add 1 Tbsp of oil and heat over medium-high heat. Add the chana dal and urad dal, and stir well.
9. Add the remaining cumin seeds and the mustard seeds until they begin to pop.
10. Add the remaining chiles and stir for a few moments.
11. Add curry leaves and let them crackle.
12. Combine this mixture with the leaf mixture, and stir well.
13. Serve over hot rice with ghee.

Just as its color resembles brilliantly colored precious stones and jewels, hibiscus is a gem to all of us. Its versatile use as both tea and food is a nutritive gift to the world. By utilizing it, we also get to experience a part not used from many other plants, the calyx.

I love plants that have found their way across the globe, spread by the people who understand them. In this situation, we can ask ourselves if the plant is using us, or are we using the plants. I like to think that we are living out a truly symbiotic relationship in which both benefit. To spread the seeds of this beautifully giving plant is the least we can do!



Hibiscus Around the World and in My Home

Carol Little

I remember the first time I tasted hibiscus. It was 20 or more years ago in Mexico, and I was treated to a refreshing icy concoction called *jamaica* (pronounced ham-ae-ka), or *flor de jamaica*—literally hibiscus water. It is commonly served with the midday meal or throughout the steamy afternoon as a cooling beverage. I loved the tartness of the drink, which tasted like something between

cranberry, pomegranate, and strawberry. In Mexico, this yummy concoction is laced with sugar! I make my own version at home, and although I have used coconut sugar in small quantities, I normally use raw honey to add a hint of sweetness.

I make my own version very simply—it's a basic tea made using hibiscus flowers and water. As I mentioned, I rarely add sugar to this recipe, but a sweetener can be added if the drink tastes overly tart. I am sure that the authentic *jamaica* from years ago was indeed a sweeter version. Make it simple or make it more aromatic with layers of other herbs and spices. Use fresh flowers if available, or dried flowers or tea bags. All will produce variable results, but delicious all the same. I make my hibiscus tea two ways, and the tastes are slightly different. Regardless, they remain a favorite in my home. I've tried many versions over the years, with a few additions like cinnamon, ginger, cloves, allspice and of course, lime!

Hibiscus Water (flor de jamaica)

Hot Tea Method

Ingredients and Supplies

- 4 Tbsp hibiscus flowers
- water, boiled
- 2 quart-size glass jars with plastic screw-top lids

Directions

1. Place the hibiscus flowers into one of your jars.
2. Add just-boiled water to fill it.
3. Immediately cover it with the lid.



4. Allow to steep 10–15 minutes.
5. Strain the infusion into the second canning jar.
6. Top with lid. Allow it to come to room temperature.
7. Refrigerate until you're ready to enjoy it (up to 24 hours).
8. Add ice and serve!

Cold Tea Method

Ingredients and Supplies

- 2–3 heaping Tbsp hibiscus flowers
- Quart-size glass jar with lid
- water

Directions

1. Place hibiscus into the jar (or any glass vessel with a good lid).
2. Fill with pure water.
3. Cover.
4. Refrigerate for 4–8 hours.
5. Serve straight from the fridge, as is, without ice, or pour into a pitcher, add some ice, and enjoy with a festive swizzle stick!

I love to make this simple tea and serve it over ice in a beautiful glass pitcher or a large jar with sprigs of mint or lemon balm and a sliced fruit garnish.

Egyptian Hibiscus Flower Tea

My Egyptian friend, Mariam, loves hibiscus tea and shared her recipe. There are no doubt as many nuances of how to make hibiscus tea as there are cultures who make it. Here's how it's done

in Cairo—or at least in Miriam’s family, who makes this tea often and uses it to control hypertension.

Ingredients and Supplies

- 2 handfuls of hibiscus flowers
- a large pot
- 1 tbsp sugar
- water

Directions

1. Place the flowers in the pot and fill it with good-quality water.
2. Bring to a boil and simmer for about 30 minutes.
3. Strain.
4. Put the strained tea into the fridge and allow to cool completely.
5. Add sugar to sweeten, and it's ready to drink!

Hibiscus Flowers

Rich in anthocyanins, fruit acids, Vitamin C, and other vitamins, along with minerals and antioxidants, hibiscus is excellent for giving a boost to the immune system as well as an inflammation fighter. Anthocyanins are believed to lower cholesterol, control blood glucose levels, and boost metabolism.

Hibiscus is thought to lower blood pressure as effectively as some standard hypertension drugs.

Hibiscus flowers can also be helpful in cases of sleep disturbances. Drink a cup before bed (or try the calming blend below). Hibiscus can support the nervous system by calming mood swings and alleviating mild depression. In fact, clients have told me that there is an overall mood-uplift trend after a period of constant use.

Hibiscus is anti-inflammatory, antibacterial, and diuretic in action.

I've used it together with cranberries in tasty tea blends to support the urinary system and nourish the bladder (hibiscus is sometimes used to prevent bladder infections). It is believed to support the liver too and is truly a wonderful all-around tonic.

Here are some other ways in which I use hibiscus flowers:

Anti-Allergy Herb Tea Blend

Use dried herbs for this blend, and you can keep it on hand for when you need it. Make "1 part" equal to 1 Tbsp if you just want a little tea for now, or make it equal to 1 cup for a big jarful you can enjoy over and over.

Ingredients

- 2 parts nettle
- 1 part milky oats
- 1 part lemon balm
- ½ part spearmint
- ½ part hibiscus flowers

Directions

1. Store the dried herb blend in a jar in the pantry or a cupboard.
2. To brew, place a tablespoon (or more for stronger tea) of the herb blend in a glass jar (or French press or similar).
3. Fill the jar to the top with just-boiled water.
4. Immediately cover with lid.
5. Allow to steep for about 10–15 minutes
6. Strain and enjoy!

Note: The therapeutic dose is 3–4 cups daily.

Calming Tea Blend

Ingredients

- 1 part chamomile flowers
- 1 part passionflowers
- 1 part hops flowers (strobiles)
- 1 part oats (milky oat tops if possible)
- 1 part hibiscus flowers

Hibiscus Rose Punch to Lift your Mood!

Ingredients

- 1 cup hibiscus petals (dried)
- 1 gallon pure water
- ¼ C rose water*
- ⅛ C maple syrup

*Check in Middle-Eastern shops, bakeries, or the specialty area of the grocery store.

Directions

1. Make a tea first by bringing the hibiscus and water to a gentle boil and simmering for 10 minutes or so.
2. Strain into a glass container.
3. Add the rose water and maple syrup.
4. Stir well.

This is so delicious and very pretty if you add rose petals floating on top. To make it ultra-festive: Freeze small pink petals in ice cubes in advance and use these floral cubes in the punch bowl.

Ruby Red Iced Tea

Whether enjoying a summery day at home on my covered porch or out in the garden, one of my preferred thirst quenchers is without doubt this fragrant, ruby-red infusion of hibiscus flowers, rose hips, and delightful lemon-scented Melissa, or lemon balm. I rarely add honey myself, but just a little honey does make this refreshing for everyone!

Ingredients and Supplies

- 2 Tbsp hibiscus flowers
- 1 Tbsp rose hips
- 1 Tbsp lemon balm leaves
- ½ Tbsp orange peel (optional)
- 1 Tbsp milky oat tops (optional)
- raw honey to taste (optional)
- 2 large glass jars (1 quart)

Directions

1. Place the ingredients into one of your jars.
2. Add just-boiled water to fill the jar.
3. Immediately cover with the lid (plastic screw-top lids make this easy).
4. Allow to steep 10–15 minutes and enjoy!

Whether it's a warming Vitamin-C-rich immune supporter or a refreshing, chilled version, hibiscus flowers are a treat. Here's hoping that you and your family find many ways to enjoy it!



More Hibiscus Recipes

Amanda Klenner

Here are some more fun ways to enjoy hibiscus every day! This is a collection of both traditional recipes and herbalists' formulations, so you can enjoy some culture along with your health benefits!

Summer Spark Tea

This cooling and refreshing blend of herbs is fantastic for those hot summer days when all you want is a cold drink. It also is fantastic for cooling the body when you're experiencing a fever. This drink is uplifting, flavorful, stimulating, and great for the immune, cardiovascular, and digestive systems. Oh, did I mention it tastes

so very good? This has been a popular hit at my local farmers' markets this year.

Ingredients

- 4 parts nettle leaf
- 2 parts hibiscus calyx
- 1 part lemon verbena
- 1 part spearmint
- 1 part lemon balm
- 1 part lemon grass
- ½ part lemon peel
- ½ part orange peel
- ½ part rose petal
- ½ part rose hip
- ¼ part stevia leaf

Directions

1. Combine all dry herbs and store in a cool, dark, dry place.
2. To brew, place 1 tablespoon of the herb blend in a cup.
3. Pour 1 cup of just-boiled water over the top and cover well.
4. Allow to steep 30–60 minutes.
5. Enjoy 1–3 times a day as desired.

Hibiscus Berry Pops

This recipe is a twist on one of my kids' favorites. We enjoy these all summer instead of the processed junk. The combination of hibiscus and berries brings a sweet flavor and a beautiful red color! Not to mention, this healthy treat is great for the immune system and high in antioxidants.

Ingredients and Supplies

- 2 Tbsp. hibiscus calyx
- 1 Tbsp. dried elderberry
- ¼ C fresh blueberries, cut in half
- ¼ C fresh strawberry or raspberry, cut in half or quarters
- 1 tsp stevia leaf OR ¼ C honey OR ¼ C maple syrup
- 4 C water
- juice of 3–4 fresh limes
- a little extra chopped fresh fruit of your choice (optional)
- 32 ounces worth of popsicle molds or little paper cups
- popsicle sticks

Directions

1. Simmer all ingredients (except lime and honey, if you chose to use it) for 5 minutes.
2. Cool and strain out the herbal goodies, crushing the berries to release all the juices.
3. Add lime juice and honey, if you are using it.
4. Optional: Place chopped fresh fruit into popsicle molds or cups.
5. Pour liquid into the molds or cups, add popsicle sticks if necessary, and freeze.
6. Enjoy!

Cardio-Tonic Fire Cider

Fire cider is a drink often used as an immune tonic in the cold summer months. You will find traditional fire cider to be an infusion of spicy herbs, peppers, ginger, garlic, etc., soaked in raw apple cider vinegar with some honey added. It works well when a person

is sick, but often is aggravating to inflamed digestive systems and those who tend to be “hot,” or pitta, people. I personally find traditional fire cider to be too much for me, so I have been experimenting with different ingredients to get the same medicinal bang for my buck without the troubles. This specific fire cider will be good for the immune system, but also supportive of healthy cardiovascular function. It tastes kind of like a spicy balsamic vinaigrette. You can also exclude the garlic and spices, and enjoy a nice mild cider drink for cardiovascular health.

Ingredients

- 64 ounces apple cider vinegar
- 10 ounces (volume) honey
- 2 large garlic bulbs
- 10 inches fresh ginger
- 10 inches fresh turmeric
- 1 C dried elderberry
- 1 C dried hibiscus calyx
- ½ C dried hawthorn berry
- ½ C rose hips
- ¼ C black peppercorns
- peel of 2–3 organic oranges OR ¼ C dried orange peel

Directions

1. Chop up all fresh ingredients and place them in a ½–1 gallon glass jar. (If you have a good blender, you can make a fresh herb slurry with the garlic, ginger, turmeric, and apple cider vinegar first.)
2. Place dry ingredients in the jar and pour in the apple cider vinegar (if not already slurried) and honey.

3. Mix well.
4. Place the lid on the jar and allow to sit for 4–6 weeks.
5. Strain through a fine mesh cloth and store in sanitized glass jars in the refrigerator (for a longer shelf life).
6. Take 1 Tbsp a day for cardiovascular and immune health.

Caribbean Sorrel Drink

This is a drink enjoyed in the Caribbean when hibiscus is in bloom, between October and December. This is almost like iced hibiscus chai. It sounds weird, but it tastes so. very. good. This is a great drink to enjoy around the holidays instead of mulled wine, for those who don't drink alcohol. We enjoy this iced in the summer, and hot in the winter.

Ingredients

- 9 C water
- 2 C dry hibiscus calyx
- 1 C sugar of choice (coconut is my preference) OR honey OR stevia leaf, to taste
- 1 tsp fresh ginger, grated
- 1–2 cinnamon sticks
- 4–6 clove
- ¼ C dried orange peel

Directions

1. Place all ingredients, except honey if you are using it, in a pot, and let it simmer with the lid on for 10–15 minutes.
2. Turn off the heat, add honey if you are using it, and allow the herbs to steep for 424 hours.

3. Strain into a pitcher.

4. Serve iced (traditionally). In the winter, I put this all in a crock pot and let it simmer during holiday parties and fill the air with its festive aroma, liked mulled wine.

References

Monograph

- ¹ Malacrida, Alessio, Daniele Maggioni, Arianna Casseti, Gabriella Nicolini, Guido Cavaletti, and Mariarosaria Miloso. 2016. "Antitumoral Effect Of Hibiscus Sabdariffa On Human Squamous Cell Carcinoma And Multiple Myeloma Cells". *Nutrition And Cancer* 68 (7): 1161-1170. doi:10.1080/01635581.2016.1208830.
- ² Chiu, Chun-Tang, Shu-Wen Hsuan, Hui-Hsuan Lin, Cheng-Chin Hsu, Fen-Pi Chou, and Jing-Hsien Chen. 2015. "Hibiscus Sabdariffa leaf Polyphenolic Extract Induces Human Melanoma Cell Death, Apoptosis, And Autophagy". *Journal Of Food Science* 80 (3): H649-H658. doi:10.1111/1750-3841.12790.
- ³ Hsu, Ren-Jun, Yao-Chin Hsu, Shu-Pin Chen, Chia-Lynn Fu, Jyh-Cherng Yu, Fung-Wei Chang, Ying-Hsin Chen, Jui-Ming Liu, Jar-Yi Ho, and Cheng-Ping Yu. 2018. "The Triterpenoids Of Hibiscus Syriacus Induce Apoptosis And Inhibit Cell Migration In Breast Cancer Cells."
- ⁴ Hassan, Sherif T. S., Kateřina Berchová, Michaela Majerová, Marie Pokorná, and Emil Švajdlenka. 2016. "In Vitro Synergistic Effect Of Hibiscus Sabdariffa Aqueous Extract In Combination With Standard Antibiotics Against Helicobacter Pylori Clinical Isolates.". *Pharmaceutical Biology* 54 (9): 1736-1740. doi:10.3109/13880209.2015.1126618.
- ⁵ PURO, K, R SUNJUKTA, S SAMIR, S GHATAK, I SHAKUNTALA, and A SEN. 2016. "Medicinal Uses Of Roselle Plant (Hibiscus Sabdariffa L.): A Mini Review". *Indian Journal Of Hill Farming* 27 (1): 81-90. http://www.kiran.nic.in/pdf/IJHF/Vol27_1/9-MedicinalUsesRosellePlant.pdf.
- ⁶ Sherif, Hassan, Katerina Berchova, Michael Majerová, Marie Pokorná, and Emil Švajdlenka. 2016. "In Vitro Synergistic Effect Of Hibiscus Sabdariffa Aqueous Extract In Combination With Standard Antibiotics Against Helicobacter Pylori Clinical Isolates.". *Journal Pharmaceutical Biology* 54 (9): 1736-1740. doi:10.3109/13880209.2015.1126618.

- ⁷ Formagio, ASN., DD. Ramos, MC. Vieira, SR. Ramalho, MM. Silva, NAH. Zárate, MA. Foglio, and JE. Carvalho. 2015. "Phenolic Compounds Of Hibiscus Sabdariffa And Influence Of Organic Residues On Its Antioxidant And Antitumoral Properties". *Brazilian Journal Of Biology* 75 (1): 69-76. doi:10.1590/1519-6984.07413.
- ⁸ Hadi, Amir, Makan Pourmasoumi, Marzieh Kafeshani, Jahangir Karimian, Mohammad Reza Maracy, and Mohammad Hasan Entezari. 2016. "The Effect Of Green Tea And Sour Tea (Hibiscus Sabdariffa L.) Supplementation On Oxidative Stress And Muscle Damage In Athletes". *Journal Of Dietary Supplements* 14 (3): 346-357. doi:10.1080/19390211.2016.1237400.
- ⁹ Nwachukwu, DanielChukwu, EddyIkemefuna Aneke, LeonardFidelis Obika, and NkiruZuada Nwachukwu. 2015. "Effects Of Aqueous Extract Of Hibiscus Sabdariffa On The Renin-Angiotensin-Aldosterone System Of Nigerians With Mild To Moderate Essential Hypertension: A Comparative Study With Lisinopril". *Indian Journal Of Pharmacology* 47 (5): 540. doi:10.4103/0253-7613.165194.
- ¹⁰ Serban, Corina, Amirhossein Sahebkar, Sorin Ursoniu, Florina Andrica, and Maciej Banach. 2015. "Effect Of Sour Tea (Hibiscus Sabdariffa L.) On Arterial Hypertension". *Journal Of Hypertension* 33 (6): 1119-1127. doi:10.1097/hjh.0000000000000585.
- ¹¹ Nwachukwu, DC, E Aneke, NZ Nwachukwu, LFO Obika, UI Nwagha, and AA Eze. 2015. "Effect Of Hibiscus Sabdariffa on Blood Pressure And Electrolyte Profile Of Mild To Moderate Hypertensive Nigerians: A Comparative Study With Hydrochlorothiazide". *Nigerian Journal Of Clinical Practice* 18 (6): 762. doi:10.4103/1119-3077.163278.
- ¹² McKay, Diane L., C-Y. Oliver Chen, Edward Saltzman, and Jeffrey B. Blumberg. 2009. "Hibiscus Sabdariffa L. Tea (Tisane) Lowers Blood Pressure In Prehypertensive And Mildly Hypertensive Adults". *The Journal Of Nutrition* 140 (2): 298-303. doi:10.3945/jn.109.115097.
- ¹³ Aliyu, B, YJ Oyeniyi, FB Mojiminiyi, SA Isezuo, and AR Alada. 2014. "The Aqueous Calyx Extract Of Hibiscus Sabdariffa Lowers Blood Pressure And Heart

Rate Via Sympathetic Nervous System Dependent Mechanisms.". Nigerian Journal Of Physiological Sciences 29 (29): 131-136.

¹⁴ Chen, Jing-Hsien, Ming-Shih Lee, Chi-Ping Wang, Cheng-Chin Hsu, and Hui-Hsuan Lin. 2016. "Autophagic Effects Of Hibiscus Sabdariffa Leaf Polyphenols And Epicatechin Gallate (ECG) Against Oxidized LDL-Induced Injury Of Human Endothelial Cells". European Journal Of Nutrition 56 (5): 1963-1981. doi:10.1007/s00394-016-1239-4.

¹⁵ Asgary, Sedigheh, Rasool Soltani, Mohsen Zolghadr, Mahtab Keshvari, and Nizal Sarrafzadegan. 2016. "Evaluation Of The Effects Of Roselle (Hibiscus Sabdariffa L.) On Oxidative Stress And Serum Levels Of Lipids, Insulin And Hs-CRP In Adult Patients With Metabolic Syndrome: A Double-Blind Placebo-Controlled Clinical Trial". Journal Of Complementary And Integrative Medicine 13 (2). doi:10.1515/jcim-2015-0030.

¹⁶ Chang, Hong-Chou, Chiung-Huei Peng, Da-Ming Yeh, Erl-Shyh Kao, and Chau-Jong Wang. 2014. "Hibiscus Sabdariffa Extract Inhibits Obesity And Fat Accumulation, And Improves Liver Steatosis In Humans". Food & Function 5 (4): 734. doi:10.1039/c3fo60495k.

¹⁷ Jadhav, VM, RM Thorat, VJ Kadam, and NS Sathe. 2009. "Traditional Medicinal Uses Of Hibiscus Rosa-Sinensis". Journal Of Pharmacy Research 2 (8): 1220-1222.

¹⁸ Souirti, Zouhayr, Mouna Loukili, Imar D. Soudy, Kaies Rtibi, Aslihan Özel, Nicolas Limas-Nzouzi, Seloua El Ouezzani, and Bruno Eto. 2016. "Hibiscus Sabdariffaincreases Hydroxocobalamin Oral Bioavailability And Clinical Efficacy In Vitamin B12deficiency With Neurological Symptoms". Fundamental & Clinical Pharmacology 30 (6): 568-576. doi:10.1111/fcp.12220.

General References

Wee, Y. C. (2003). Tropical trees and shrubs: A selection for urban planting. Singapore: Sun Tree Publishing, p. 65.

History

- ¹ Liddell, Henry George and Robert Scott. *A Greek-English Lexicon*. revised and augmented throughout by. Sir Henry Stuart Jones. with the assistance of. Roderick McKenzie. Oxford. Clarendon Press. 1940.
- ² Celsus, Aulus Cornelius. *De Medicina LIBRI V and VI*. Translated by Spencer, W.G. 1938 Translation. Vol. II. III vols. London, England: Loeb Classical Library, ca. 45. pp 36.
- ³ James H. Stone. "Economic Plants Encountered on the Voyage of the Beagle." *Economic Botany* 16, no. 2 (1962): 116–26.
- ⁴ Lindley, John, and Thomas Moore. *The Treasury of Botany: A Popular Dictionary of the Vegetable Kingdom: With Which Is Incorporated a Glossary of Botanical Terms*. Longmans, Green, and Company, 1889. pp 991.
- ⁵ L'Obel, Matthias de. *Plantarum Stirpium historia*. Antwerp, Belgium: Ex officina Christophori Plantini. 1576.
- ⁶ Aiton, William. *Hortus Kewensis, or, A Catalogue of the Plants Cultivated in the Royal Botanic Garden at Kew*. Vol. IV. FIVE vols. London, England: Longman, Hurst, Rees, Orme, and Brown, 1810. pp. 227.
- ⁷ Gerard, John. *The Herbal or General History of Plants*. Edited by Hill, Thomas. 1975 Reprint. New York, NY: Dover Publication, 1633. p 936.
- ⁸ Dalechampiij, Jaques. *Historia generalis plantarum...* apud Gulielmum Rouillium, 1586.
- ⁹ Sloane, Hans. *A Natural History of Jamaica*. Vol. I. 2 vols. London, England: Printed by B.M. for the author, 1707. pp 224.
- ¹⁰ Hughes, Griffith. *The Natural History of Barbados: In Ten Books*. London, England: London: Printed for the author, 1750. pp 204.
- ¹¹ Browne, Patrick. *The Civil and Natural History of Jamaica*. White, 1789. pp. 285.

¹² DeFilipps, Robert, Maina, Shirley, and Crepin, Julia. *Medicinal Plants of the Guianas (Guyana, Surinam, French Guiana)*. Washington, D.C: The Smithsonian Institute, 2004. pp. 172.

¹³ Gilroy, Clinton G. *The History of Silk, Cotton, Linen, Wool, and Other Fibrous Substances*. C. M. Saxton, 1853. pp 196.

¹⁴ Hansen, Barbara. "Uncommon Herbs: In a Burmese Garden." *Los Angeles Times*. October 7, 1993, sec. Food. http://articles.latimes.com/1993-10-07/food/fo-42908_1_chin-baung.

¹⁵ Aiton, pp. 225.

¹⁶ Ainslie, Whitelaw. *Materia Indica*. Vol. II. London, England: Longman, Rees, Orme, Brown, Green, 1826. pp 359.

¹⁷ Dymock, William, C. J. H. Warden, and David Hooper. *Pharmacographia Indica: A History of the Principal Drugs of Vegetable Origin, Met with in British India*. Vol. II. K. Paul, Trench, Trübner & Company, Ltd, 1891.

¹⁸ Dymock, W. "On Narcotics and Spices of the East." *The Journal of the Anthropological Society of Bombay* 2, no. 1 (1891): 36–54.

¹⁹ Topano, Sema. *Musical Culture of the Munda Tribe*. New Delhi, India: Concept Publishing Company, 2004. pp. 39.

Growing Hibiscus

¹ "Mountain Rose Herbs: Hibiscus Flower Powder." *Bulk Organic Herbs, Spices & Essential Oils – Mountain Rose Herbs*. Accessed September 07, 2018. <https://www.mountainroseherbs.com/products/hibiscus-flower-powder/profile>.

² "Is a Dinner-Plate Hibiscus on Your Yard's Summer Menu?" *The Spruce*. Accessed September 07, 2018. <https://www.thespruce.com/hardy-hibiscus-plants-2132719>.

³ "How to Grow Hibiscus." Today's Homeowner. May 20, 2013. Accessed September 07, 2018.

<https://www.todayshomeowner.com/how-to-grow-hibiscus/>.

⁴ Titchmarsh, Alan. "Exotic Beauty: Hardy Hibiscus for a Flash of Colour before Summer Is Gone." Express.co.uk. August 22, 2014.

Accessed September 07, 2018. <https://www.express.co.uk/life-style/garden/501926/How-to-plant-hibiscus-syriacus>.

⁵ "Plant Finder." Missouri Botanical Garden. Accessed September 07, 2018.

<http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx>.

⁶ "Hibiscus syriacus - Rose-of-Sharon or Shrub Althea (Malvaceae)." Accessed September 07, 2018. <https://plantfacts.osu.edu/pdf/0247-539.pdf>

⁷ "Hibiscus Syriacus 'Marina' (Rose of Sharon)." Gardenia.net. Accessed September 07, 2018.

<https://www.gardenia.net/plant/Hibiscus-syriacus-Marina-Rose-of-Sharon>.

⁸ Pfaf Plant Search. Accessed September 07, 2018.

[https://www.pfaf.org/user/plant.aspx?latinname=Hibiscus syriacus](https://www.pfaf.org/user/plant.aspx?latinname=Hibiscus%20syriacus).

Hibiscus sabdariffa

¹ Blankespoor, Juliet. "Hibiscus Pomegranate Fire Cider." Chestnut School of Herbal Medicine. August 30, 2018. Accessed September 07, 2018. <https://chestnutherbs.com/roselle-hibiscus-pomegranate-fire-cider-and-the-medicine-and-cultivation-of-hibiscus/>.

² Blankespoor, Juliet. "Herbal Holiday Guide." Chestnut School of Herbal Medicine. Accessed September 07, 2018.

<http://chestnutherbs.com/wp->

content/uploads/2016/12/Chestnut_School_Herbal_Holiday_Guide-2.pdf

³ Susan Weed. Lecture at Medicines from the Edge Conference.

⁴ "How to Make Zobo Drink Aka Zoborodo." Nigerian Food Recipes, All Nigerian Recipes. Accessed September 07, 2018.
<http://www.allnigerianrecipes.com/drinks/zobo-drink.html>.

⁵ Asiya. "Gongura Pickle Recipe Andhra Style, Gongura Pachadi - Yummy Indian Kitchen." Yummy Indian Kitchen - Indian Food Recipes. October 09, 2017. Accessed September 07, 2018.
<https://yummyindiankitchen.com/gongura-pickle-recipe-andhra-style-gongura-pachadi/>.

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