5. Materia Medica

Medicinal Plants of San Salvador Island

> Some botanists suggest that as many as forty thousand species of plants may have medicinal or nutritional properties, a potential that in many instances, has already been realized by traditional healers.
>
> — Wade Davis, *Light at the Edge of the World*

The material for this chapter is based primarily on recorded audio and video accounts of how bush medicine has been practiced on San Salvador Island (SSI). Of the nine people we interviewed, eight of them were lifelong residents. The practice of bush medicine continues as a living tradition on SSI, though it is practiced by a smaller number of the younger generation. The knowledge of bush medicine is held in the fading collective memory of island residents, and it was our goal to capture this knowledge through oral histories. The art and practice of healing with bush medicine stays alive only as long as there are practitioners using the medicine, and as long as the plants can be found in abundance. Hopefully the information below will help sustain this healing tradition. We have found that some of these remedies can be quite powerful and need to be looked at more closely for their therapeutic potential. To offer a deeper perspective on bush medicine we have included pharmacological information and cross-cultural comparisons of the uses of these plants in other areas of the Caribbean region.

HOW TO READ, INTERPRET, AND USE THIS CHAPTER

This chapter is a descriptive listing (a "materia medica") of the medicinal plants and their therapeutic uses on SSI. A materia medica (materials of medicine) describes various medicinal agents of organic or inorganic origin, their source, their nomenclature, methods of harvest, preparation, uses, and dosage. A materia medica also deals with the physical and chemical properties of the therapeutic agents and their physiological and toxic effects.

We have covered 120 medicinal plants in this chapter. Of this total, 109 were reported by nine interviewees in this project. For completeness, we included 11 additional plants cited in the 1993 *Field Guide to the Vegetation of San Salvador Island, The Bahamas* by Robert R. Smith. They are listed here by common name: beefwood, black torch, crab's eyes, goat bush, goat weed, marsh-mallow, milkweed, pigeon plum, red mangrove, snowberry, white beefwood, and white torch. Smith provided little detail regarding the use and preparation of these plants, but we chose to include them because cross-cultural information on their uses might provide insight about their possible uses on San Salvador Island. Three plants cited by Smith were not included because too little information was available on SSI or elsewhere. These are Christmas orchid (*Encyclia hodgeana* [Hawkes] Beckner), devil's rip (*Phyla stoechadifolia* L.), and walla-berry or cuttard (*Gyminda latifolia* [Sw.] Urb.).

In this materia medica we have included twenty categories of information for all medicinal plants. The cat-

FACING. North Point area.

egories include both scientific and folkloric threads of knowledge. One especially important thread is the cross-cultural information relating to the practice of bush medicine elsewhere in the Caribbean region. This is important for placing the practice of bush medicine on SSI within a wider ethnobotanical and cultural context. We have attempted to create a kind of "informational tapestry" for each plant. Inclusion of pharmacological information is an especially important thread as it can be helpful for finding correspondences between bush medicine and the results of scientific investigations of the therapeutic uses of plant medicine. Because many pharmaceuticals have been derived from plant sources, new insights may be gained based on published oral accounts of how these plants are used traditionally. In addition, the inclusion of the results of pharmacological studies and the identification of plant constituents may lead to an understanding about how these plants may function in the body from a physiological and biochemical perspective.

It is important to note that up to 80% of the world's population presently uses traditional plant medicine for some aspect of primary health care. The percentage of the population that uses traditional medicine ranges from 31% in Belgium to 80% in Africa and Asia [WHO 2003]. Approximately 70% of cancer drugs are either natural plant products or their derivatives (natural product mimics) [Newman and Cragg. 2007], and in the United States 57% of the top-selling prescription drugs are derived from plant products.

This chapter is not intended as a prescription for self-treatment. Dr. Rosita Arvigo, who has worked with traditional healers for several decades in Belize, estimates that 85% of what the healer tells us is correct [Arvigo, e-mail message to author, Oct. 1, 2009]. Likewise, in our field work on SSI we have come to a similar conclusion, based on cross-checking transcripts of interviews and comparing those accounts with published literature. On SSI, much of the rich, full-textured knowledge and practice of bush medicine now resides in the fragile memories of elders, some of whom can no longer actively practice bush medicine due to age or infirmity. In spite of the interviewees' best efforts to be of service to those who might learn from their wisdom there were times when they couldn't recall the name of a specific plant for an ailment, or they confused one plant with another.

The information here is by no means complete, especially with regard to dosages and amounts of plants used. That said, there is some comfort in knowing that—unlike most pharmaceuticals—many (but certainly not all) bush medicines provide a wide safety margin in terms of dosage.

Regardless of the relative safety of bush medicines, there are variables to consider in the use of bush medicine. For example, individual plants may vary in terms of the strength of their phytochemicals due to the environmental conditions where they are grown. In addition, people are also somewhat unique in their physiology and biochemistry, their states of being, and the influences of environment on health. Some individuals may be hypersensitive to certain phytochemicals. For these and other reasons, patients may react differently in response to the administration of bush medicines, and therefore it is best to consult an experienced practitioner to guide the way. Ideally bush medicine is best understood and practiced within the full context of Bahamian culture.

In the section on pharmacological notes, the listing of phytochemicals and their actions can provide some basis for understanding the therapeutic effects. However, the listing of one or several phytochemicals may not explain any or all of the beneficial effects. The efficacy of bush medicine may not be due to a specific phytochemical, but rather due to the synergistic actions of various phytochemicals that occur within a single plant and/or combinations (blends) of plants. We have to be careful not to take a reductionist view: sometimes it is the extract of the whole plant, not just one or several of its constituents, that contributes to the efficacy of traditional medicines. Certain phytochemicals may have direct healing effects, whereas others function in a supporting role by favorably altering the biochemistry and physiology of the patient. Complicating the issue is that some toxic phytochemicals may be present, but are relatively benign at low dosage for short periods because the body has evolved a means of metabolizing these chemicals during the course of human evolution. Extracting and purifying specific phytochemicals can shift the balance and adversely affect how a plant is utilized by the body. These synergistic actions and factors are not so easily teased out in scientific studies, as the whole is often larger than the sum of its parts—a much larger subject which deserves a chapter of its own and is beyond the scope of this book.

DEFINITION OF TERMS

Definitions of medical terms, properties and actions of plants and additional terms such as simples, blends, de-

coction, infusion, poultice, febrifuge, vermifuge, depurative, etc., are found in the Glossary of Terms.

KEY TO DESCRIPTIVE CATEGORIES FOR EACH PLANT

Common name (SSI): The common name(s) (also known as the vernacular name or colloquial name) by which the plant is known to residents of San Salvador Island (SSI).

Other common names (Caribbean): Other common names by which the plant may be known in the Bahamas and Caribbean area. These names were gathered from a variety of sources, principally *Plants of the Eastern Caribbean* database [Carrington et al. 2010], *Florida Ethnobotany* [Austin and Honychurch 2004], the USDA Germplasm Resources Information Network [GRIN 2010], and *Atlas of Medicinal Plants of Medicinal Plants: Bahamas to Yucatan* [Morton 1981].

Scientific name: The botanical name for the plant (genus and species).

Family: The botanical name of the plant family, followed by the common name of the family.

Habitat: Notes about the plant's habitat, especially on San Salvador Island.

Flowering & Fruiting season: The usual time of year a species was observed in flower or fruit in the Bahamas, according to the *Flora of the Bahama Archipelago* [Correll and Correll 1982]. Although Correll reports many species in the Bahamas flowering and fruiting throughout the year, on SSI the timing of flowering and fruiting may be more sporadic due to the influence of variable and unpredictable rainfall. For example the spring dry season can last two months or more, but once the dry season ends there is a proliferation of flowering which generally lasts from May through September. An additional flowering period can occur during the winter rainy season.

Parts used (SSI): The part of the plant used for medicine on SSI such as leaves, stem, bark, flower, or root.

Simple (SSI): A medicinal plant that is used by itself to treat one or more conditions. The source of the information is indicated by the interviewees' initials in square brackets. When the word "tea" is enclosed in quotes, it is not clear from the source whether the water extract was prepared as an infusion (tea), or by boiling (decoction). The distinction is important with regard to the quality and quantity of medicinal chemicals extracted.

Blends (SSI): A combination of two or more medicinal plants used together to treat one or more conditions. The source of the information is indicated by the interviewee initials in square brackets. For locating all instances of plants used in a blend see the Index of Medicinal Plants According to Principal Uses.

Indications (SSI): The symptoms, condition, or disease which make a particular treatment or procedure advisable according to usage on SSI.

Harvest notes (SSI): Notes about where, when, and how a plant is harvested on SSI, including quantity used for harvest.

Preparation (SSI): Notes about procedures and steps used to prepare a plant in order to extract its medicinal properties or procedures to improve the efficacy of the plant medicine. Note that the preparation method may vary according to the practitioner.

Administration & Dosage (SSI): How the medicine is administered including the dosage and duration of treatment.

Properties & Actions (SSI): This section lists the properties or actions of the featured plant only according to the therapeutic uses of how the plant is used on SSI. The plant simples or blends may have additional properties and actions according to uses elsewhere in the Caribbean, but because the focus is on SSI, we have not included those. The standard terminology used for reporting actions and properties are those terms commonly used by health practitioners, researchers, herbalists and practitioners of traditional medicine. Some of these terms are self-explanatory, such as antibacterial and analgesic, while other terms such as vermifuge and vulnerary tend to be used by professionals. Some of the professional terms may convey nuanced meanings. For additional information see the Glossary of Terms.

Pharmacological notes: This section summarizes some of the more important or noteworthy plant constituents and their biological activities as demonstrated in laboratory experiments and clinical studies. The principal author has abstracted and condensed the results of pharmacological research from various books, monographs, scientific journals, and other resources. Where possible, relevant pharmacological research is distilled from mainly peer-reviewed sources, though in some cases it was necessary to include authoritative or respected sources outside the traditional scientific establishment. The pharmacological notes are by no means comprehensive or complete; however, an attempt has been made to represent some of the most frequently cited literature. There was also an attempt to find pharmacological re-

search that supported (or contradicted) the therapeutic uses of bush medicine plants.

Contraindications & Toxicity: This section contains information from a variety of sources summarized mainly from print publications and scientific journals accessed on the Internet. Note that toxicity can be related to a number of factors including part of the plant harvested (root, bark, leaf, flower), plant age, preparation method, dosage, condition and age of the patient. Since any bush medicine prepared as a blend may have a potentially toxic ingredient, it is important to read the toxicity data pertaining to each plant in the blend. Several plants in this materia medica are highly toxic when improperly used (e.g., oleander). The absence of toxicity information should not be construed to mean that the plant has no toxic properties.

Cross-cultural medicinal uses (Caribbean): This section describes how the plant is used medicinally in different islands in the Bahamas, other Caribbean islands (including ethnic groups), and other countries. Though the focus is on the Caribbean, cultures or ethnic groups in Yucatan, Central America, and northern parts of South America may be included to show similarities and differences in usage.

Other ethnobotanical uses: Economic, agricultural, ceremonial and other ethnobotanical uses of plants elsewhere. Information specific to SSI is noted.

Remarks: Miscellaneous notes of interest or importance.

In their own words: These are excerpts from the audio and video interviews of residents of SSI. At the end of each interview segment, the interview citation reference is indicated in brackets. The citation consists of the interviewee's initials followed by the interview number. In some cases, portions of the original interview have been edited or distilled so as to provide the intended meaning, to improve clarity, or to provide context for the reader. In some interviews, the interviewer's questions are also included within the dialogue to provide the context for the interviewee responses that follow.

KEY TO INTERVIEWEES

The initials of interviewees appear in brackets throughout the descriptive listing of medicinal plants. The interviewees are:

MA – Mary Allen
BF – Bertram Forbes
MJ – Myrtis Jones
ES – Eulease Storr
IR – Island resident
SA – Susilee Anderson
TH – Thomas Hanna
EP – Erma Pratt
MW – Mabel Williams

KEY TO AUTHORS/INTERVIEWERS

JM – Jeff McCormack
PW – Patty Wallens
KM – Kathleen Maier
TM – Tim McCormack

LITERATURE AND WEBSITE SOURCES

Literature citations are cited by the author, year of publication, and page number, as noted in brackets. Internet citations are cited in the form of the general or specific website address and the year accessed as noted in brackets. Citations are primarily from the print literature. Citations from Internet resources are those from frequently accessed sites. Note that Internet citations are often unstable due to frequent change. If the link changes, often the original citation can be located by going to the domain name (main address) and doing a search within the domain or by entering in key words or phrases and the basic domain name into a search engine.

Materia Medica and Therapeutics

Bush Medicine Plants of San Salvador Island

ALMOND

Common name (SSI): almond
Other common names (Caribbean): West Indian almond, Indian almond, tropical almond, beach almond, sea almond, seaside almond, wild almond; Barbados almond; almendra (Spanish); zanmann (Haiti creole); mandier-pays, pied z'amande, z'amande
Scientific name: *Terminalia catappa* L.
Family: COMBRETACEAE (Combretum family)
Habitat: Cultivated and escaped from cultivation.
Flowering & Fruiting season: throughout the year
Parts used (SSI): fresh leaves
Simple (SSI)

- poultice of almond leaf for sinus infection (after initial treatment with catnit) [SA-2]
- decoction of almond leaf for high blood pressure [ES-2]
- almond leaf with green alcohol [EP-1]

Blends (SSI): (each blend prepared as a decoction)

- almond leaf + avocado leaf + scurger needle > for high blood pressure [ES-1]
- almond leaf + shepherd's needle + soursop > for high blood pressure [MW-1]

Indications (SSI): Used for high blood pressure, and sinus infection.
Harvest notes (SSI): Harvest and rinse the fresh leaves.
Preparation (SSI)

- For preparing the decoction, combine with other plants into a saucepan, and then boil the mixture up to 30 minutes.
- For preparing almond leaves for use as a poultice for a sinus infection, first crush or bruise the almond leaves.

Administration & Dosage (SSI)

- For treatment of high blood pressure, see Mabel Williams "In their own words" for preparation and use.
- For treatment of a sinus condition, see Susilee Anderson "In their own words."

Properties & Actions (SSI): hypotensive, astringent, antimicrobial [**KM – Author's note:** The effect on sinuses is possibly from astringency, but could also be from antimicrobial action.]
Pharmacological notes: Extracts of the leaves have *in vitro* antibacterial activity against *Bacillus subtilis* and *Staphylococcus aureus* [Babayi et al. 2004]. Cardiac glycosides are present in trace amounts in green leaves, and in moderate amounts in reddish-brown leaves [Moody et al. 2003]. The leaves, bark, roots, fruit and seeds have been used to effectively reverse blood sugar regulating functions in damaged pancreas of diabetics [Ahmad et al. 2005]. Leaves have been shown to protect against acute liver injury produced by substances that are toxic to the liver. The hepatoprotective effect is related to the protection of liver mitochondria and scavenging of free radicals [Gao 2004]. Extracts contain gallic acid and quercetin which have antiviral and antibronchitic actions.
Contraindications & Toxicity: None reported on SSI in connection with proper administration and dosage.
Cross-cultural medicinal uses (Caribbean): Used as a simple, almond leaf is considered as a tonic and astringent. In Yucatan and Brazil, the leaf is used to stop diarrhea. In Cuba, the crushed leaves are used to alleviate itching. In Cuba, as remedy for hemoptysis, and in Costa Rica, for uterine hemorrhages and for cracked nipples of nursing mothers [Morton 1981]. Young leaves are eaten for headache [Nellis 1994]. The medicinal use of the bark, roots, fruits, and seeds for medicinal purposes has also been reported. In Belize, high blood pressure and heart trouble is treated with three leaves boiled in three cups of water for ten minutes and drunk at breakfast every other day. Headache and fever is treated by rubbing olive oil on an almond leaf which is then bound to the palms of the hands and soles of the feet, which is said to "draw out the heat" [Arvigo and Balick 1998].
Other ethnobotanical uses: Used as an ornamental and shade tree. The seed kernel is used in the same manner as almonds. The outer layer of the fruit is edible.
Remarks: The leaves are high in tannin. Land crabs consume the fallen fruit [Nellis 1994]. The almond tree is found on SSI both as a cultivated tree and escaped from cultivation.
In their own words
Lowering blood pressure

> **Eulease Storr:** Use for a touch of blood pressure. [ES-1]

Preparation and use

Mabel Williams: You can take a [small] potful in the evening before you go to bed, and in the morning, and that would keep your pressure down. But if you don't want to use the almond leaf, you could use the breadfruit leaf, and the shepherd's needle and the soursop, and you put the three together, and that's very good tea, and that's very good for pressure. [MW-1]

Treatment of sinus infection

Susilee Anderson: Oh, she [Sophia Pratt] was a good, good nurse. And after she finished [treating my sinus infection with catnit] she said, "Now come," and she get the almond, them big almond leaf, and she tie up my head with it. When she finished, she said, "Now go and lay down and sleep." And you know I went to sleep. That was about 'round about eleven o'clock, and they had to wake me up that night, dark, I was still sleepin'. I felt like a different person. I was like—like my head was light and all the bad eyes—sometimes I can't even open my eyes, you know.

And [then] all of that was gone, and I felt like a new person, and I just get up.

KM: Now when they wrapped the almond leaves, did they wrap on your forehead, or your whole head?

SA: Yeah. Right 'round, 'round the forehead, 'round the forehead, and then they tie it.

KM: And would they steep them?

SA: No, all they do is just, you know, crush it, crush it and then you put that on. [SA-2]

Treatment of sinus infection

KM: [now talking with Erma Pratt in another interview] Now, Miss Anderson talked about putting the almond leaves. She said you really, really helped her with the sinuses.

Erma Pratt: The almond, yes, almond tree right near—the one in the back of my kitchen. And you take the leaf and put it on your forehead and you sprinkle a little—the green alcohol on it. And then you put it to your head and take a head cloth and tie it and that draw, you know. And like it help that alcohol circulate through your mole, your forehead, and like it ripen the sinus.

KM: Right. OK. Now the mole is the top of the head, right?

EP: Right. Yeah.

KM: Would you put medicine on the mole to get into the body?

EP: It's just coolin' medicine. You can't put all kind. [EP-1]

ALOE

Common name (SSI): aloe

Other common names (Caribbean): aloes, Barbados aloes; sentebibu (Curaçoa creole)

Scientific name: *Aloe vera* (L.) Burm. f.

Family: ASPHODELACEAE (Asphodel family). Before 2003, *Aloe vera* was classified in the LILIACEAE (Lily family)

Habitat: Cultivated and escaped from cultivation.

Flowering & Fruiting season: sporadically throughout the year

Parts used (SSI): thick succulent leaves

Simple (SSI)

- tea or decoction for skin conditions

Blends (SSI): (each blend prepared as a decoction)

- aloe (optional) + bay geranium + gale-of-wind + goat bush + sour lime + aloe (optional) > for flu [BF-3, BF-11]

Indications (SSI): Used for burns, bruises, cuts, sores, sunburn, wound healing, insect bites and itching, purgative for tight bowels, and constipation. Less commonly used for tonifying the blood [TH-1], cough from flu [BF-11], to encourage appetite [BF-3], diarrhea [BF-3], shampoo [BF-9], hypertension [BF-11], and cancer. [ES-1]

Harvest notes (SSI): Remove the fleshy leaf and, using a knife, cut off the outer edges of the leaf and then slit lengthwise to prepare two slabs.

Preparation (SSI): The gel (mucilage) of the leaf is spread on the skin to relieve and heal sores, cuts, burns or other inflammatory skin conditions, or slabs of the leaf are warmed in a saucepan and then applied to the afflicted part of the skin. Also see preparation notes under "In their own words" below.

Administration & Dosage (SSI): See usage for various conditions under "In their own words" below.

Properties & Actions (SSI): antibacterial, anti-inflammatory, antipruritic, emollient, purgative, bitter, drawing agent

Pharmacological notes: The gel from the leaves, when concentrated and solidified, is the same as "aloin" ("barbaloin") or "aloe-emoden," a commercial product which has a purgative action. The cathartic effect is due to the action of anthraquinone glycosides, the principal one of which is barbaloin (aloe-emodin anthrone C-10 glucoside). When used as a purgative, its chief action is on the large intestine. In wound healing, aloe gel stimulates neuron-like cell growth, increases production of fibroblasts and epithelial cells, and acts as an inhibitor