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# SWAMP MEDICINE

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**THE THERAPEUTIC  
POTENTIAL OF  
TRADITIONAL  
HEALING PLANTS  
OF LOUISIANA**

By Claudia S. Copeland, PhD





SASSAFRAS



What do you get when you put cultural anthropologists, botanists, biochemists, and endocrinologists in the same room together? In South Louisiana the answer might just be several new treatment possibilities for diabetes and other disorders.

LOUISIANA PLANTS, and plants in general, have long been used as primary medical treatments. Historically, it was plants that filled the vast majority of physicians' pharmacopoeias, and even in this age of synthesized, factory-made drugs, over 10% of the medications considered basic and essential by the WHO are exclusively of flowering plant origin. Moreover, most of the synthetic medications we use are in fact derivatives or extracts of medicinal plants—*aspirin* (synthesized from white willow bark) and *morphine* (extracted from opium poppies) are two common examples. When it comes to developing new drug treatments for tough-to-treat diseases, plants are a good place to look, yielding treatments for conditions from cancer to drug-resistant malaria.

In Louisiana, one such problematic disease is diabetes, and a diverse group of researchers has teamed up to combine their knowledge in ethnobotany, ecology, and biomedical science to identify Louisiana plants that could be used as anti-diabetic agents. The team, Boudreau et al., made up of members from Pennington Biomedical Research Center in Baton Rouge, the USGS

1926

A tentative code of ethics for nurses is adopted by the American Nurses Association.

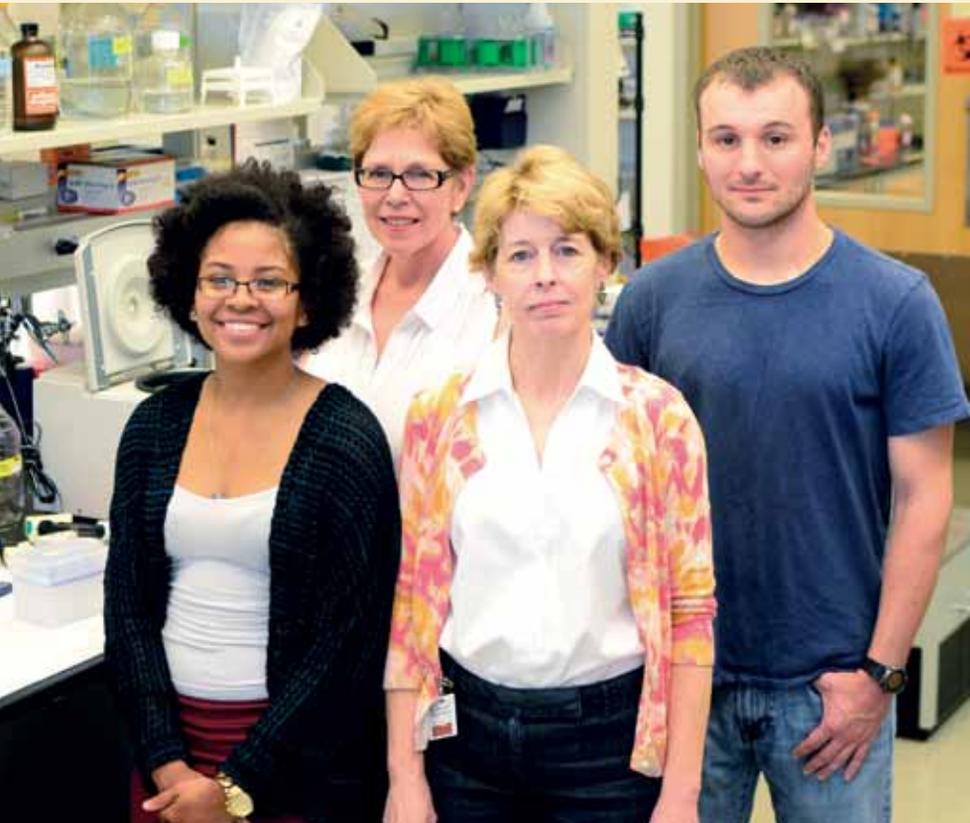
1938

The "Spirit of Nursing" monument is dedicated in Arlington National Cemetery.



1938

The National League of Nursing Education and the American Hospital Association publish "Manual of the Essentials of Good Hospital Nursing Service".



L to R Dominique Smith, Gail Braymer, Dr. Beth Floyd, and Justin Manuel, members of the research team from Pennington Biomedical Research Center.

Wetlands Research Center in Lafayette, the State University of New Jersey, and the University of Louisiana at Lafayette, are pooling their skills and knowledge to investigate Louisiana plants historically used as medicine. Already, they have identified plants that could be useful in the treatment of type 2 diabetes mellitus (T2DM) and metabolic syndrome, which includes abdominal obesity, dyslipidemia, hypertension, insulin resistance, and chronic inflammation, and is associated with the development of T2DM.

To accomplish this, they first compiled a list of candidate plants traditionally used in

Creole folk medicine. Next, they collected specimens from the field, catalogued them, and prepared extracts, which were tested for insulin signaling and inflammatory markers. Promising extracts were further tested in different cells, physiological assays, and animal tests, and the “hits” were fractionated to determine the specific compounds responsible for the effects—that is, the compounds that could become new drugs to treat T2DM and metabolic syndrome. Through this process, they identified ten native plants traditionally used in Creole folk medicine that contained compounds with bioactivity

affecting insulin signaling and inflammation. The most powerful were *Baccharis halimifolia* (Groundsel Bush), *Croton capitatus* (Goat Weed), and *Saururus cernuus* (Lizard’s Tail). Other compounds with bioactivity included *Sambucus canadensis* (Elderberry), *Celtis laevigata* (Hackberry or Sugarberry), *Persea borbonia* (Red Bay), *Callicarpa americana* (Beautyberry), *Erythrina herbacea* (coral bean), *Melia azedarach* (chinaberry), and *Solanum americanum* (American Black Nightshade).

The discovery of new anti-diabetic candidates is exciting, but the bigger picture is even more exciting: through the combination of cultural anthropology, botany, biochemistry, and biomedicine, new treatment possibilities for a host of illnesses could be discovered—or rediscovered—from plants growing right under our noses. From roadside weeds to swamp wildflowers, folk healing records indicate that a treasure trove of medicines may be quietly growing in the fields, forests, and wetlands of Louisiana.

In 2011, University of Louisiana at Lafayette anthropologist C. Ray Brassieur, PhD, and a group of master gardeners led by

**1939**

The American Nurses Association establishes a policy in favor of nurse licensure for all who nurse for hire.

**1943**

The U. S. Cadet Nurse Corps is created in an attempt to bring more students into nursing schools.

**1939-1945**

Over 59,000 American nurses serve in World War II.



museum professional/educator Jan B. Wyatt celebrated the grand opening of a traditional “Jardin des Traiteurs”, or Healers’ Garden, in the Vermilionville folklife park in Lafayette. Arranged in the style of a traditional 19th Century Acadian medicinal garden, it includes native plants and plants imported prior to 1900 that were used for medicinal purposes by Cajun, Creole, African-American, and Native American healers. Along with imports such as spearmint (used to treat fever, improve digestion, and

alleviate headaches) and peppermint (used to treat toothache, colds, and flu), are traditional Native American curative plants. These include groundsel bush (*Baccharis halimifolia*), goat weed (*Croton capitatus*), coral bean (*Erythrina herbacea*), bristle mallow (*Modiola caroliniana*), dock (*Rumex* sp.), hackberry (*Celtis laevigata*), Jesuit’s tea (*Chenopodium ambrosioides*), American beautyberry (*Callicarpa americana*), jimson weed (*Datura stramonium* L), rose mallow (*Hibiscus lasiocarpus*), elderberry

(*Sambucus canadensis*), and sassafras (*Sassafras albidum*).

Traditionally, these healers’ plants were combined with prayer and rituals to cure illness, and little information is available on the actual effectiveness of many of the cures. However, biological research has backed components of several of the plants as bona fide treatments, or has found new uses for them. For example, coral bean root extracts exert potent antibacterial activity against methicillin-resistant *Staphylococcus aureus* (MRSA). A few of the more popular plants with traditional Louisiana healers were the American elderberry, groundsel bush, lizard’s tail, sassafras, sweet gum tree, coral bean, rose mallow, bristle mallow, cocklebur, goat weed, bitter melon, and wormseed.

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**AMERICAN ELDERBERRY**  
*(Sambucus canadensis)*

Elderberry flower tea was traditionally used by Louisiana healers for fever, chills, and headache. Clinical studies support this use, especially for flu. In a randomized study of influenza A and B patients in 1999-2000, Norwegian researchers Zakay-Rones et al. found that treatment with elderberry extract shortened their symptomatic time by 4 days. In another study by the same group, in an outbreak of influenza B/Panama in 1993, a placebo-controlled, double blind trial revealed that symptoms in elderberry-treated patients overwhelmingly had disappeared within 2 days, whereas in the control group, most of the patients took 6



1947

Army and Navy nurses are granted permanent commissioned officer status.

1950

Critical care nursing becomes a specialty with the creation of intensive care units

1950

ANA adopts a code of ethics for professional nursing.



AMERICAN  
ELDERBERRY

days to show improvement. In addition to its antiviral potential, Brazilian researchers Holetz et al. found that *S. canadensis*—which is also traditionally used as a folk medicine in Brazil—showed moderate antibacterial activity in *in vitro* tests.

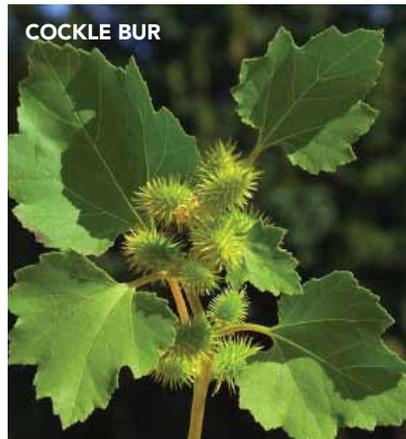
Elderberry fruits show promise in the arena of chronic disease, as well—they are among the richest sources of anthocyanins and phenolic compounds, with strong antioxidant capacity. These compounds help to prevent heart disease and cancer, and can even benefit visual acuity and cognition. The use of elderberry to alleviate eczema and other skin disorders, and to reduce pain and inflammation, has been supported by numerous clinical studies. The anti-diabetic potential reported in the Boudreau et al. study has also been supported by other research.

 **GROUNDSEL BUSH**  
(*Baccharis halimifolia*)

Described as “a horrible-tasting tea reputed to cure almost anything”, groundsel bush showed some of the most potent activity in the Boudreau et al. antidiabetic study.



Dr. Larry Allain of the University of Louisiana at Lafayette, a key member of the Boudreau et al. team, conducting field collection and description of the plants investigated.



COCKLE BUR



ROSE MALLOW

**1952**

First two-year associate nursing degree program opens.

**1956**

Columbia University School of Nursing offers first master's program for nurses.

**1969**

American Association of Colleges of Nurses is formed.



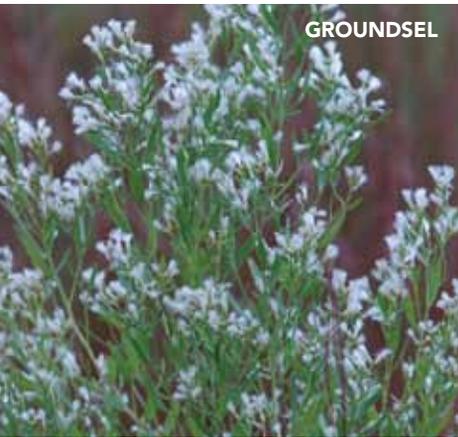
**SWAMP MEDICINE**



**WORMSEED**



**LIZARD'S TAIL**



**GROUNDSEL**



**GOAT WEED**



**BITTER MELON**

Traditionally, it was used to treat inflamed kidneys, congestion, fever, and other flu-like symptoms. Though it is not well-known outside of Louisiana, this was one of the most highly regarded medicinal plants among Native American, Cajun, and Creole healers.

**LIZARD'S TAIL**  
*(Saururus cernuus)*

Lizard's tail, another of the most potent compounds with anti-diabetic activity, was traditionally used as an anti-spasmodic, sedative, and astringent. The Choctaw people used it to treat wounds, and its astringent properties may make it especially well-suited for this purpose. Water infused with lizard's tail and elm was also recommended to help babies with teething pain.

**SASSAFRAS**  
*(Sassafras albidum)*

Best-known today as the main ingredient in file gumbo, sassafras was traditionally used as an infusion to treat measles. It was also used in poultice form to treat insect and snake bites. Recently, in vitro studies have found the sassafras essential oil safrole to have antifungal properties.

**SWEET GUM TREE/  
RED GUM TREE/COPAL**  
*(Liquidambar styraciflua)*

The soaked leaves of the sweet gum tree were applied to the head to treat headache. The essential oils of *L. styraciflua* include components with anti-inflammatory activity.

**1972**

The Laverne-Pisani Act is passed in New York State. It is the first to expand the definition of nursing practice and provide statutory authority for independent practice for all professional nurses.

**1973**

The National Conference Group begins developing a set of nursing terminology that can be used consistently across the country.

**1973**

Thirty-six charter fellows are chosen for the American Academy of Nursing.





SWEET GUM

### ✿ CORAL BEAN

(*Erythrina herbacea*)

In traditional Louisiana healing, tea from the boiled seeds of coral bean was used for pneumonia, bronchitis, tuberculosis, colds, pleurisy, and whooping cough, as well as stomach cramps. In 2010, Japanese researchers Tanaka et al. reported the root component erybacin B to be a potent bactericidal agent against MRSA. This bactericidal action is supported by numerous reports of antibacterial efficacy in other, better-studied, species of *Erythrina*.

### ✿ ROSE MALLOW

(*Hibiscus lasiocarpus*)

The root of rose mallow was used to treat whooping cough, as well as colds. Other species of hibiscus contain anthocyanins and other flavonoids, implicated in cardiovascular and liver health, prevention of cancer, inflammation, and diabetes, and visual function.

### ✿ BRISTLE MALLOW/ CREEPING MALLOW

(*Modiola caroliniana mauve*)

Bristle mallow was used in Louisiana as an anti-inflammatory to treat skin problems; boils, pimples, and sties were treated with a poultice made of pulverized bristle mallow stems and leaves mixed with corn flour and pig grease. Perhaps even more effectively, it could be combined with elderberry leaves and prickly pear cactus to make a triple poultice to be applied to the skin.

### ✿ COCKLE BUR

(*Xanthium strumarium L. var. Canadense*)

The root of cockle bur was boiled to make a tea to reduce fever. It was also used for severe headache, with directions to coat four or five cockle bur leaves with vinegar and salt and apply them to the head. A number of studies have reported antibacterial activity by *X. strumarium*, including activity against MRSA. In addition, a recent study by Italian researchers Sharifi-Rad et al. found not only antibacterial and antifungal activity, but also scolicidal (tapeworm killing) activity.

### ✿ GOAT WEED

(*Croton capitatus*)

Known as “goat tea”, an infusion of this herb was used to treat fever, chills, and other flu-like symptoms. It is also said to relieve stomachache.

### ✿ BITTER MELON

(*Momordica charantia*)

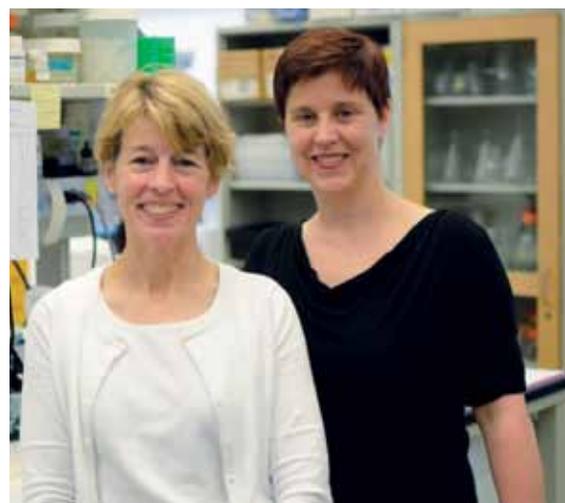
The bitter melon fruit was traditionally eaten for cramps, and was also used externally to treat cuts and burns. Recently, Thai researchers Saengsai et al. isolated plumericin, an iridoid lactone originally isolated from *Plumeria* spp., from *Momordica charantia*. Plumericin not only showed antibacterial activity, but also potently inhibited proliferation of two leukemic cancer cell lines. Other studies have corroborated bitter melon’s promise in countering cancer and oxidative stress. In addition, several studies support its promise in treating obesity, insulin resistance, and diabetes.

### ✿ WORMSEED

(*Chenopodium ambrosioides*)

Wormseed, as the name implies, is an anti-helminthic. Also known as Jesuit’s tea, it was traditionally taken to expel worm parasites from the digestive system. The leaves were also added to foods like beans to prevent flatulence. Laboratory studies have found wormseed extracts to also be effective against the protozoan parasite *Leishmania*, and several studies have found it to be antimicrobial, including against antibiotic resistant *Helicobacter pylori*, a bacterium associated with ulcers. It is also a promising natural insecticide.

Despite the proven and promising medicinal nature of these plants and others, we do feel compelled to discourage experimentation on one’s own. As we all know, the very things that heal us can also inflict harm when used incorrectly. ■



Dr. Elizabeth Floyd and Anik Boudreau in the lab at PBRU.