



Medicine at Your Feet:
**Healing Plants of the
Hawaiian Kingdom**

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Healing Plants of the Hawaiian Kingdom
***Solanum americanum* (Pōpolo)**

By David Bruce Leonard, L.Ac.

"A weed is a plant whose virtues have not been discovered"
Ralph Waldo Emerson

Just what you need... another
Roast Duck Production



*"A peasant must stand a long time on a hillside with his
mouth open before a roast duck flies in."*
- - Chinese proverb

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E kala mai, please do not pirate (copy or give away) this PDF file. It has taken eight years to research and write the book from which this material is taken. Your purchase allows us to continue research on the healing properties of medicinal plants and the restoration of our native Hawaiian ecosystems. Ten percent of the profits from this work are given to Hawaiian cultural and environmental restoration groups.

Thank you for your kind support of this work and our 'Āina. Aloha no kākou.

Mahalo,

David Bruce Leonard

WARNING

Caution: Many plants used as medicine are poisonous! They can kill you. Never attempt to use herbal medicine without the guidance of a traditional elder or a licensed healthcare provider. If you wish to act on some of the information in this book, you must consult with a professional. Do not try to be your own doctor.



Solanum americanum (Pōpolo)

PLANT NAME: *Solanum americanum* Mill.

OTHER NAMES: *S. caribaeum*, *S. nigrum*, *S. nodiflorum*, *S. fauriei*.

(Please note: *S. americanum* is very closely related to *S. nigrum* and are sometimes considered synonyms. Much of the following information refers to *S. nigrum*.)

SIMILARLY USED SPECIES: *S. rubrum*, *S. incertum*, *S. incompletum* (Pōpolo kū mai)

COMMON NAMES: Pōpolo [Hawai'i]; **black nightshade** [English]; **long kui** [China (*S. nigrum*)]; 'enab edh dhi'b, 'enab eth tha'lab, ribriq [Arabic]; guaraquina [Brazil]; ghamai, handiguli, kakamachi [India]; hierba mora, yerba mora [Spanish]; hulablub [Visayan]; inu hōzuki.[Japanese]; kaburgia [Cuna]; kambai [Kashmir]; kanti, Lubi lubi [Tagalog]; kōpek memesi, kōpek ūzūmū, tilki ūzūmū [Turkish]; leunca ayam, leunca manuk [Indonesia]; mnavu [Swahili]; morella, solano nero [Italian]; morelle commune, morelle des jardins, morelle à fruits noirs, morelle noire [French]; mustakoiso.[Finnish]; nattskatta [Sweden]; pinatmora [Panama]; psianka czarna [Poland]; ranti [Malay]; schwarzer nachtschatten, nachtkraut.[German]; sort natskygge [Denmark]; svartsøtvier [Norway]; zwarte nachtschade [Dutch].

NOMENCLATURE: The name "Solanum" is from 'Solor' (I ease), a reference to the healing power of this genus. A plant in this genus with the common name "Solanum" was long ago used to treat epilepsy.

FAMILY: Solanaceae. (For twisted information about the family solanaceae visit www.tomatoesareevil.com)

CATEGORY: Clear heat and toxins ~.

PROPERTIES: Bitter, slightly sweet. Cool to cold.

PLANT PART USED: All of it.

TOXICITY: Toxic, but the levels of toxicity are uncertain. There are reams of conflicting research surrounding the toxicity of this plant. The green berries are almost certainly more toxic than the ripe berries. Toxicity may well result from a combination of factors including variety, plant part used, ripe or unripe fruits, size of fruit, water, soil, other plants in the area, etc.

The toxic principle is thought to be a saponic glycoalkaloid called solanine, which breaks down into an alkalamine (solanidine), and a sugar (solanose). The LD50 of solanine in mice is 42 mg / kg.

The fruits have been made into preserves, jams, and pies with no ill effects. Boiling may break down solanine but drying does not. The fruit may be more toxic to children than adults. Three kilograms of green *Solanum nigrum* were once fed to a horse without any hazardous results.

Symptoms of solanine overdose include nausea, vomiting and diarrhea. Dehydration may result from continued vomiting and diarrhea. Larger doses may cause cardiac arrhythmia, respiratory failure, and circulatory failure, leading to paralysis, convulsion, and coma. [All sources for toxicity are websites.]

CAUTIONS AND CONTRAINDICATIONS: THIS PLANT MAY BE TOXIC. DO NOT USE EXCEPT UNDER PROFESSIONAL SUPERVISION. See *Notes 'N Quotes*, below.

ENERGETIC CAUTIONS: Caution with cold deficient spleen stomach ~.

DOSAGE: Dosage of the dried plant in China is 10 - 30 grams in decoction.

STATUS IN HAWAII: Status uncertain. Possibly native. There are endemic species of *Solanum* that look very similar to *S. americanum*.

WESTERN FUNCTIONS REPORTED: **Alexiteric** [China (*S. nigrum*)]; **alterative** (fruit, juice) [India, Pakistan]; **analgesic; anodyne** [India, Pakistan]; **anthelmintic** [Houma]; **anti-inflammatory** (topical); **antiperiodic; antiphlogistic; antispasmodic; astringent** (herb decocted) [China (*S. nigrum*)]; **bactericide; cathartic** (juice) [Dominican Republic, India, Pakistan]; **ceremonial medicine** [Ojibwa]; **CNS-depressant; cyanogenetic** [USA]; **depurative** (herb decocted) [Haiti, Trinidad]; **dilates the pupils** (fruit); **diaphoretic** (syrup, leaf, herb infused) [India, Iraq, Pakistan]; **diuretic** (juice, fruit, leaf, herb decocted) [China (*S. nigrum*), India, Pakistan, Turkey]; **emetic** [Cherokee]; **emollient** [Haiti]; **expectorant** [India, Pakistan]; **febrifuge** (fruit) [India]; **heart tonic** [India, Pakistan]; **hydragogue** [India, Pakistan, Turkey]; **increases virility** (young shoots cooked and eaten) [China (*S. nigrum*)]; **jaundice** (herb decocted); **laxative; molluscicide; narcotic** [Haiti, Spain]; **nervine** [Turkey]; **opium antidote** [India]; **promotes perspiration** (fruit) [India]; **psychological aid** [Cherokee]; **purgative** [Sudan]; **refrigerant** [China (*S. nigrum*)]; **sedative** [China (*S. nigrum*), France (leaves poulticed), Haiti, India, Mexico, Pakistan, Rappahannock, Turkey]; **stimulant** (fruit) [India]; **tonic** (leaves) [Hawai'i]; **vasodilator; vulnerary** [Mexico].

TRADITIONAL CHINESE ENERGETIC FUNCTIONS (~ = extrapolated):

- 1) Clears heat and toxin.
- 2) Drains damp.
- 3) Reduces swelling.

Pōpolo Common Medicinal Uses

- **Common cold with fever**
- **Chronic bronchitis**
- **Urinary tract infection**
- **Calming children (topical)**
- **Eye diseases**

Pōpolo Cross-Cultural Medicinal Uses

CARDIOVASCULAR

- **Heart disease** (fruit, with leg and foot swelling) [India].

- **Hypertension.**

DERMATOLOGICAL

- **Chancre** (poultice).
- **Cold sores** [China (*S. nigrum*)]; **shingles** [Trinidad]; **herpes** (green berries, poulticed).
- **Skin diseases** (leaves, herb juiced, ointment, poulticed) [Central America, Houma, India, Mexico, Venezuela]; **dermatitis** [China (*S. nigrum*)], **eczema & eruptions** [Venezuela (tea topical)]; **itching** [Venezuela]; **tinea** [Venezuela]; **leucoderma** [Philippines]; **pruritis** [Haiti].

DIGESTIVE

- **Bloating** (leaves eaten) [Hawai'i]; **stomach complaints; stomachache** [Haiti]; **toning up digestive tract** [Hawai'i].
- **Constipation** [Trinidad].
- **Diarrhea** [China (*S. nigrum*)]; **dysentery** (herb infused).
- **Hemorrhoids** (fruit, herb juice, internal) [Dominican Republic, India].

HEAD AND THROAT

- **Inflammation of the amygdala** [Dominican Republic]; **loose teeth** (topical); **mouth ulcers** (leaf chewed); **mouthwash** [Trinidad]; **sore throat** (leaves chewed or brewed) [China (*S. nigrum*), Hawai'i]; **tongue problems; toothache** (fruit juice topical) [Costanoan (smoked)].
- **Eye problems** [Hawai'i (leaves poulticed), India]; **eye wash** (leaves decocted) [Native American]; **cataracts, glaucoma** (berries cold infused, topical) [Hawai'i], **inflamed eyes** [Hawai'i]; **sore eyes** (decocted topical) [Miwok].
- **Headache** (leaves poulticed) [India].

HEPATIC

- **Cirrhosis; enlargement of the liver** (herb decocted, herb juice, internal, fruit) [India]; **hepatitis** [Haiti, Sudan]; **hepatoma** [China (*S. nigrum*)].

INFECTION

- **Abscess** [China, General (ointment)]; **boils** [Bahamas, Costanoan (heated leaves poulticed), Hawai'i, Trinidad]; **corroding ulcers** (poulticed); **sores** [China (*S. nigrum*), Haiti, Houma (fresh leaves poulticed)].
- **Fever** (fruit, leaves juiced, syrup in beverage) [China (*S. nigrum*), India].

LYMPHATIC

- **Enlarged spleen** (fruit) [India].
- **Scrofula** [Iraq].

MUSCULOSKELETAL / TRAUMA

- **Bruises** [Dominican Republic]; **cuts, abrasions, wounds** [China (herb decocted), Hawai'i (leaves poulticed with salt)]; **pain** (leaves poulticed) [France]; **relapse from injury** [Iroquois]; **sprains** [Hawaii]; **swelling** [China (*S. nigrum*), India].
- **Burns** [General (poultice), Haiti].
- **Pain and inflammation** [China (*S. nigrum*), India (fruit)]; **lumbago** [Lesotho]; **rheumatic, arthritic, and gouty joints** [Cuba (leaf and fruit with almond oil), Dominican Republic, India (poultice)]; **spasms** [Haiti].

NEUROLOGICAL

- **Epilepsy.**

ONCOLOGY

- **Cervical cancer** [China (*S. nigrum*)]; **cancer** [Belgium, China (*S. nigrum*), Guiana, Indochina]; **cancerous sores** (herb decocted), **digestive cancer, and lung tumors** [China (*S. nigrum*)]; **tumors** [Egypt, France, Morocco, Pakistan, Potawatomi, Tunisia]; **uterine cancer** [Italy].

PARASITES

- **Roundworms** (fruit).

PEDIATRIC

- **Colic** [Haiti]; **leaves placed in the cradles to help babies sleep** [Bohemia].
- **Pertussis** [Haiti].
- **Worms in children** (roots infused or decocted) [Houma].
- **Fruit rubbed on the fontanel to calm children and to keep the fontanel open** [Hawai'i].

PSYCHOSPIRITUAL

- **Hydrophobia.**
- **Insomnia** (weak infusion) [Rappahannock].
- **Medicine ceremonies** [Ojibwa].
- **Taken as an emetic and to relieve loneliness due to death in family** [Cherokee].

REPRODUCTIVE

- **Painful menses** [China (*S. nigrum*)]; **female problems & menstrual disorders** [China (*S. nigrum* young shoots cooked and eaten), Panama].
- **Gonorrhoea** (herb juice, internal) [India (fruit); **venereal disease** (root) [Delaware].
- **Inflammation of the testicles** [(hot compress), India (topical)].
- **Vaginal discharge** (douche) [China (*S. nigrum*)]; **vaginal discomfort** (decoction diluted douche); **vaginitis & vulvitis** [Haiti].
- **Pregnancy** (bath).

RESPIRATORY

- **Asthma** [Trinidad].
- **Common cold** (leaves chewed or brewed) [China (*S. nigrum*), Hawai'i].
- **Coughs** [Hawai'i (leaves as tea or chewed), India (fruit)].
- **Bronchitis** [Hawai'i (leaves chewed)], **chronic bronchitis** [China (*S. nigrum* decocted)].

URINARY

- **Bladder and kidney pain or inflammation** [China (*S. nigrum* decocted), General (juice), Haiti].
- **Edema** [India (fruit), Java, Sudan].

VETERINARY

- Cattle either will or will not eat it, depending on whom you ask.

OTHER MEDICINAL USES

- *Solanum nigrum* is used experimentally in Egypt to help control schistosomiasis, a tropical disease transmitted via snails.
- **Anthrax** (Don't try this at home); **bubonic plague** (leaves as food) [Central America]; **leprosy** (juice); **scarlet fever** [Costanoan]; **scurvy** (leaves)
- **Cramps** [Haiti].
- **Fatigue** [Trinidad].
- **Spitting of blood** (herb juice, internal)
- **Yaws** (a tropical disease caused by a spirochete) [Malaya].

USE AS FOOD: Toxic. See *Cautions and Contraindications*.

- Leaves are eaten in place of spinach [Bourbon, Mauritius].
- As a pot herb (leaves and stems) [Cherokee, Lesotho].
- Ripe fruit used as food [Mendocino, Tubatulabal].
- As a vegetable (leaves) [Central America].

OTHER USES: Used to detoxify soil contaminated with PCB's. Plants infected with *Agrobacterium tumefaciens* are more effective at detoxifying soil.

CONSTITUENTS: The leaves contain almost 7g of beta carotene per 100g and 5% protein.

CROSS-CULTURAL COMBINATIONS:

Herpes: With *Mellisa officinalis* (lemon balm) & *Hypericum perforatum* (st. johns wort) as a cream.

Eyewash: With *Curcuma longa* ('ōlena), *Cordyline fruticosa* (la'i), *Aloe vera* (aloi), and rose water [Old Hawai'i].

Swelling: Juice with butter as an ointment [Kashmir].

Hansens disease (leprosy): The fruit and leaf are used with almond oil [Cuba].

RANGE: Pandemic.

HABITAT: Likes it wet, warm, and sunny. Disturbed areas up to 4000 feet.

GATHERING: Anytime in Hawai'i. Autumn elsewhere. My teacher, Kawika Ka'alakea, always said that pōpolo is best gathered from plants standing on their own rather than from a large group. If one gathers on from a large group the others will become jealous for not having been chosen.

PROPAGATION & CULTIVATION: By seed. Grows well with clover. When grown near *Artemesia* (wormwood) or *Brassica alba* (white mustard), *Solanum nigrum* reportedly will become more toxic.

RESEARCH:

- Antineoplastic [Hu 1999].
- Alcohol extract of *Solanum nigrum* reduces gastric ulcer formation in rats [Akhtar 1989].
- Fruit produces acetylcholine-like activity [de Melo 1978].
- Mildly hepatoprotective [Sultana 1995].
- Use of *Solanum nigrum* (pōpolo) as food has been correlated to an increased risk of esophageal cancer [Sammon 1992].
- Anti-fungal in vitro against *Epidermophyton floccosum*, *Microsporum canis*, and *Trichophyton rubrum* [Locher 1995].
- Ethanol extract of *Solanum nigrum* fruit may induce CNS depression. It prolongs pentobarbital-induced sleeping time & suppresses aggressive behavior in lab animals [Perez 1998].

NOTES 'N QUOTES

"Do not mistake the deadly nightshade for this, if you know it not, you may then let them both alone."

- - Nicholas Culpepper

REFERENCES:

Akhtar MS, Munir M. 1989. Evaluation of the gastric antiulcerogenic effects of *Solanum nigrum*, *Brassica oleracea*, and *Ocimum basilicum* in rats. *J Ethnopharmacol* Nov;27(1-2):163-176

Chestnut, V. K. 1974. Plants Used by the Indians of Mendicino County, California. Fort Bragg, CA: Mendicino County Historical Society.

de Melo AC, et al. 1978. Acetylcholine-like activity in the fruit of the black nightshade (Solanaceae). *Acta Physiol Lat Am*;28(4-5):19-26

Hu K, Kobayashi H, et al. 1999. Antineoplastic agents. III: Steroidal glycosides from *Solanum nigrum*. *Planta Med* Feb;65(1):35-38.

Krauss, Beatrice H., 2001. *Plants in Hawaiian Medicine*. Honolulu: The Bess Press.

Locher CP, Burch MT, Mower HF, Berestecky J, Davis H, Van Poel B, Lasure A, Vanden Berghe DA, Vlietinck AJ. 1995. Anti-microbial activity and anti-complement activity of extracts obtained from selected Hawaiian medicinal plants. *J Ethnopharmacol*. Nov 17;49(1):23-32.

Perez RM, Perez JA, Garcia LM, Sossa H. 1998. Neuropharmacological activity of *Solanum nigrum* fruit. *J Ethnopharmacol*. Aug;62(1):43-8.

Sammon AM. 1992. A case-control study of diet and social factors in cancer of the esophagus in Transkei. *Cancer* Feb 15;69(4):860-865

Sultana S, Perwaiz S, et al. 1995. Crude extracts of hepatoprotective plants, *Solanum nigrum* and *Cichorium intybus* inhibit free radical-mediated DNA damage. *J Ethnopharmacol* Mar;45(3):189-192

Vogel, Virgil J., 1970. *American Indian Medicine*. Norman and London: University of Oklahoma Press.

ONLINE REFERENCES:

<http://2bnthewild.com/phvsixn.htm>

<http://botany.about.com/library/weekly/aa041699c.htm>

<http://cal.nbc.upenn.edu/poison/Brett/AgBook/pg140161.htm>

<http://gateway.library.uiuc.edu/vex/toxic/nightsha/nightsh0.htm>

http://home4.swipnet.se/~w-47128/Nights_ab.html

<http://hoolokahi.vizip.com/laau.html>

<http://www.angelfire.com/journal2/flowers/pcd24.html>

<http://www.ann.com.au/herbs/Monographs/solanum.htm>

<http://www.ayurvedahc.com/research.htm>

<http://www.botanical.com/botanical/mgmh/n/nighbl04.html>

<http://cal.nbc.upenn.edu/poison/Brett/AgBook/pg140161.htm>

<http://www.elsevier.nl/inca/publications/store/5/0/6/0/3/5/?menu=cont&label=Table>

http://www.holisticonline.com/Herbal-Med/_Herbs/h155.htm

<http://www.ibiblio.org/herbmed/>

http://www.ibiblio.org/pfaf/cgi-bin/arr_html?Solanum+americanum

http://www.ibiblio.org/pfaf/cgi-bin/arr_html?Solanum+nigrum

<http://www.inchem.org/documents/pims/plant/solanum.htm>

<http://www.koausa.org/SamsarChandKoul/flowers.html>

<http://www.kohala.net/kaimalino/KMWC-4.html#anchor473905>

<http://www.mssrf.org/Fris9809/Fris1335.html>

<http://www.ncbi.nlm.nih.gov/80/entrez/query.fcgi?CMDIDisplay&DBPubMed>

http://www.nhm.ac.uk/hosted_sites/schisto/prcschisto/abst/abst24.html

<http://www.oneworld.org/ileia/newsletters/11-3/11-3-6.htm>

<http://www.umd.umich.edu/cgi-bin/herb/>

<http://www.viable-herbal.com/herbdesc4/1woodyni.htm>