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TONGAN HERBAL MEDICINE

by
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CHAPTER III. TONGAN MEDICINAL PLANTS

THE SPECIES

This chapter comprises an enumeration and discussion of the 77 most commonly used or best known medicinal plants in Tonga. They are listed in alphabetical order by their Tongan names; names beginning with *ng*, which is a Polynesian *g*, are found alphabetically between *f* and *h*. For those readers familiar only with scientific names, an alphabetical list of these can be found in the index at the back of this book.

For each of the plants, the scientific name, plant family, and English name (if any) are included. This is followed by a brief discussion of their range, the habitats in which they are found, and their non-medicinal uses. Also included is a brief botanical description and a discussion of the medicinal uses of the plants, usually with the Tongan names of the ailments included within parentheses. The data upon which this information is based is found in a recent article on Tongan medicine (Whistler 1991b); color photographs of many of the species may be found in *Polynesian Herbal Medicine* (Whistler 1992).

ANGO, ANGO HINA

SCIENTIFIC NAME: *Curcuma longa*

FAMILY: Zingiberaceae (ginger family)

ENGLISH NAME: turmeric

Curcuma longa is widespread in the Old World tropics from West Africa to eastern Polynesia, but is thought to have originated in cultivation somewhere in Southeast Asia (it is not known to occur in the wild state), and from there was carried throughout the Pacific by early voyagers. Turmeric occurs mostly in plantations and around homesites in Tonga. Since it is unable to set seed, it is not naturalized, and any occurrence in forested areas is usually a result of past cultivation. Turmeric is esteemed throughout its range as a condiment (especially in Asia, where it is an essential ingredient in curry), and for the light yellow or yellow-orange dye extracted from the rhizome.

The plant is a glabrous, erect herb up to 1 m in height, arising from a fleshy, yellow, aromatic rhizome. The erect leaves have a finely parallel-veined, lanceolate to elliptic blade up to 40 cm long. The flowers are in a cylindrical spike 12–25 cm long on a leafless flowering

stalk, and are borne in few-flowered clusters among the numerous, overlapping, green to reddish bracts. The white to yellow, tubular perianth (corolla plus calyx) is mostly 2.5–5 cm long. Flowering is infrequent, and no seeds are produced.

USES: Turmeric (the yellow powder extracted from the root), often mixed with juice from the aerial root tip of *fā* (*Pandanus tectorius*) and either copra or Tongan oil, is applied to skin sores (*pala sino*) and certain rashes (called *mea*) of infants. Turmeric is used similarly in Samoa and the Cook Islands, and in former times a mother and her newborn baby were smeared with it.

ANGOANGO, ANGO KULA

SCIENTIFIC NAME: *Zingiber zerumbet*

FAMILY: Zingiberaceae (ginger family)

ENGLISH NAME: wild ginger, shampoo ginger

Zingiber zerumbet is native to tropical Asia, perhaps originally to India or Ceylon, but has long been cultivated in Southeast Asia, and was carried by ancient voyagers across the Pacific as far as Hawai'i. In Tonga, it is naturalized in moist woods, often forming dense stands, particularly in secondary forest, around old habitations, and in forest clearings. The whole plant is aromatic, and the clear, mildly scented fluid that collects in the bracts of the inflorescence was used as a shampoo.

The plant is an erect herb 1 m or more in height, arising from a thickened underground rhizome. The leaves are borne in two vertical rows, with a lanceolate blade mostly 10–25 cm long. The flowers are in a terminal, conelike spike 6–10 cm long on a leafless stalk, and have green to red, rounded overlapping bracts. The white to pale yellow, six-parted perianth (corolla plus calyx) is 3–5 cm long, and has a single stamen. There is only one flower per bract, and only one or two are open at a time. The fruit is a small, inconspicuous capsule enclosed within the bract.

USES: The juice from the crushed rhizome is taken as a potion for treating peptic ulcers (*pala ngakau*) and associated stomachache (*langa kete*). Also, the juice expressed from the pounded rhizome is sometimes dripped into the mouth for treating mouth infections (*pala ngutu* and *pala fefie*).

'AKAU 'OE MO'UI

SCIENTIFIC NAME: *Symphytum asperum*

FAMILY: Boraginaceae (heliotrope family)

ENGLISH NAME: rough comfrey

Symphytum asperum is native to Europe and temperate Asia, but is now widely cultivated in the temperate and subtropical regions of the world. It was recently introduced to Tonga, where it is cultivated around houses and in plantations. Its Tongan name translates as "plant of life." The species identification of this *Symphytum* is not certain, since no flowering specimens are known from Tonga; it may be *Symphytum officinale* instead.

The plant is an herb with erect leaves rising from a short stem. The simple, alternately arranged leaves have an elliptic to lanceolate blade 10–25 cm long on a long petiole, and are densely covered with short, stiff hairs. Flowers are not noted from Tonga, but comfrey species have terminal cymes and a pink to purple, 5-lobed corolla 12–17 mm long. The fruits are composed of 4 nutlets 3–5 mm long.

USES: Comfrey has rapidly gained acclaim in Tonga as a folk panacea. Most often, an extract of the leaves is taken as a potion for treating stomachache (*langa kete*), and the crushed leaves are sometimes applied to cuts (*lavea*).

'AKAU VELI

SCIENTIFIC NAME: *Indigofera suffruticosa*

FAMILY: Fabaceae or Leguminosae (pea family)

ENGLISH NAME: wild indigo

Indigofera suffruticosa is native to the Caribbean islands, but is found throughout the tropics. It was an early European introduction to Tonga, where it is now common as a weed of disturbed places, especially in plantations.

The plant is an erect, branching shrub 0.6–2.5 m in height. The alternate, pinnately compound leaves are 5–11 cm long, with 9–15 oppositely arranged, oblanceolate to elliptic leaflets 1.5–3 cm long. The flowers are in axillary racemes 2–8 cm long. The salmon-colored, papilionaceous corolla is 3–4 mm long. The fruit is a curved, cylindrical, 4–6-seeded pod 1–2 cm long, arranged in dense clusters.

USES: In a well-known folk remedy, the leaves are rubbed onto bee stings to relieve pain.

ALOE

SCIENTIFIC NAME: *Aloe vera*

FAMILY: Agavaceae (yucca family)

ENGLISH NAME: aloe vera

Aloe vera is native to North Africa, but is now cultivated throughout the tropics and subtropics. In Polynesia, it has been reported in the literature only from Hawai'i, but in recent years has been spreading to the rest of the region. In Tonga, it is mostly grown in pots around houses. The medicinal use of aloe dates back to before the time of Alexander the Great, and is even mentioned in the New Testament of the Bible (John 19:39), originally as a purgative. Today, however, the juice from the fresh leaves is widely used for treating cuts and burns.

The plant is a succulent herb forming a rosette from a short, thick stem. The simple, alternately arranged leaves are succulent and spiny-margined, with a lanceolate blade 20–60 cm long tapering to a point from the broad base. The tubular, reflexed flowers are on an erect, long-stalked raceme up to 1 m in height, and have three outer red to orange sepals and three inner yellow petals 20–33 mm long. The fruit is a capsule 15–25 mm long, brown at maturity.

USES: In a recently introduced folk remedy, juice from the leaves is sometimes applied to burns (*vela*); cuts are sometimes treated similarly. Also, the juice extracted from the fleshy leaves is occasionally taken as a potion to relieve stomachache (*langa kete*).

'APELE TONGA

SCIENTIFIC NAME: *Annona squamosa*

FAMILY: Annonaceae (soursop family)

ENGLISH NAME: sweetsop

Annona squamosa is native to tropical America, but was an early European introduction to Tonga and the rest of Polynesia. It is occasional in cultivation in villages and plantations, and is grown for its sweet, edible fruit, which is much esteemed by Tongans.

The plant is a tree 3–8 m in height. The simple, alternately arranged leaves have an oblong, elliptic, or lanceolate blade 6–15 cm long. The flowers are solitary and pendent in the leaf axils. The corolla has six petals, with the three outer ones white to greenish yellow, lanceolate, and 22–30 mm long, and the inside of the flower with numerous stamens and ovaries. The fruit is a subglobose “syncarp” (made from the fusion of the ovaries) 8–10 cm in diameter, which at maturity is a waxy, greenish yellow color and contains a sweet, soft, creamy-yellow, edible pulp containing numerous black seeds.

USES: An infusion of the leaves is sometimes taken as a potion to treat stomachache (*langa kete*).

ATE

SCIENTIFIC NAME: *Wollastonia biflora*

FAMILY: Asteraceae or Compositae (sunflower family)

ENGLISH NAME: beach sunflower

Wollastonia biflora is native from tropical Asia to eastern Polynesia. It is dispersed by means of its saltwater-resistant fruits, and is restricted mostly to littoral and coastal areas of high islands, often being the dominant species in dense, scrubby vegetation on exposed coastal slopes and cliffs, but is also frequent as a weed in coastal coconut plantations.

The plant is a branching, trailing to erect herbaceous subshrub 50–200 cm in height. The oppositely arranged, simple leaves have an ovate blade mostly 8–20 cm long, palmately veined from the base and pubescent or rough on both surfaces. The flowers are in sunflowerlike heads. The ray florets are strap-shaped and yellow, and the disc florets are numerous, tubular, and yellow. The fruiting heads are subglobose, 8–15 mm across, brown, and contain the small black, wedge-shaped seeds.

USES: The leaves, often wrapped in those of **nonu** (*Morinda citrifolia*), are put onto a hot rock (*makahunu*) and the juice is dripped onto cuts and wounds (*lavea*) to prevent infection. A similar use (as a poultice) is reported from Malaysia (Burkill 1935). The juice from the leaves is also sometimes used in various ways for treating supernatural ailments (*fakamahaki*) believed to be induced by evil spirits (*tevolo*).

SCIENTIFIC NAME: *Pandanus tectorius*
FAMILY: Pandanaceae (screwpine family)
ENGLISH NAMES: screwpine, pandanus

Pandanus tectorius, in its broadest sense, is native to most of Polynesia, but so many other "species" have been named from the area that it is difficult to delineate ranges. About nine varieties and species are recognized in Tonga, some of them growing wild in littoral forest, but most of them cultivated around houses and in plantations. The leaves are used for making mats, baskets, fans, and formerly items such as sails, sandals, and even clothing.

The plant is a stout, sparsely branched tree up to 10 m in height, but usually much less. The trunk is armed with numerous sharp to blunt prickles, marked by ringlike leaf scars, and often supported by aerial prop roots. The stiff, coarse, swordlike leaves are up to 1.5 m long, and are arranged in tight spirals at the ends of the branches; the margins and lower-surface of the midrib are usually armed with prickles. The male and female flowers are on different trees: the tiny white male flowers are numerous in hanging racemes subtended by several large white fragrant bracts, and the female flowers are in a compound, globose structure with the ovaries forming the "keys." The fruit is a large, woody, subglobose "syncarp" with numerous (often 50 or more) fruitlets ("keys" or "phalanges").

USES: Juice from the grated tip of the aerial roots (*hoko'i*), mixed with grated coconut and turmeric (*enga*, from the **ango** plant) is sometimes rubbed onto skin sores (*pala sino*). The juice is also occasionally taken as a potion to relieve stomachache (*langa kete*).

FAO

SCIENTIFIC NAME: *Neisosperma oppositifolium*
FAMILY: Apocynaceae (dogbane family)

Neisosperma oppositifolium is native from the Seychelles in the Indian Ocean to the Society Islands, but is rare or extinct in the eastern part of this range. It occurs in Tongan littoral forests, often being a dominant understory tree. The waferlike seed is edible, but is eaten mostly in times of famine.

The plant is a small to medium-sized tree up to 10 m in height, with milky sap. The simple leaves are arranged in whorls of 3 – 4, with an oblong to obovate blade 10–30 cm long, glossy on the upper surface. The flowers are in few-flowered cymes, with a white, salverform corolla 1 – 1.5 cm long, deeply divided into five narrow lobes recurved at maturity. The fruits are paired, fibrous, ellipsoid drupes 5–8 cm long, green at maturity and containing a single, waferlike seed.

USES: In a common and well-known folk remedy, an infusion of the bark is taken as a potion for treating diabetes (*mahaki suka*) and hypertension (*toto ma'olunga*). The same medicine is also sometimes used as a tonic for treating other serious ailments such as cancer (*kanisā*).

FAU

SCIENTIFIC NAME: *Hibiscus tiliaceus*

FAMILY: Malvaceae (mallow family)

ENGLISH NAME: beach hibiscus

Hibiscus tiliaceus is a wide-ranging species found in both the Old and New World tropics. It is native throughout Polynesia, and in Tonga is common on beaches, in disturbed places, secondary forest, and on the margins of estuaries and swamps. Its soft, easily worked wood is often fashioned into outrigger floats, house parts, and tool handles, and is a favorite for firewood. Also of great utility are the inner bark fibers that were twisted into cordage for making fishing lines, nets, mats, and ropes.

The plant is a medium-sized tree up to 15 m in height, erect with a broad crown or forming dense thickets with its low, spreading branches. The simple, alternately arranged leaves have a heart-shaped blade mostly 8–20 cm long. The flowers have a corolla of five petals 5–8 cm long, lemon yellow with purple at the base, and with the stamens united into a tube. The fruit is a subglobose capsule mostly 15–25 mm wide, containing *ca.* 15 seeds that are released when the capsule splits open.

USES: The mucilage from the bark is dripped onto eye ailments such as “pink eye” (*mata kovi*) and eye injuries (*mata lavea*). An infusion of the bark is sometimes taken as a potion for treating stomachache (*langa kete*).

FEKIKAI KAI

SCIENTIFIC NAME: *Syzygium malaccense*

FAMILY: Myrtaceae (myrtle family)

ENGLISH NAME: Malay apple, mountain apple

Syzygium malaccense is distributed from India to eastern Polynesia, but is probably native only to Malaysia and was carried throughout Polynesia by ancient voyagers. In Tonga, it is commonly found in villages, lowland secondary forest, and cultivated valleys. The tree is esteemed for its edible fruit, but is also widely known for its medicinal uses, which are mostly related to the astringent properties of the bark.

The plant is a medium-sized tree 15 m or more in height. The simple, oppositely arranged leaves have a glossy, ovate to oblong blade mostly 10–30 cm long. The flowers are borne in short, few-flowered cymes on the trunks of older branches. The calyx is top-shaped with four rounded lobes, and the four red petals fall early to expose the numerous, showy red stamens 1–2 cm long. The fleshy, glossy red to white, obovoid fruit is mostly 3–7 cm long, and contains a single large seed.

USES: The bark, combined with that of other tree species, is boiled and taken as a potion for treating stomachache (*langa kete*) and abdominal ailments known collectively as *kahi*. See **manonu**. An infusion of the leaves or scraped bark is sometimes given as a potion or applied as a lotion to the mouth to treat mouth infections (*pala ngutu*), a widespread practice in Polynesia.

FETA'U

SCIENTIFIC NAME: *Calophyllum inophyllum*

FAMILY: Guttiferae (mangosteen family)

ENGLISH NAME: calophyllum

Calophyllum inophyllum is widely distributed from tropical East Africa to eastern Polynesia, and although its floating fruits are well-adapted to seawater dispersal, it may be a Polynesian introduction to the eastern part of its range. The tree occurs in coastal areas, particularly on rocky, cliff-bound coasts and coastal slopes, where it is often the dominant species, and is sometimes planted as an ornamental in coastal villages. The hard, fine-grained wood is easily worked

with stone or metal tools, and for this reason is highly esteemed in Tonga and the rest of Polynesia.

The plant is a large tree up to 25 m in height, with four-angled stems, deeply furrowed and cracked bark, and sticky yellow sap. The simple, oppositely arranged leaves have a finely veined, elliptic to ovate blade 10–25 cm long. The flowers, arranged in short racemes, are 15–30 mm across, and have four white petals, four similar white sepals, and numerous yellow stamens. The globose to ovoid drupe is mostly 3–4 cm across, green at maturity, and contains a single oily seed enclosed within a hard, bony shell.

USES: A decoction of the leaves is given as a bath (*kaukau*) or steambath (*faka'ahu*) to people believed to be suffering from supernatural ailments (*fakamahaki*) caused by evil spirits (*tevolo*). This may be used for treating the ailment directly, or as a closing ceremony (*kaukau tuku*) after other medicines have been administered. A decoction of the boiled leaves is commonly used as an eyewash for treating various eye ailments. A similar practice is widespread in Polynesia and elsewhere in the Pacific.

FIKI

SCIENTIFIC NAME: *Jatropha curcas*

FAMILY: Euphorbiaceae (spurge family)

ENGLISH NAME: physic nut

Jatropha curcas is native from Mexico to Brazil, but is now widely cultivated in the tropics. It is a European introduction to Tonga, where it is frequently grown around houses to form hedges, and in plantations to provide shade and support for vanilla vines. It is known in the Western world for its seeds that are used as a purge, as its English name indicates.

The plant is a shrub or small tree up to 5 m in height, with milky sap. The simple, alternately arranged leaves have a cordate, ovate, or shallowly palmately lobed blade mostly 8–16 cm long. The flowers are in terminal, long-stalked, many-flowered cymes, with a corolla of five greenish white petals 4–6 mm long. The fruit is an ellipsoid capsule mostly 2.5–3 cm long, containing three ellipsoid seeds.

USES: The juice from the leaves, or the chewed leaves themselves, are commonly given to babies suffering from stomachache (*langa kete*

and *makehekehe*). Also, the leaves are occasionally used to treat supernatural ailments (*fakatevolo*) such as *fesi'ia* and *fakahomohomo*, characterized by difficult or painful movement of the limbs, and an ill-defined ailment of infants known as *mavae ua*, thought to be caused by an incompletely closed fontanel. The seeds are particularly poisonous, and act as a drastic purge when eaten.

FISI 'ULI

SCIENTIFIC NAME: *Bidens pilosa*

FAMILY: Asteraceae or Compositae (sunflower family)

ENGLISH NAME: beggar's tick

Bidens pilosa is native to tropical America, but is now distributed throughout the tropics. It was an early European introduction to Tonga, where it is a very common or even dominant weed of waste places and croplands, spreading by means of awned fruits that readily adhere to clothing and fur.

The plant is a slender, erect annual herb 20—90 cm in height. The oppositely arranged leaves are simple to pinnately compound with 3—5 ovate to lanceolate lobes or leaflets 1—5 cm long. The flowers are in composite heads borne in terminal panicles. The ray florets are absent (or white if present), and the disc florets are tubular, yellow, and numerous. The fruit is a ribbed, black, linear achene 6—12 mm long, with 2—3 barbed awns at the tip.

USES: The sap from the leaves is used to treat itchy, oozing, or red eyes (such as “pink eye,” *mata kovi*). This treatment is believed to be particularly effective in treating supernatural ailments (*fakamahaki*) of the eyes thought to be caused by evil spirits (*tevolo*). The sap is also sometimes applied to cuts (*lavea*), as it is in the Cook Islands (Whistler 1985).

FUE 'AE PUAKA

SCIENTIFIC NAME: *Ipomoea indica*

FAMILY: Convolvulaceae (morning-glory family)

ENGLISH NAME: morning-glory

Ipomoea indica is widely distributed in both the Old and New World tropics, including much of Polynesia. It is probably native to Tonga,

where it is found climbing over low vegetation in thickets, open forests, and waste places of the lowlands.

The plant is a twining herbaceous vine with milky sap. The simple, alternately arranged leaves have a cordate blade 5–15 cm long. The flowers are borne in small axillary clusters atop a long scape, subtended by linear-lanceolate bracts. The funnel-shaped, pale blue to pink corolla is 7–10 cm long. The fruit is a flattened, globose capsule ca. 1 cm in diameter, containing four large black seeds.

USES: An infusion of the leaves or stems is taken as a purge (*faka-hinga*). This well-known use was probably introduced to Tonga by a Hawaiian seaman in 1806. The roots of many species of *Ipomoea* contain a resin composed of glucosides and other organic compounds, and the cathartic effects of the genus are well known in the Western world.

FUFULA

SCIENTIFIC NAME: *Faradaya amicum*

FAMILY: Verbenaceae (verbena family)

Faradaya amicum is native to Tonga and Samoa, and is occasional in primary and secondary forests in Tonga. It is particularly common on 'Eua, where the thick, woody stems are collected and sent to Nuku'alofa to be sold in the marketplace to native healers. There is a little uncertainty about the identification of this species, since some authors believe another species, *Faradaya lehuntei*, also occurs in Tonga. However, only *Faradaya amicum* is known with certainty from the archipelago.

The plant is a climbing shrub or woody liana that extends up into the forest canopy. The simple, oppositely arranged leaves are glabrous and have an ovate to oblong blade 8–28 cm long. The flowers are in dense, branching panicles. The showy white corolla is trumpet-shaped, 1.4–2.5 cm long, divided ca. one-third of its length into four lobes that are reflexed at maturity. The fruit is composed of four nutlets, but only one or two develop; these are slightly curved ovoid drupes 3.5–6 cm long and are red at maturity.

USES: An infusion of the bark is taken as a potion to relieve stomachache (*langa kete*) by acting as a purge (*fakahinga*).

NGATAE

SCIENTIFIC NAME: *Erythrina variegata*

FAMILY: Fabaceae or Leguminosae (pea family)

ENGLISH NAMES: coral tree

Erythrina variegata (var. *orientalis*) is native from Zanzibar in the Indian Ocean to eastern Polynesia, but is now widely cultivated in the tropics. Its native habitat is littoral forest on rocky shores of high islands, and sometimes inland in coastal and ridge forests, but in Tonga it is mostly found in cultivation. The wood is very light and has little use other than for fish-net floats and firewood.

The plant is a spreading tree up to 20 m in height, with trunk and branches variably spiny. The alternately arranged leaves are trifoliate, with three ovate to orbicular leaflet blades 4–25 cm long. The flowers are borne on axillary racemes up to 35 cm long, and have a showy, papilionaceous, orange-red corolla 4–6 cm long. The fruit is a curved, linear-oblong pod 12–22 cm long, containing 3–10 kidney-shaped seeds 10–15 mm long.

USES: The bark, usually with that of **mohokoi** (*Cananga odorata*), is made into an infusion taken for treating stomachache (*langa kete*, *mofute kete*, and *makehekehe*).

HEHEA

SCIENTIFIC NAME: *Syzygium corynocarpum*

FAMILY: Myrtaceae (myrtle family)

Syzygium corynocarpum is probably native only to Fiji, but was an ancient introduction to western Polynesia. It is occasionally cultivated around houses in Tonga, and is planted or perhaps is an escape in plantations, but is almost never found in forest areas. The tree is valued mostly for its fragrant fruits, used mainly for making leis; they are also edible, although their use for this purpose is restricted mostly to children.

The plant is a small to medium-sized tree mostly less than 5 m in height. The simple, oppositely arranged leaves have a glossy, lanceolate to oblanceolate blade 7–13 cm long. The flowers are borne in widely branching panicles. The top-shaped calyx is notched into four tiny lobes, and the four white petals are fused together into a cap that

is shed early to expose the numerous white stamens. The fleshy, fragrant, one-seeded, spindle-shaped to cylindrical fruit is 2.5 — 3.5 cm long, and is red to purple at maturity.

USES: An infusion of the bark or leaves is taken as a potion or rubbed onto the skin for treating skin inflammation (*kulokula*). The same medicine is also applied to the mouth of an infant with teething problems (*nifo tonga*). Also, an infusion of the leaves or bark is sometimes taken as a potion for treating stomachache (*langa kete*), and a mass of the chewed leaves or the juice of the leaves is occasionally applied to boils (*hangatāmaki*).

HEILALA

SCIENTIFIC NAME: *Garcinia sessilis*

FAMILY: Clusiaceae or Guttiferae (mangosteen family)

Garcinia sessilis is native to Fiji and the Santa Cruz Islands, and was an ancient introduction to Tonga from Fiji. It is common in cultivation around villages and in plantations in Tonga, and is highly esteemed for its fragrant flowers, which are made into leis and added to coconut oil (Tongan oil) for scenting. It is so highly regarded that a yearly “Heilala festival” is held in Tonga.

The plant is a medium-sized tree mostly less than 12 m in height in Tonga, with a copious yellow latex. The simple, oppositely arranged leaves have an ovate to elliptic blade 5 — 10 cm long. The flowers are unisexual, in axillary clusters on separate male and female trees. The waxy, four-lobed, salmon-red corolla is *ca.* 1 cm across; the male flowers have 7—30 fused stamens. The ellipsoid to obovoid, drupelike fruit is 2.5 — 3.5 cm long and red at maturity.

USES: An infusion of the leaves is commonly used as an eyewash in treating eye ailments such as “pink eye” (*mata kovi*) and swollen eyes (*pokia*) believed to have been caused by a slap from an evil spirit (*tevolo*). This practice is similar to that for *feta’u* (*Calophyllum inophyllum*) above, but the **heilala** medicine is not boiled. An infusion of the leaves is administered in various ways for treating supernatural ailments (*fakatevolo*), such as mental illness believed to be caused by the actions of *tevolo*.

IFI

SCIENTIFIC NAME: *Inocarpus fagifer*

FAMILY: Fabaceae or Leguminosae (pea family)

ENGLISH NAME: Tahitian chestnut

Inocarpus fagifer is distributed from Indo-Malaysia to the Marquesas, but is probably an ancient introduction throughout Polynesia. It is casually cultivated in plantations, but is also occasionally naturalized in native forest, particularly in wet soil along streams and on the margins of mangrove swamps. The fruits, which contain a large, edible, peanutlike seed esteemed by Tongans, are collected from the ground and roasted unopened on a fire, or the seeds are extracted and boiled.

The plant is a large tree up to 15 m or more in height, with a strongly fluted and buttressed trunk. The simple, alternately arranged leaves have an elliptic to oblong blade up to 30 cm or more long. The flowers are in simple or branched axillary spikes, and bear a corolla of five white, linear petals mostly 6 – 10 mm long. The compressed, ovoid to obovoid, hard-shelled fruit is up to 10 cm in diameter, and contains one large edible seed.

USES: An infusion of the bark is commonly applied to burns (*vela*). The bark, with or without bark of other tree species, is made into an infusion given to infants suffering from diarrhea (*pihipihi*).

KAKAMIKA

SCIENTIFIC NAME: *Sigesbeckia orientalis*

FAMILY: Asteraceae or Compositae (sunflower family)

ENGLISH NAME: sigesbeckia

Sigesbeckia orientalis is native to the Old World tropics, probably somewhere in Asia, and was introduced by early voyagers as far east as the Marquesas. It was probably once a common weed in Tonga and elsewhere in Polynesia, but is now rare over much of its former range. It is an ancient medicinal plant in Polynesia, but its uses and its name have now been lost on many of the islands.

The plant is an erect, branching, hairy herb up to 90 cm in height. The simple, oppositely arranged leaves have a broadly ovate, deltoid, or lanceolate blade up to 15 cm long. The flowers are in composite

heads 6–12 mm in diameter, surrounded by linear bracts covered with prominent glands, and are borne in open panicle clusters. The ray florets are small and yellow, and the disc florets are yellow and number *ca.* 10. The fruit is a dark, curved, obovoid achene *ca.* 2.5 mm long, usually four-angled in cross-section.

USES: An infusion of the leaves is taken as a potion or applied as a lotion for treating skin sores (*pala sino*) such as *mea* and *tona* (yaws), and for skin inflammation (*kulokula*).

KANUME

SCIENTIFIC NAME: *Diospyros elliptica*

FAMILY: Ebenaceae (ebony family)

Diospyros elliptica is distributed from Fiji to Niue, and is native to Tonga, where it is a common tree of littoral and coastal forests, sometimes being a dominant species.

The plant is a tree up to 10 m in height. The simple, alternately arranged leaves have a glabrous, elliptic to oblong blade mostly 4–10 cm long. The unisexual flowers are in short axillary cymes, with both male and female flowers on the same tree. The white to greenish yellow, urn-shaped to campanulate corolla is 5–6 mm long, divided halfway into three lobes. The fruit is an ellipsoid to ovoid berry 13–20 mm long, containing 1–4 ellipsoid seeds 10–13 mm long and yellow to red at maturity.

USES: An infusion of the bark, often mixed with bark of other tree species, is occasionally used to treat stomachache (*langa kete*). It is also sometimes part of a boiled medicine (made from the bark of several tree species) that is drunk over a period of time for treating a complex of abdominal ailments collectively called *kahi*. See **manonu**.

KAVA

SCIENTIFIC NAME: *Piper methysticum*

FAMILY: Piperaceae (pepper family)

ENGLISH NAME: kava

Piper methysticum is native to Melanesia, but was introduced throughout the high islands of Polynesia by ancient voyagers. It thrives in wet, somewhat shady places, and in Tonga is commonly cultivated in plantations. Since only male plants are known, kava is unable to reproduce by itself; stands of it in native forest are relicts of former cultivation. Kava has long been used in Tonga and the rest of Polynesia to prepare an intoxicating beverage known by the same name. The grated, crushed, or chewed roots, which contain several active lactones, are mixed with water to produce the drink, which looks like weak coffee and has a peppery taste that is numbing to the mouth and tongue. In sufficient quantities, it is mildly paralyzing and creates a euphoric but clear-minded state.

The plant is a woody shrub up to 4 m in height. The green stems have swollen nodes, and arise from a woody rootstock. The simple, alternately arranged leaves have a cordate blade 9–13-veined from the base and up to 30 cm long. The male flowers are arranged in solitary, axillary, greenish white spikes up to 6 cm long, arising from an axil opposite a leaf. The female flowers and fruits are unknown.

USES: The leaves are sometimes rubbed onto centipede bites (*'u'u 'ae molokau*), insect stings, and stings (*hukia*) from poisonous fish. Also, an infusion of the leaves is sometimes spread onto a type of inflammation called *kulokula salato*.

KAVAKAVA 'ULIE

SCIENTIFIC NAME: *Macropiper puberulum*

FAMILY: Piperaceae (pepper family)

Macropiper puberulum is native from Fiji to eastern Polynesia, and is common in primary and secondary forest in Tonga. Although related to kava (see entry above), it is never used as a beverage.

The plant is a sparsely branching shrub mostly 0.5–2 m in height. The simple, alternately arranged leaves have an ovate to cordate blade palmately 5–9-veined from the base and 8–23 cm long. The flowers lack petals and sepals, and are in separate male and female solitary (rarely 2 or 3) spikes in the leaf axils. The white to pale yellow male spikes are 7–23 cm long; the female spikes are slightly shorter and covered at maturity with tiny, succulent red drupes *ca.* 1.5 mm in diameter.

USES: An infusion of the leaves is taken as a potion or applied as a lotion to treat skin inflammation (*kulokula*). An infusion of the leaves is sometimes taken as a potion for treating stomachache (*langa kete*), and the crushed leaves are sometimes applied to boils (*hangatāmaki*).

KIHIKIHI

SCIENTIFIC NAME: *Oxalis corniculata*

FAMILY: Oxalidaceae (wood sorrel family)

ENGLISH NAME: wood sorrel

Oxalis corniculata is an Old World species now cosmopolitan in tropical and temperate areas, and is an ancient, unintentional introduction to Tonga, where it is a weed of open, disturbed places, particularly around houses. Wood sorrel appears to have been a pre-European medicinal plant widely used throughout Polynesia, apparently mostly in remedies for children's ailments.

The plant is a widely branching, creeping perennial herb rooting at the nodes. The alternately arranged leaves are palmately trifoliate with the three leaflets up to 2 cm long, notched at the tip. The flowers are borne in axillary, several-flowered umbels, and have a corolla of five yellow petals 4–8 mm long. The fruit is a five-lobed, cylindrical to ellipsoid capsule 9–19 mm long that explodes at maturity to release the numerous, tiny seeds.

USES: The plant is widely used in Tonga and throughout Polynesia for ailments of infants. The crushed leaves are applied orally to infants suffering from mouth infections (*pala ngutu*), a practice widely reported from Polynesia westward to Malaysia. Also, the same preparation is rubbed as a lotion for treating an ailment of a baby's navel (*tāpitopito*), and onto the head of infants with symptoms believed to be caused by a late-closing fontanel (*mavae ua*). Western medicine does not consider this to be an ailment, but Tongans believe it is harmful.

KOKA

SCIENTIFIC NAME: *Bischofia javanica*

FAMILY: Euphorbiaceae (spurge family)

Bischofia javanica is distributed from India eastward to the Cook Islands, but is possibly an ancient introduction in the eastern part of its range, including Polynesia. In Tonga, the tree is casually cultivated in villages and plantations as a dye plant: the sap squeezed from the scraped bark, and mixed with sap from grated mangrove bark or other substances, is rubbed onto Tongan tapa cloth to give the material its characteristic red-brown color.

The plant is a large spreading tree up to 20 m or more in height. The alternately arranged, trifoliate leaves have ovate leaflets mostly 4–12 cm long. The small inconspicuous flowers are unisexual on separate male and female trees, and lack petals. The male flowers have five stamens, the female flowers a three-celled ovary bearing three stigmas. The fruit is a small subglobose berry 4–8 mm in diameter, brown at maturity, with the persistent stigmas on top.

USES: An infusion of the young leaves or bark is sometimes given to infants with mouth infections (*pala ngutu*) such as *pala fefie* and *'ila*.

KUAVA

SCIENTIFIC NAME: *Psidium guajava*

FAMILY: Myrtaceae (myrtle family)

ENGLISH NAME: guava

Psidium guajava is native to tropical America, but is now widely distributed in the tropics. It was introduced to Tonga and the rest of Polynesia in the 19th century, and soon became a serious weed of open, disturbed places such as pastures, plantations, roadsides, and fallow land. The fruit is edible fresh, but because of the numerous hard seeds, it is much more suitable for making jam or juice. Although the tree was originally introduced for its fruit, it is now also known for its medicinal properties, the knowledge of which has spread from island to island in the Pacific. Its medicinal value is due mainly to the presence of tannin (up to 10% dry weight) in the bark, leaves, and leaf buds, which makes it useful as an astringent.

The plant is a shrub or small tree up to 10 m in height, with four-angled stems and bark that peels off in flakes. The simple, oppositely arranged leaves have an oval to elliptic blade 6–15 cm long. The flowers, borne solitary in the leaf axils, have a corolla of five white petals 10–15 mm long and numerous showy white stamens.

The fruit is a yellow, globose to ovoid berry 5 — 10 cm long, with many small, hard seeds embedded in the pink to yellow pulp.

USES: In a common folk remedy, an infusion of the young leaves is taken as a potion to treat stomachache (*langa kete*). The plant is widely used in the Pacific for treating stomachache and diarrhea.

LALA TAHI

SCIENTIFIC NAME: *Vitex trifolia*

FAMILY: Verbenaceae (verbena family)

Vitex trifolia is distributed from East Africa to the Marquesas, and is native to Tonga, where it is usually found near the sea in coastal thickets and littoral scrub vegetation. Few uses, other than medicinal ones, have been reported for it.

The plant is a shrub mostly 1.5 — 5 m in height. The oppositely arranged, palmately compound leaves are divided into 3 — 5 elliptic to lanceolate leaflets 1 — 10 cm long, with the lower leaf surface gray-green and the upper dark green. The flowers are in narrow, short-branched, terminal panicles. The lavender, five-lobed corolla is 5 — 7 mm long with a distinct upper and lower "lip." The fruit is a hard, green, globose, four-seeded capsule *ca.* 5 mm in diameter with a persistent, saucer-shaped calyx at maturity.

USES: An infusion of the leaves is sometimes given to infants to treat mouth infections (*pala ngutu* and *pala fefie*), and is occasionally taken as a potion to relieve stomachache (*langa kete*). Also, the leaves are sometimes used to treat supernatural ailments (*fakamahaki*).

LAUFALE

SCIENTIFIC NAME: *Phymatosorus scolopendria*

FAMILY: Polypodiaceae

Phymatosorus scolopendria is a terrestrial or epiphytic fern distributed from tropical Africa to eastern Polynesia, and is native to Tonga. It is probably the most common and widespread fern in Polynesia, where it occurs in a wide variety of habitats — from coral rock crevices in littoral scrub vegetation to tree trunks in montane rain forest.

The plant is a creeping fern with stout, dark brown to black rhizomes bearing scattered, dark brown scales. The erect fronds are deeply pinnately divided into 1—8 pairs of lobes and are up to 40 cm long on a stipe of shorter or equal length. The round sori are arranged in two rows on either side of the midrib, shallowly depressed into the frond to form a raised or bordered pit on the upper surface.

USES: An infusion of the leaves and/or rhizome is commonly given as a potion to infants with skin inflammation (*kulokula*).

LAU MATOLU, MATOLU

SCIENTIFIC NAME: *Hoya australis*

FAMILY: Asclepiadaceae (milkweed family)

ENGLISH NAME: wax plant

Hoya australis is native from Vanuatu (the New Hebrides) and Australia eastward to Samoa and Tonga. Its wide distribution can be attributed to its plumed seeds that are carried long distances in air currents. *Hoya* is most commonly found climbing over low vegetation in littoral areas, and as an epiphyte in coastal to lowland forest. The plant makes an attractive ornamental, but in Tonga is infrequently used in this way.

The plant is a semiwoody, climbing or prostrate vine with a copious, milky latex. The simple, oppositely arranged leaves have a thick, fleshy, elliptic to rounded blade 5—15 cm long. The waxy white flowers are red in the center, 13—18 mm in diameter, and are borne in axillary umbels. The fruit is a pointed, narrow, cylindrical follicle up to 15 cm long, splitting along one side to release the numerous plumed seeds.

USES: An infusion of the leaves is taken as a potion or applied as a lotion for treating skin inflammations (*kulokula*), skin infections (*pala sino*), and rashes (*veli*).

LAUTOLU TAHI

SCIENTIFIC NAME: *Vigna marina*

FAMILY: Fabaceae or Leguminosae (pea family)

ENGLISH NAME: beach pea

Vigna marina is widely distributed throughout the tropics, and is found on most tropical Pacific islands. It is a common component of sandy beaches of Tonga, often in combination with *Ipomoea pes-caprae*, and is somewhat weedy in coastal coconut plantations.

The plant is a trailing, prostrate, herbaceous vine. The alternately arranged, trifoliate leaves have three rounded to ovate leaflets 4–10 cm long. The flowers are in axillary racemes up to 20 cm long, and have a yellow papilionaceous corolla 10–15 mm long. The fruit is a black, cylindrical pod 5–8 cm long that splits open along the two seams.

USES: An infusion of the leaves is commonly taken as a potion, applied as drops into the eyes, nose, and mouth, or rubbed onto the body to treat ailments thought to be caused by evil spirits (*tevolo*). Even stomachaches and mouth infections may sometimes be identified as *fakamahaki* and are treated with this plant.

LAUTOLU 'UTA

SCIENTIFIC NAME: *Vigna adenantha*

FAMILY: Fabaceae or Leguminosae (pea family)

Vigna adenantha, formerly known as *Phaseolus adenanthus*, is distributed in both the Old and New World tropics. It is probably native to Tonga, where it is uncommon in littoral vegetation and sometimes grows as a weed of inland plantations.

The plant is an herbaceous vine with stems up to 1 m or more in length. The alternately arranged, trifoliate leaves have three ovate leaflets 5–14 cm long. The flowers are in axillary, few-flowered racemes 5–20 cm long. The papilionaceous corolla is white tinged with pink or purple, and has twisted petals 18–30 mm long. The fruit is a pubescent, flat, linear-oblong pod 4–12 cm long, containing *ca.* ten seeds.

USES: An infusion of the leaves is taken as a potion, dropped into the eyes, nose, and mouth, or rubbed onto the skin to treat supernatural ailments (*fakatevolo*) such as *fesi'ia* and *te'ia*, or normal-appearing ailments that fail to heal properly.

LEKILEKI

SCIENTIFIC NAME: *Xylocarpus granatum*

FAMILY: Meliaceae (mahogany family)

ENGLISH NAME: puzzlenut tree

Xylocarpus granatum ranges from India eastward into Micronesia and Tonga, where it is found on seashores and along the margins of mangrove swamps. A related species, *Xylocarpus moluccensis*, also occurs in Tonga; the two species are called by the same Tongan name and are probably used in the same ways.

The plant is a medium-sized tree up to 10 m or more in height. The alternately arranged, pinnately compound leaves have 2–6 (usually 4) oblong to obovate leaflets mostly 6–14 cm long. The tiny flowers, arranged in panicles up to 7 cm long arising from the leaf axils or the trunk, have a white corolla 2–3 mm long and stamens fused into a column. The fruit is a large, pendulous, subglobose, brown capsule 10–25 cm in diameter, filled with several large, irregularly shaped, angled seeds. It differs from the other species of **lekileki** (*Xylocarpus moluccensis*), which has 4–8 ovate leaflets and smaller fruits (7–12 cm in diameter).

USES: An infusion of the bark is occasionally boiled and taken as a potion for treating stomachache (*langa kete*) and sometimes for peptic ulcer (*pala ngakau*). The bark, with or without that of one or more other trees, is boiled to make a potion taken for treating pains thought to be caused by internal breaks (*fasi*). It is believed to promote elimination of a substance, called *kafo*, thought to be produced by improperly healed fractures. **Lekileki** is well known for its use in this *vai kafo* (*kafo* medicine). The bark infusion, boiled or not, is also sometimes taken as a potion for treating coughs (*tale*), reportedly to clear the throat without causing vomiting.

LEPO

SCIENTIFIC NAME: *Ricinus communis*

FAMILY: Euphorbiaceae (spurge family)

ENGLISH NAME: castor bean

Ricinus communis is native to Africa, but is now widely distributed throughout the tropics and warm-temperate regions of the world. It

was an early European introduction to Tonga, where it is found as a weed of roadsides and disturbed places. In the Western world, it is well-known as a medicinal plant; the noxious oil (castor oil) extracted from its seeds is commonly used as a purge, but in Tonga the seeds are not utilized.

The plant is a shrub or small tree up to 4 m or more in height, with red or green stems marked by ringlike stipular scars. The simple, alternately arranged leaves are peltate with a palmately lobed blade 20–60 cm in length, on a long petiole. The unisexual flowers, which lack petals, are in narrow panicles, with male and female flowers on the same plant. The male flowers have hundreds of yellow stamens, while the female flowers have a superior, three-lobed ovary. The soft-spiny, subglobose fruit is 1–1.6 cm long, and splits at maturity into three sections, each containing a single mottled brown seed.

USES: An infusion of the bark is commonly taken as a potion for treating skin inflammation (*kulokula*).

LESI

SCIENTIFIC NAME: *Carica papaya*
FAMILY: Caricaceae (papaya family)
ENGLISH NAMES: papaya, pawpaw

Carica papaya is native to tropical America, but is now distributed throughout the tropics. It was an early European introduction to Polynesia and quickly spread to nearly every high island in the region. Papaya is cultivated around houses and in plantations in Tonga for its delicious fruit, and often escapes to secondary forest and waste places. In addition to its value as food, various parts of the tree are employed in remedies learned mostly from the outside world.

The plant is a palm-like, soft-wooded, usually unbranched tree up to 10 m in height, with a copious, milky latex. The simple, alternately arranged leaves are at the top of the trunk, and have a palmately 7–11-lobed blade up to 30 cm or more in diameter, borne on a long petiole. The flowers are unisexual, with separate male and female trees; the male flowers are borne in hanging panicles, and have a cream-colored tubular corolla 2–3 cm long; the female flowers are solitary and axillary, with a cream-colored corolla 4–6 cm wide. The fruit is a large, variously shaped, yellow to orange berry containing a

thick red to orange pulp, with numerous round black seeds attached to the inner wall.

USES: A few immature seeds (*tenga*) are swallowed to treat diarrhea (*fakalele*). Also, an infusion of sap from a young fruit, mixed with water, is sometimes taken for asthma (*hela*) and shortness of breath.

LOUPATA

SCIENTIFIC NAME: *Macaranga harveyana*

FAMILY: Euphorbiaceae (spurge family)

Macaranga harveyana ranges from Fiji to the Society Islands, and is native to Tonga, where it is common in disturbed forests and waste places. It has a soft wood that is of little use.

The plant is a small, spreading tree 3–8 m in height. The simple, alternately arranged leaves have an ovate blade 12–26 cm in length with a long petiole joining it at a point inside the margin (i. e., it is peltate), where *ca.* eight veins radiate out. The tiny, yellow or green, unisexual, apetalous (without petals) flowers are arranged in branching axillary panicles (male) or racemes (female) on separate male and female trees. The fruit is a subglobose capsule 6–10 mm in diameter, covered with scattered soft spines 3–8 mm long.

USES: The grated bark, along with that of other tree species, is commonly boiled to make a potion for treating a complex of abdominal ailments collectively called *kahi*. See *manonu*. A medicine prepared similarly is also sometimes taken for stomachache (*langa kete*).

MANGELE

SCIENTIFIC NAME: *Trema cannabina*

FAMILY: Ulmaceae (elm family)

Trema cannabina is distributed from India to western Polynesia, and is native to Tonga, where it is occasional in disturbed places. Its only reported uses in Tonga are medicinal.

The plant is a slender shrub or small tree up to 8 m or more in height. The simple, alternately arranged leaves have an ovate to lanceolate blade 6–12 cm long, with rough (scabrous) serrate margins

and a cordate base with unequal sides. The flowers are in short, axillary, cymose clusters up to 2 cm long. The greenish white perianth (which lacks petals) is *ca.* 1 mm long. The fruit is an ovoid drupe 1.5–3 mm long, red-brown to black at maturity.

USES: An infusion of the bark, or the juice from the chewed bark, is sometimes applied to mouth infections (*pala ngutu*) of infants. The same practice is used in Samoa. Also, an infusion of the bark is occasionally used to treat cuts (*lavea*) and sores (*pala sino*).

MANGO

SCIENTIFIC NAME: *Mangifera indica*

FAMILY: Anacardiaceae (cashew family)

ENGLISH NAME: mango

Mangifera indica is probably native to India or Burma, but is now cultivated throughout the tropics. It was an early European introduction to Polynesia, where it is commonly grown in villages and plantations. It is not reported to be naturalized in Tonga, and trees found in forests are relicts of former cultivation. The tree is grown for its delicious, highly esteemed, edible fruit. An oil in the skin of the fruit can produce severe dermatitis in some people, much like “poison ivy,” to which it is distantly related.

The plant is a large spreading tree up to 25 m in high, often forming a massive trunk. The simple, alternately arranged leaves have a lanceolate blade 10–30 cm long. The tiny white to pink flowers are numerous in branching panicles. The fruit is an obovoid drupe with a pungent orange pulp surrounding a single flattened, fibrous seed, and is red to yellow at maturity.

USES: The crushed leaves, usually combined with those of *moli kai* (*Citrus sinensis*) and others, are boiled to make a potion for treating relapse sickness (*kita*). See *moli kai*.

MANONU

SCIENTIFIC NAME: *Tarenna sambucina*

FAMILY: Rubiaceae (coffee family)

Tarennia sambucina is native from Vanuatu (the New Hebrides) to the Marquesas, and is found on most of the high islands in this region. It is occasional in scrub forest, open secondary forest, and in disturbed places in the lowlands and foothills of Tonga.

The plant is a small tree up to 6 m or more in height, with stems four-angled when young. The simple, oppositely arranged leaves have an elliptic blade 6–18 cm long. The flowers are in dense, widely branching, terminal cymose clusters. The tubular, yellowish to white corolla has five spreading lobes about 6 mm long. The fruit is a globose berry about 5 mm in diameter, black at maturity.

USES: The bark, combined with that of several other tree species, such as **toi** (*Alphitonia zizyphoides*), **tavahi** (*Rhus taitensis*), **kanume** (*Diospyros elliptica*), **masikoka** (*Glochidion ramiflorum*), **loupata** (*Macaranga harveyana*), **fekika kai** (*Syzygium malaccense*), **tava** (*Pometia pinnata*), and **puopua** (*Guettarda speciosa*), is boiled and taken as a potion for treating a complex of abdominal ailments collectively known as *kahi*. The decoction is often bottled and sold in the marketplace in Nuku'alofa. Also, an infusion of the bark, boiled or not, and with or without the bark of other tree species, is taken as a potion to relieve stomachache (*langa kete*).

MAPE

SCIENTIFIC NAME: *Diospyros major*

FAMILY: Ebenaceae (ebony family)

Diospyros major is native to Fiji, but was probably an ancient introduction to Tonga, where it is occasionally cultivated for its fragrant fruit, and is infrequently naturalized in native forests.

The plant is a medium-sized tree up to 10 m in height. The simple, alternately arranged leaves have an oblong to ovate blade mostly 7–21 cm long. The unisexual flowers are solitary or 2–5 in short, axillary clusters. The white to cream-colored, urn-shaped to campanulate corolla is 12–15 mm long, divided about halfway into three acute-tipped lobes. The fruit is a pubescent, ellipsoid to ovoid berry 25–45 mm long, yellow to brown at maturity and containing one or more seeds.

USES: The leaves are occasionally used with those of **moli kai** and a few other trees for preparing a boiled potion taken by people suffering

from relapse sickness (*kita*). See *moli kai*. An infusion of the leaves or bark is also occasionally taken as a potion for treating stomachache (*langa kete*).

MASIKOKA, MĀLOLO, MAHAME

SCIENTIFIC NAME: *Glochidion ramiflorum*

FAMILY: Euphorbiaceae (spurge family)

Glochidion ramiflorum is native from Vanuatu (the New Hebrides) to the Marquesas, but there is some difference of opinion as to the exact range of this species, and whether or not the populations on some islands within this range should be recognized as separate species. In Tonga, it and a very similar species, *Glochidion concolor*, occur in primary and secondary forest at all elevations, but most frequently in disturbed vegetation.

The plant is a small to medium-sized tree up to 10 m or more in height. The simple, alternately arranged leaves have a lanceolate to elliptic blade mostly 4–15 cm long. The tiny, unisexual, yellow flowers are in axillary clusters. The fruit is a wheellike capsule 6–12 mm in diameter, green at maturity and splitting into several sections, each containing two red seeds.

USES: An infusion of the leaves or bark is given to infants with mouth infections (*pala ngutu* and *pala hina*). The grated bark, along with that of several other tree species, is boiled to make a potion taken for treating various abdominal ailments collectively called *kahi*. See *manonu*. Also, an infusion of the leaves or bark is sometimes taken as a potion, is spread onto the skin for treating inflammation (*kulokula*), and is drunk for treating stomachache (*langa kete*).

MEI, MEI KEA

SCIENTIFIC NAME: *Artocarpus altilis*

FAMILY NAME: Moraceae (mulberry family)

ENGLISH NAME: breadfruit tree

Artocarpus altilis is native to Southeast Asia, possibly originally to the island of Java, and was an ancient introduction eastward to Hawai'i. It is restricted to cultivation, and trees occurring in forest areas are usually relicts of past cultivation, since most varieties are

seedless. Its large, edible fruit is much esteemed, and the durable and easily worked wood is used for building houses and outrigger canoes. The milky latex was commonly employed in caulking plank canoes once widely used in Polynesia.

The plant is a large, attractive, round-topped tree up to 20 m or more in height, with a milky latex. The simple, alternately arranged leaves have a large, glossy, ovate to elliptic blade up to 60 cm long, usually with deeply toothed or lobed margins. The flowers are unisexual, with both male and female occurring on the same tree. The minute male flowers are in a densely packed cylindrical spike 7–25 cm long, while the female flowers are fused together into a globose head. The globose to ovoid fruit is up to 15 cm long with the fused female flowers giving the surface a faceted appearance.

USES: The bark, with or without the leaves of **moli kai** (*Citrus sinensis*) and other species, is boiled into a potion taken for treating relapse sickness (*kita*), usually for women who have returned to normal activities too soon after giving birth. See **moli kai**. An infusion of the bark is applied to a facial rash (*pala kea*) that typically affects children. The same medicine is sometimes given simultaneously as a potion. The sap, put on a piece of cloth or tapa (*ngatu*), is applied to a boil for one or more days to draw out the pus. An infusion of the bark is occasionally taken as a potion to treat stomachache (*langa kete*). Smoke from a smoldering twig is blown onto the anus of a baby afflicted with *mui kula* (literally, “red buttocks”), probably anal thrush.

MILO

SCIENTIFIC NAME: *Thespesia populnea*

FAMILY: Malvaceae (mallow family)

ENGLISH NAMES: milo, Pacific rosewood

Thespesia populnea is distributed in the Old World tropics from East Africa to eastern Polynesia, but may be an ancient introduction to Polynesia, at least to the eastern part. It is probably native to Tonga, where it is occasional to common in littoral forests and coastal villages, but is rarely found inland unless planted there. The hard, durable timber is esteemed because it is resistant to decay in water and takes a good polish.

The plant is a small to medium-sized tree up to 12 m in height. The simple, alternately arranged leaves have a glossy, heart-shaped blade 8–16 cm long. The flowers, which are solitary in the leaf axils, have a showy corolla with five petals 4–8 cm long, yellow with purple at the base; the numerous stamens are united into a column. The fruit is a brown, flattened-globose, non-splitting capsule 2–3 cm across, which at maturity contains a sticky yellow sap and *ca.* ten hairy seeds.

USES: An infusion of the bark is taken as a potion, spat, or dabbed onto mouth infections (*pala ngutu*) of infants, possibly including thrush. The same medicine is sometimes taken as a potion for treating peptic ulcers (*pala ngakau*), or is given to infants suffering from diarrhea (*tu'utu'u*, *topa momoko*, and *pihipihi*).

MOENGALŌ

SCIENTIFIC NAME: *Cymbopogon citratus*

FAMILY: Poaceae or Gramineae (grass family)

ENGLISH NAME: lemon grass

Cymbopogon citratus is native to the Old World tropics, but is now widely cultivated throughout the tropics and subtropics. It is a European introduction to Tonga, where it is occasional in cultivation around houses. The identification of this species is tentative, since it has not been noted to produce flowers in Tonga.

The plant is a clump-forming grass up to 1.5 m in height, but usually much shorter. The lemon-scented, linear blade is up to 1 m long and mostly 5–20 mm wide. The ligule is truncate and up to 2 mm long. The paired spikelets are dissimilar, with one sessile and one stalked, but flowering is not known to occur in Tonga.

USES: A decoction of the boiled leaves is sometimes applied to mouth sores (*pala ngutu*). The same remedy is common in Samoa.

MOHOKOI

SCIENTIFIC NAME: *Cananga odorata*

FAMILY: Annonaceae (soursop family)

ENGLISH NAMES: ilangilang, perfume tree

Cananga odorata is native to Southeast Asia, possibly originally to the Philippines, but is now widely cultivated in the tropics. It was probably an ancient introduction to Tonga and the rest of western Polynesia, but did not reach eastern Polynesia until the European Era. The tree is commonly grown in Tongan villages and plantations, but is rarely naturalized. It is valued mostly for its showy, fragrant flowers used to make leis and scented coconut oil. The fragrance arises from an essential oil, which in the Philippines is distilled from the flowers and used for making perfume.

The plant is a tall narrow tree up to 20 m in height, with the branches perpendicular to the trunk and spirally arranged. The simple, alternately arranged leaves are in one plane, with an oblong to elliptic blade up to 25 cm long. The flowers are arranged in clusters and have six fragrant, yellowish green, linear-lanceolate petals 4–9 cm long. The fruit is a black, fleshy berry 1–2 cm long, containing 6–12 seeds.

USES: In a common folk remedy, an infusion of the bark, usually with that of **ngatae** (*Erythrina variegata*), is taken as a potion to treat stomachache (*langa kete*) and other stomach ailments such as *makehekehe* and *mofuta kete*. An infusion of the leaves is often used similarly for infants.

MOLI KAI

SCIENTIFIC NAME: *Citrus sinensis*

FAMILY: Rutaceae (citrus family)

ENGLISH NAMES: orange, sweet orange

Citrus sinensis is probably native to Southeast Asia, but reached the Mediterranean in the late 15th century, and from there was introduced throughout the tropical and warm-temperate regions of the world, including all the high islands of Polynesia. In Tonga, it is common in cultivation in villages and plantations, where it is grown for its edible fruit.

The plant is a medium-sized tree up to 10 m in height, with or without axillary spines. The simple, alternately arranged leaves have a glossy, ovate to elliptic blade mostly 5–12 cm long, with a narrowly winged petiole. The flowers are solitary or are few in axillary racemes. The white, fragrant corolla has five oblong petals 1.2–2.5 cm long and 20–25 stamens. The fruit is an orange, sweet-pulped, globose berry mostly 5–10 cm in diameter, with a rind *ca.* 5 mm thick.

USES: An infusion of the leaves, usually with those of **mango** (*Mangifera indica*), **masikoka** (*Glochidion ramiflorum*), **mapa** (*Diospyros major*), and/or the bark of **mei kea** (breadfruit), is boiled and taken as a potion for treating relapse sickness (*kita*) that mostly affects postpartum women returning to normal activities too soon after giving birth. This medicine is sometimes bottled and sold in the marketplace in Nuku'alofa.

MONOMONO 'A HINA

SCIENTIFIC NAME: *Mussaenda raiateensis*

FAMILY: Rubiaceae (coffee family)

Mussaenda raiateensis is found on nearly every high island from Vanuatu (the New Hebrides) to Tahiti. In Tonga, it occurs in open places on ridges, in coastal to lowland forests, and is occasionally cultivated for its medicinal properties.

The plant is a shrub or small tree up to 10 m in height, but usually much shorter. The simple, oppositely arranged leaves have an ovate to elliptic blade 7–25 cm long. The flowers are in many-flowered terminal clusters, each with a single ovate, white, leaflike sepal 5–12 cm long. The yellow, tubular corolla is 2.5–3.5 cm long with five spreading lobes. The fruit is an ellipsoid berry 10–18 mm long, brown with lighter colored spots at maturity.

USES: An infusion of the bark is sometimes given to an infant believed to be ill or malnourished due to breastfeeding from a mother who is pregnant again, an ailment called *fe'ea*.

MO'OTA

SCIENTIFIC NAME: *Dysoxylum forsteri*

FAMILY: Meliaceae (mahogany family)

Dysoxylum forsteri is native to Niue and Tonga, where it is common in native lowland and disturbed forest. It is valued for its timber that is used in construction and for other purposes.

The plant is a large tree up to 15 m in height, with foul-smelling bark. The alternately arranged leaves are pinnately compound, 25–50 cm long, and have 5–10 pairs of oblong, elliptic, or lanceolate leaflets up to 12 cm long. The flowers are numerous in compound

racemes up to 15 cm or more in length. The yellowish, tubular corolla has four or five petals that are reflexed at maturity and surround a column formed from the fused filaments of the eight or ten stamens. The fruit is a brownish, subglobose capsule *ca.* 2 cm in diameter, splitting at the top to expose the several seeds.

USES: An infusion of the leaves is taken as a potion, applied as a bath (*kaukau*), or given as a steam bath (*faka'ahu*) for treating supernatural ailments (*fakamahaki*) that are sometimes manifested by headaches, and which are thought to be caused by the action of evil spirits (*tevolo*). The infusion is also commonly used as a closing medicine (*kaukau tuku*) after the patient has been treated with other medicine; *feta'u* (*Calophyllum inophyllum*) is used in a similar way.

NONU

SCIENTIFIC NAME: *Morinda citrifolia*

FAMILY: Rubiaceae (coffee family)

ENGLISH NAME: Indian mulberry

Morinda citrifolia is distributed from India to eastern Polynesia, but was originally native only to Southeast Asia, possibly only to the islands of Indonesia, and was probably carried by ancient seafarers over most of its current range. It occurs mostly in open coastal areas, lowland forests, and disturbed places in Tonga, and is sometimes casually cultivated in villages. The Indian mulberry was a valuable dye plant; a red color was made from the bark, and more commonly, a yellow color from the roots. The fruit, although tasting unpleasant and smelling foul when ripe, serves as food for pigs, and in times of famine, for humans as well. The plant was also one of the most widely used medicinal plants of ancient Polynesia.

The plant is a glabrous shrub or small tree up to 8 m in height, with four-angled stems and large, rounded stipules between the petiole bases. The simple, oppositely arranged leaves have an elliptic to ovate blade 15–35 cm long. The flowers are in a stalked, subglobose head arising from an upper node opposite an unpaired leaf. The white, tubular corolla is *ca.* 15 mm long, with five spreading lobes. The large, fleshy, ovoid to elliptical fruit is up to 12 cm or more long, with a lumpy surface covered by many polygonal sections formed by the fusion of the inferior ovaries; at maturity, it is translucent to gray, and has a pungent odor.

USES: An infusion of the leaves is commonly rubbed over the body, taken as a potion, or dripped into the eyes, nose, and throat to treat a variety of ailments thought to be induced by the actions of evil spirits (*tevolo*). An infusion of the bark or leaves is sometimes taken as a potion to relieve stomachache (*langa kete* and *makehekehe*). Juice from the crushed fruit is applied to mouth infections (*pala ngutu*). The leaves, heated over a fire, are applied to boils (*hangatāmaki*) to bring them to a head, a practice common throughout Polynesia. In a somewhat related practice, a leaf petiole is broken next to a sty (*matafā*) and something emanating from it is believed to cure the infection. A similar practice occurs in Samoa, where a flower rather than a petiole is used.

'OVAVA

SCIENTIFIC NAME: *Ficus obliqua*

FAMILY: Moraceae (mulberry family)

ENGLISH NAMES: Polynesian banyan, strangler fig

Ficus obliqua is native from New Caledonia to Niue, and in Tonga is most commonly found in lowland forests. It begins life as an epiphyte, sends aerial roots to the ground, and eventually becomes a huge banyan tree with a spreading crown and a composite trunk composed of the fused and enlarged aerial roots, which have long since enveloped and “strangled” the “host” tree.

The plant is a giant banyan tree up to 30 m in height, with milky sap and with the stem tips protected by a deciduous cap. The simple, alternately arranged leaves have an elliptic to lanceolate blade 6–15 cm long. The tiny flowers are enclosed within a globose receptacle. The fruit is a globose, orange, berry-like “syconium” 5–7 mm in diameter.

USES: An infusion of the bark is taken as a potion for treating skin inflammation (*kulokula*), often equated with the formerly common filariasis. An infusion of the crushed root tip of a different banyan species is used similarly in the Cook Islands (Whistler 1985). Also, the leaves are chewed and the mass spat onto boils (*hangatāmaki* and *hila'akilangi*), and an infusion of the bark is sometimes taken as a potion for treating stomachache (*langa kete*).

PASIONE

SCIENTIFIC NAME: *Passiflora quadrangularis*
FAMILY: Passifloraceae (passion-flower family)
ENGLISH NAME: granadilla

Passiflora quadrangularis is native to tropical America, but is now widespread in the tropics. It is a recent European introduction to Tonga, where it is occasionally cultivated around houses for its edible fruit.

The plant is an herbaceous vine with thick, four-angled or winged stems bearing conspicuous glands and coiled, axillary tendrils. The simple, alternately arranged leaves have an ovate to elliptic blade up to 15 cm or more in length. The flowers are usually solitary in the leaf axils, 7–10 cm in diameter, and have a showy “corona” of filaments banded purple and white. The fruit is a large, oblong to ellipsoid berry 13–30 cm long, with a greenish yellow rind *ca.* 2 cm thick, and numerous seeds surrounded by a juicy edible pulp.

USES: The young leaves are sometimes chewed or crushed and applied to cuts or wounds (*lavea*) to prevent infection (*kona*).

POLO FIFISI

SCIENTIFIC NAME: *Capsicum frutescens*
FAMILY: Solanaceae (nightshade family)
ENGLISH NAMES: chili pepper, red pepper

Capsicum frutescens is native to the New World tropics, but is now widely distributed throughout the warm regions of the world. It was an early European introduction to Tonga, where it is grown in villages for its spicy fruit, but escapes from cultivation and becomes somewhat weedy in disturbed places. The fruit contains a powerful local stimulant known as capsaicin, which, when applied to the skin, produces a sensation of warmth without reddening, and in higher concentrations, an intolerable burning sensation, without, however, blistering.

The plant is a woody, branching shrub up to 2 m in height. The simple, alternately arranged leaves have an ovate to lanceolate blade 4–12 cm long. The flowers are 1–3 in the leaf axils, reflexed atop a stalk mostly 1–2 cm long. The greenish white, rotate corolla is *ca.* 1

cm in diameter, with five yellow stamens. The fruit is a red, ovoid to ellipsoid berry 1.5–3 cm long, with a very pungent taste.

USES: The leaves are crushed or rubbed in the hands and spread or dripped onto skin inflammations (*kulokula*). Also, the leaves are rubbed in the hands and applied to boils (*hangatāmaki* and *hila'akilangi*). The use of the chili pepper for treating boils is a common folk remedy that is also practiced in the Cook Islands (Whistler 1985) and Samoa.

POLO TONGA

SCIENTIFIC NAME: *Solanum viride*

FAMILY: Solanaceae (nightshade family)

Solanum viride is distributed from Melanesia to the Marquesas, but is probably an ancient introduction to Polynesia, including Tonga, where it is cultivated and sometimes escapes to disturbed places and open native forest. It was formerly valued for its succulent, red, tomatolike fruits that were eaten or used in decoration, but also perhaps for its medicinal leaves.

The plant is a shrub up to 2 m in height. The simple, alternately arranged leaves have an ovate blade mostly 8–18 cm long. The flowers are in axillary and terminal, several-flowered cymes. The white or yellowish white, five-lobed corolla is 5–12 mm long. The fruit is a glossy red, subglobose or ellipsoid berry mostly 1–2 cm in diameter.

USES: The crushed leaves are applied to skin inflammations (*kulokula*), which may have various causes such as mosquito bites, multiple boils, or filariasis. An infusion of the crushed leaves is sometimes taken as a potion during the same treatment. The crushed leaves are applied to boils (*hangatāmaki*), a practice also common in the Cook Islands (Whistler 1985). In its medicinal uses, **polo tonga** is used interchangeably with **polo fifisi**.

PUA TONGA

SCIENTIFIC NAME: *Fagraea berteriana*

FAMILY: Loganiaceae (logania family)

Fagraea berteriana is distributed from New Caledonia to the Marquesas. It is native to Tonga, where it occurs in cloud forests on high islands such as Tafahi, but is more commonly found as a cultivated tree in villages.

The plant is a spreading tree 2–12 m or more in height. The simple, oppositely arranged leaves are glabrous and have a elliptic to oblanceolate blade 8–18 cm long, with a raised structure on the upper side at the base of the petiole. The flowers are in several-flowered axillary panicles. The showy, pale orange to white, tubular corolla is 4–10 cm long, divided at the top into five rounded, spreading lobes. The fruit is an ovoid berry 3–5 cm long, orange at maturity and containing numerous tiny seeds.

USES: A bark infusion is taken as a potion for treating internal injuries (*fasi*) attributed to the accumulation of a substance (*kafo*) produced by improperly healed broken bones or injured internal organs.

PUKOVILI

SCIENTIFIC NAME: *Gyrocarpus americanus*

FAMILY: Gyrocarpaceae (gyrocarpus family)

Gyrocarpus americanus is widely distributed in both the Old and New World tropics, and is native to many Pacific islands including Fiji and Samoa. However, it appears to be a Polynesian introduction to Tonga, where it is restricted to cultivation in villages.

The plant is a spreading, medium-sized tree 8–18 m in height. The simple, alternately arranged leaves have an ovate to nearly heart-shaped (or sometimes even palmately lobed) blade mostly 10–25 cm in length, on a long petiole. The tiny flowers are arranged in broad, terminal, cymose clusters. The seven greenish tepals (petals and sepals) are alike and 1–2 mm long. The fruit is an ovoid drupe 13–18 mm long, with two flat, lanceolate wings 6–9 cm long that give it a spinning motion when it falls or is thrown.

USES: An infusion of the bark is commonly taken as a potion for treating stomachache (*langa kete*). Also, an infusion of the bark or leaves is occasionally taken as a potion or is spread onto the skin for treating skin inflammation (*kulokula*).

SCIENTIFIC NAME: *Cordyline fruticosa*
FAMILY: Agavaceae (yucca family)
ENGLISH NAMES: ti, ti plant

Cordyline fruticosa is probably native to tropical Asia, but is now widely distributed across the Pacific and is cultivated throughout the tropics and subtropics. It was an ancient introduction to Polynesia, where a number of local varieties have long been cultivated, and is now completely naturalized in Tonga as an understory shrub of primary and disturbed forests. The ti plant has, since ancient times, played a large part in the Polynesian material culture. The leaves are or were commonly employed in making skirts, dance costumes, roofing thatch, food wrappers, sandals, ropes, and nets. Also of importance was the large, sugar-laden, tuberous root that was baked in underground ovens.

The plant is a sparsely branching shrub up to 5 m in height, growing from an enlarged tuber. The spirally arranged leaves are in clusters at the ends of the stems, and have a lanceolate to oblong blade 30–70 cm long with the parallel veins forming a shallow angle with the midrib. The flowers are in compound spikes with a leaflike bract at the base. The three petals and three sepals are similar, 8–14 mm long, and white, pink, or purple in color. The fruit is a globose, three-parted berry up to 8 mm in diameter and red to purple at maturity.

USES: The leaf is sometimes used to apply an infusion of **uhi** (*Euodia hortensis*) leaves to a swollen eye (*mata pupula*). This is probably a supernaturally induced ailment (*fakamahaki*), since **uhi** is almost exclusively used for such ailments. Also, the leaves are occasionally employed in massage of toothache (*langa nifo*).

SIALE TONGA

SCIENTIFIC NAME: *Gardenia taitensis*
FAMILY: Rubiaceae (coffee family)
ENGLISH NAME: Tahitian gardenia

Gardenia taitensis is distributed from Vanuatu (the New Hebrides) to eastern Polynesia, but is probably native only in the western part of

its range, and was an ancient introduction throughout Polynesia. In Tonga, it is mostly cultivated in villages for its fragrance and beauty. Its flowers are fashioned into leis, are worn singly in the hair, and are added to coconut oil to impart their fragrance.

The plant is a shrub or small tree up to 6 m in height. The simple, oppositely arranged leaves have a glossy, obovate to broadly elliptic blade mostly 5–15 cm long. The showy white, fragrant flowers are solitary in the upper leaf axils, and have a sympetalous corolla with 6–8 spreading lobes 2–3.5 cm long. The fruit is a subglobose to ellipsoid, ribbed, many-seeded capsule 2.5–5 cm long, with a persistent necklike calyx on top, but cultivated plants rarely produce fruit.

USES: An infusion of the bark and/or leaves is dripped into the ears, eyes, nose, and mouth to treat a variety of supernatural ailments (*fakamahaki*) thought to be caused by the actions of evil spirits (*tevolo*).

SIPI

SCIENTIFIC NAME: *Entada phaseoloides*

FAMILY: Fabaceae or Leguminosae (pea family)

ENGLISH NAMES: drinking vine, St. Thomas bean (the seed)

Entada phaseoloides is native from tropical Asia to eastern Polynesia, and in Tonga is common as a high-climbing liana of littoral and lowland forest, often covering forest trees. The thick but soft woody stems can easily be cut with a bush knife, and exude a watery sap that is drunk in times of need. The large seeds are fashioned into seed leis and other decorations, and were formerly used as throwing pieces in native games. The tough stems have been used for coarse cables and as jump ropes.

The plant is a large, high-climbing liana. The alternately arranged, bipinnately compound leaves have a terminal, two-branched tendril, and 2–6 oppositely arranged, ovate to elliptic leaflets 4–10 cm long. The flowers are borne in dense, narrow, axillary spikes or panicles of spikes 15–25 cm long. The corolla has five lanceolate, greenish petals 3–4 mm long, and ten white stamens. The fruit is a large woody pod up to 1 m or more in length, containing several hard, shiny brown, disc-shaped seeds up to 5 cm across.

USES: The bark is made into an infusion for treating stomachache (*langa kete*). The same preparation is sometimes used to treat a

variety of mental ailments (such as *te'ia*) thought to be caused by *tevolo*.

TAKAFALU

SCIENTIFIC NAME: *Micromelum minutum*

FAMILY: Rutaceae (citrus family)

Micromelum minutum is distributed from tropical Asia to western Polynesia, and appears to be native over this entire range. In Tonga, it occurs in coastal, lowland, and secondary forests, but is not very common.

The plant is a small tree up to 6 m in height. The alternately arranged, pinnately compound leaves are up to 50 cm long, with 7–12 alternate, unequally sided, ovate leaflets mostly 3–13 cm long. The flowers are in widely branching terminal and upper-axillary, many-flowered panicles. The fragrant corolla has five linear white petals up to 5 mm long. The ellipsoid drupe is up to 1 cm long, and is red and gland-dotted at maturity.

USES: An infusion of the scraped bark is sometimes taken as a potion to relieve stomachache (*langa kete*), and an infusion of the leaves is sometimes gargled or dripped into the mouth to treat toothache (*langa nifo*) or teething problems (*nifo Tonga*) of infants.

TALATALA

SCIENTIFIC NAME: *Lantana camara*

FAMILY: Verbenaceae (verbena family)

ENGLISH NAME: lantana

Lantana camara is native to tropical America, but is now a weed throughout the tropics; it was first reported from Polynesia in the 1850s. Lantana may have originally been introduced as an ornamental, but it is now a noxious weed of coconut plantations, pastures, and waste places in Tonga.

The plant is an erect, branching shrub 0.5–2 m in height. The four-angled stems are armed with hooked prickles. The simple, oppositely arranged leaves have an ovate blade 4–10 cm long, with coarse surfaces and toothed margins. The flowers are in dense, long-stalked, flat-topped, headlike axillary spikes *ca.* 2.5 cm across. The

yellow, orange, red, or pink, five-lobed corolla has a curved tube and a spreading limb *ca.* 6 mm across. The fruit is a shiny, dark purple or black, globose drupe 5–6 mm across.

USES: In a common and well-known folk remedy, the leaves are crushed and the juice dripped onto fresh cuts (*lavea*).

TAMATAMA

SCIENTIFIC NAME: *Achyranthes aspera*

FAMILY: Amaranthaceae (amaranth family)

Achyranthes aspera is native to Southeast Asia and extends into the Pacific islands as far east as the Marquesas. It may have arrived naturally in Polynesia by means of its sharp fruits that adhere to bird feathers, or it may have been accidentally introduced by sticking to the clothing of early seafarers. The plant is restricted mostly to sunny coastal habitats, often in places frequented by sea birds.

The plant is a sparingly branched subshrub up to 1.5 m or more in height. The simple, oppositely arranged leaves have an ovate to elliptic blade up to 12 cm long, with the surfaces covered with a silky pubescence. The green, grasslike flowers are arranged in a terminal spike. The green, lanceolate, sharp-pointed fruit is *ca.* 6 mm long.

USES: In a well-known folk remedy, the leaves, rubbed in the hands or crushed, are applied to cuts (*lavea*) to prevent infections (*palangia* or *kona*) or tetanus (*kona hamu*). An infusion of the leaves is sometimes taken as a potion for the same purpose. The leaves, softened over a fire, have commonly been applied to circumcision wounds, a practice also noted from Samoa.

TAVA

SCIENTIFIC NAME: *Pometia pinnata*

FAMILY: Sapindaceae (soapberry family)

ENGLISH NAME: tava

Pometia pinnata is a widespread tree native from Ceylon to western Polynesia, and in recent times has been introduced into eastern Polynesia. In its native range it is common in lowland rain forests and mature secondary forest, but is probably a Polynesian introduction to

Tonga, where it is restricted mostly to cultivation in villages. It is esteemed for its wood and for its fleshy fruit similar in taste and appearance to the litchi.

The plant is a large tree up to 30 m or more in height, with a flaky bark and a prominently buttressed trunk. The alternate, even-pinnately compound leaves are 18–28 cm long, with 6–8 opposite pairs of elliptic to subfalcate, unequally sided, strongly veined leaflets 6–25 cm long, reddish when young. The tiny flowers are in branched, terminal, often somewhat leafy panicles up to 60 cm long, and are inconspicuous except for the showy red stamens. The fruit is a red, fleshy, subglobose drupe up to 4 cm in diameter, with a white, translucent flesh and a single large seed.

USES: An infusion of the bark is given as an emetic to infants with mouth infections (*pala ngutu*) and coughs (*tale*), usually in the morning when the stomach is empty, to bring up phlegm. Also, the bark, boiled with that of several other tree species, is sometimes taken as a potion for treating a complex of abdominal ailments collectively known as *kahi*. See **manonu**. The young leaves, often with those of other species, is sometimes made into an infusion that is rubbed onto the head of infants or given as a potion to treat an unclosed fontanel (*mavae ua*). See **tono**.

TE'ELANGO

SCIENTIFIC NAME: *Senna alata*

FAMILY: Fabaceae or Leguminosae (pea family)

ENGLISH NAMES: candlebush, acapulco

Senna alata, formerly called *Cassia alata*, is native to the New World tropics, but was introduced into tropical Asia early in the European Era and was so commonly grown there that many authors considered it to be native to India. It is a recent European introduction to Tonga, where it is occasional in cultivation in villages and plantations.

The plant is a coarse, erect shrub up to 4 m in height. The alternately arranged, pinnately compound leaves have 8–14 oppositely arranged, oblong to ovate leaflets 6–15 cm long. The showy yellow flowers are crowded and overlapping in erect terminal racemes, each flower concealed in the bud by overlapping showy yellow bracts. The corolla has five obovate petals up to 2 cm long. The fruit is an oblong, black,

somewhat papery pod mostly 10–15 cm long with longitudinal wings along the margins.

USES: In a well-known folk remedy, juice from the crushed leaves is applied to ringworm (*lafa*), as it is in Samoa. According to Quisumbing (1951), the leaves are specific for ringworm and other diseases, possibly due to the action of chrysophanic acid.

TE'EPILO 'A MAUI, FA'EFA'ELUNGA

SCIENTIFIC NAME: *Geniostoma rupestre*

FAMILY: Loganiaceae (logania family)

Geniostoma rupestre is native from Melanesia to the Tuamotus, but some authors recognize instead numerous endemic species in the islands. In Tonga, it is found in coastal to montane forests. The leaves of the same or a related species in the Cook Islands are fragrant and are used to make leis and to scent coconut oil, but those of *Geniostoma rupestre* in Tonga are bad-smelling.

The plant is a shrub or small tree up to 6 m or more in height. The simple, oppositely arranged leaves have an ovate to elliptic blade 2–18 cm long. The flowers are in a short axillary inflorescence, with a tiny, white, five-lobed corolla 2–5 mm long. The fruit is an ellipsoid capsule 5–9 mm long, splitting open by two longitudinal seams to expose the numerous tiny red seeds.

USES: An infusion of the bark is taken as a purgative (*fakahinga*) for treating stomachache (*langa kete*) and other internal disorders.

TE'ETE'EMANU

SCIENTIFIC NAME: *Ervatamia obtusiuscula*

FAMILY: Apocynaceae (dogbane family)

Ervatamia obtusiuscula is native from Vanuatu (the New Hebrides) to Samoa and probably farther eastward to the Tuamotus and Society Islands. It is uncommon in native lowland and disturbed forests of Tonga.

The plant is a small tree up to 5 m or more in height, with milky sap. The simple, oppositely arranged leaves are glabrous and thin, and have an elliptic to ovate blade 6–18 cm long. The flowers are in

somewhat papery pod mostly 10–15 cm long with longitudinal wings along the margins.

USES: In a well-known folk remedy, juice from the crushed leaves is applied to ringworm (*lafa*), as it is in Samoa. According to Quisumbing (1951), the leaves are specific for ringworm and other diseases, possibly due to the action of chrysophanic acid.

TE'EPILO 'A MAUI, FA'EFA'ELUNGA

SCIENTIFIC NAME: *Geniostoma rupestre*

FAMILY: Loganiaceae (logania family)

Geniostoma rupestre is native from Melanesia to the Tuamotus, but some authors recognize instead numerous endemic species in the islands. In Tonga, it is found in coastal to montane forests. The leaves of the same or a related species in the Cook Islands are fragrant and are used to make leis and to scent coconut oil, but those of *Geniostoma rupestre* in Tonga are bad-smelling.

The plant is a shrub or small tree up to 6 m or more in height. The simple, oppositely arranged leaves have an ovate to elliptic blade 2–18 cm long. The flowers are in a short axillary inflorescence, with a tiny, white, five-lobed corolla 2–5 mm long. The fruit is an ellipsoid capsule 5–9 mm long, splitting open by two longitudinal seams to expose the numerous tiny red seeds.

USES: An infusion of the bark is taken as a purgative (*fakahinga*) for treating stomachache (*langa kete*) and other internal disorders.

TE'ETE'EMANU

SCIENTIFIC NAME: *Ervatamia obtusiuscula*

FAMILY: Apocynaceae (dogbane family)

Ervatamia obtusiuscula is native from Vanuatu (the New Hebrides) to Samoa and probably farther eastward to the Tuamotus and Society Islands. It is uncommon in native lowland and disturbed forests of Tonga.

The plant is a small tree up to 5 m or more in height, with milky sap. The simple, oppositely arranged leaves are glabrous and thin, and have an elliptic to ovate blade 6–18 cm long. The flowers are in

few-flowered axillary cymes up to 10 cm long. The showy white corolla has a narrow tube 8—18 mm long and a limb of five spreading lobes. The fruits usually consist of a pair of spreading, ovoid “mericarps” 1—2 cm long that are orange at maturity.

USES: An infusion of the leaves is sometimes used to treat mouth infections (*pala ngutu*) of infants, and sometimes for toothache (*langa nifo*) and infections of the teeth or gums.

TELIE

SCIENTIFIC NAME: *Terminalia catappa*

FAMILY: Combretaceae (tropical almond family)

ENGLISH NAME: tropical almond

Terminalia catappa is distributed from tropical Asia to Polynesia, but has been introduced over much of this range, possibly including Tonga. The tree is widely planted in coastal villages for its edible fruit, but since much effort is needed to extract the small kernel, it is eaten mostly by children, or, in times of famine, by anyone. The fine wood is used for making houses, utensils, and gongs.

The plant is a large tree up to 30 m in height, with a broad trunk and thick, spreading branches. The simple, alternately arranged leaves are clustered at the ends of the branches, and have glossy, obovate blades mostly 8—30 cm long, turning red before falling. The small, white, five-lobed flowers 3—5 mm in diameter are numerous on spikes 8—23 cm long. The fruit is a red to purplish, winged, laterally compressed ovoid drupe 2.5—6 cm long with a corky, fibrous husk surrounding the small, edible kernel.

USES: An infusion of the young leaves (*muka*) or bark is commonly given orally to treat mouth infections (*pala ngutu*, *pala fefie*, and *pala hina*), mostly for infants. This may act as an emetic in infants, but usually not in adults. It is used in the same way as *toa* (*Casuarina equisetifolia*), but its effect is milder.

TŌ

SCIENTIFIC NAME: *Saccharum officinarum*

FAMILY: Poaceae or Gramineae (grass family)

ENGLISH NAME: sugar cane

Saccharum officinarum is native to the Old World tropics, and was an ancient introduction as far east as Hawai'i. It is grown commercially in large fields in much of the tropics, but in Tonga it is cultivated in small patches in plantations and around houses, and is only used locally for the sugar in its stems and for its leaves that are fashioned into roofing thatch.

The plant is a tall perennial grass up to 4 m or more in height, with thick, hard stems 3—5 cm in diameter and marked by conspicuous nodes. The lanceolate leaves are up to 1.5 m long, falling from the lower stems when they wither. The flowers are in large, dense, feathery, ovoid, terminal panicles with many fragile, jointed branches. The paired spikelets are similar and have long silky hairs spreading from the base.

USES: Ash from the leaves, mixed with Tongan oil, is sometimes applied to burns (*vela*). The use of ashes of grass family members is widespread in Polynesia. In Samoa, the aboriginal bamboo (a grass) was reportedly used for this purpose.

TOA

SCIENTIFIC NAME: *Casuarina equisetifolia*

FAMILY: Casuarinaceae (ironwood family)

ENGLISH NAMES: ironwood, she-oak

Casuarina equisetifolia is distributed from India and Australia to eastern Polynesia. Although common on sea coasts and able to be dispersed by sea water, it was probably an ancient introduction in Polynesia. Ironwood, as the name implies, has a hard, heavy wood once esteemed for making spears, war clubs, tapa beaters, tool handles, and large fish hooks. The tree also has widespread medicinal uses, mostly by virtue of a high tannin concentration in its astringent bark.

The plant is a tall, pinelike tree up to 20 m in height. The leaves are reduced to rings of scales around long, slender, finely longitudinal-grooved, pineneedle-like branches less than 1 mm in diameter. The flowers are unisexual: the male flowers are in slender terminal spikes, and the female flowers are in globose, short-stalked heads covered with conspicuous red-brown styles. The conelike, subglobose to ovoid fruit is mostly 1.5—3 cm long, and brown and woody at maturity.

USES: An infusion of the bark is commonly taken as a potion or squeezed into the mouth of infants with mouth infections (*pala ngutu*). This medicine usually has an emetic (*fakalua*) effect, which will induce vomiting or coughing to bring up phlegm. Also, an infusion of the bark is sometimes taken for stomachache (*langa kete*), acting as a purgative (*fakahinga*) as well as an emetic.

TOI

SCIENTIFIC NAME: *Alphitonia zizyphoides*

FAMILY: Rhamnaceae (buckthorn family)

Alphitonia zizyphoides is native from Vanuatu (the New Hebrides) to the Societies or Marquesas, and is occasional in native and disturbed forests of Tonga. Its hard wood is used for construction and for artifacts such as the loglike “anvil” upon which tapa cloth is pounded.

The plant is a large tree up to 15 m or more in height. The simple, alternately arranged leaves have an oblong to ovate blade 5–15 cm long, dark green on the upper surface and gray below. The flowers are in dense, axillary and terminal cymes 3–10 cm long. The petals are tiny and inconspicuous; the white, deeply five-lobed calyx is 1–1.5 mm long. The fruit is a globose drupe 6–9 mm in diameter and black at maturity.

USES: The bark, along with that of several other tree species, is boiled and taken for treating a complex of abdominal ailments collectively known as *kahi*. One kind commonly mentioned is *kahi mui fa’ele*, prolapsed rectum in postpartum women. See **manonu**. The same medicine is taken for treating stomachache (*langa kete*).

TONO

SCIENTIFIC NAME: *Centella asiatica*

FAMILY: Apiaceae or Umbelliferae (carrot family)

ENGLISH NAME: Asiatic pennywort

Centella asiatica is native to tropical Asia, but is now widespread in the tropics and subtropics. It was a Polynesian or early European introduction to Tonga, where it is now a common weed of damp, sunny

or shady places such as forest clearings and pastures, and is often grown around houses for its medicinal uses.

The plant is a low, glabrous herb with erect leaves and prostrate stems that root at the nodes. The simple, alternately arranged leaves appear clustered at the nodes and have a broadly cordate to reniform blade, often broader than wide, 2–7 cm across. The small, inconspicuous flowers are in short umbels borne at the leaf axils close to the ground. The fruit is a ribbed, subglobose, capsule about 3 mm long that separates at maturity into two 1-seeded segments.

USES: This is one of the plants most commonly used to treat infants and children. An infusion of the leaves, often with those of **kihikihi** (*Oxalis corniculata*), is commonly rubbed around an infant's infected navel (*tāpitopito*) and at the same time given as a potion. Similar remedies for ailments of infants are reported from Samoa. See **kihikihi**. Also, an infusion of the leaves is sometimes rubbed onto the head of an infant with a late-closing fontanel (*mavae ua*).

TOUHUNI

SCIENTIFIC NAME: *Tournefortia argentea*

FAMILY: Boraginaceae (heliotrope family)

ENGLISH NAME: tree heliotrope

Tournefortia argentea, formerly known as *Messerschmidia argentea*, is native from Madagascar to the Tuamotus, and is found on most of the low and high islands of Micronesia and Polynesia. It grows in littoral forest on rocky and sandy coasts, often being the tree species closest to the ocean, and is sometimes cultivated in villages.

The plant is small tree up to 5 m or more in height. The simple leaves, alternately arranged but appearing whorled at the branch tips, are fleshy and densely silky-pubescent, with an oblanceolate to obovate blade 10–20 cm long. The flowers are borne in branching scorpeoid cymes up to 20 cm long, and have a small, white, campanulate, five-lobed corolla *ca.* 2 mm long. The green, globose fruits are 3–6 mm long and split into four nutlets.

USES: An infusion of the leaves is occasionally taken for treating food poisoning (*kona 'ae mea kai*) caused by eating tainted fish. This same preparation is taken as a potion, or the juice from the leaves is dripped directly onto infected cuts (*kona 'ae lavea* or *lavea palangia*). It is also

sometimes spread onto stings (*hukia*) from poisonous fish called *nofu* and *kopoa*.

TUITUI

SCIENTIFIC NAME: *Aleurites moluccana*

FAMILY: Euphorbiaceae (spurge family)

ENGLISH NAME: candlenut

Aleurites moluccana is probably native to the Malaysia area, but was carried by ancient seafarers throughout the Pacific islands as far east as Hawai'i. It is mostly restricted to villages and plantations in Tonga, where it is cultivated for its oily seed. In ancient times, the roasted and shelled seeds, strung together on a skewer, were burned as a light source throughout Polynesia, hence the English name candlenut. The soot from the burning nuts is used to produce the black dye used on tapa cloth and formerly for the ink used in Tongan tattooing.

The plant is a large tree up to 25 m in height, with young stems and foliage having a mealy surface with a characteristic gray-green color. The simple, alternately arranged leaves have an ovate to irregularly palmately-lobed blade 9–22 cm long. The unisexual flowers are in dense panicles. The white, five-lobed corolla is 5–10 mm long. The fruit is a subglobose drupe 3.5–4.5 cm long, green at maturity and containing a hard, bony shell enclosing the oily seed.

USES: An infusion of the leaves is sometimes applied as a lotion or is taken orally for treating mouth infections (*pala ngutu*) of infants. Also, the bark, along with that of several other species, is boiled to make a potion taken for treating a complex of abdominal ailments collectively known as *kahi*. See *manonu*.

TUTU 'ULI

SCIENTIFIC NAME: *Jasminum simplicifolium*

FAMILY: Oleaceae (olive family)

ENGLISH NAME: wild jasmine

Jasminum simplicifolium is native from eastern Australia to Tonga and Fiji, and in Tonga occurs in native and disturbed forest from near sea level up to the highest elevations. The vine has small, showy

flowers, but is not reported to be cultivated or used to scent coconut oil, as are several introduced species.

The plant is a high-climbing liana with woody but relatively thin stems. The simple, oppositely arranged leaves have an ovate to nearly elliptic blade 4–10 cm long. The flowers are in axillary cymes, with a fragrant, white, five- or six-lobed salverform corolla 12–20 mm long, containing only two stamens. The fruit is composed of two subglobose lobes 10–16 mm in diameter and is black at maturity.

USES: An infusion of the bark, or sometimes the leaves, is taken as a potion for treating “swollen liver” (*ate pupula*). Jaundice (*engeenga*) is sometimes one of the symptoms.

UHI

SCIENTIFIC NAME: *Euodia hortensis*

FAMILY: Rutaceae (citrus family)

Euodia hortensis is widely distributed from Melanesia and Micronesia eastward as far as Niue, but is probably an ancient introduction to Polynesia. It grows around houses and in plantations in Tonga, rarely if ever escaping to native forest. The shrub is well known as a medicinal plant whose usage probably dates to ancient times.

The plant is a shrub or small tree up to 6 m in height, but is usually much shorter. The fragrant, oppositely arranged, trifoliate leaves have three oblanceolate leaflets 7.5–15 cm long, or are sometimes simple with a linear-lanceolate blade 10–30 cm long. The flowers are in racemes or narrow panicles up to 25 cm long, borne in the upper leaf axils. The corolla has four tiny white petals 1–2 mm long. The fruit is divided into four subglobose, one-seeded sections less than 5 mm long; it is green at maturity and splits open to release the seeds.

USES: An infusion of the leaves is taken as a potion, or is sometimes rubbed onto the body or used in a steambath for treating ailments thought to be caused by evil spirits (*tevolo*). These include swollen eye (*mata pupula*, believed to be caused by the slap from a *tevolo*), swollen testicles (*lohofua*), or other body swellings. An infusion of the leaves is sometimes used as a massage for headache (*langa 'ulu*), probably one that is believed to be caused by the actions of *tevolo*.

VAVAE TONGA

SCIENTIFIC NAME: *Gossypium barbadense*

FAMILY: Malvaceae (mallow family)

ENGLISH NAME: cotton

Gossypium barbadense is native to South America, but is now widely cultivated in the tropics and subtropics. It was introduced throughout the Pacific Islands during the 19th century and was widely cultivated as an export crop until the 1870s or so. Today in Tonga it is sometimes grown around houses.

The plant is a shrub or small tree up to 3 m or more in height, with tiny black dots on the vegetative parts. The simple, alternately arranged leaves have a deeply palmately-lobed blade mostly 5–12 cm long. The flowers are axillary, solitary, and surrounded by three deeply toothed bracts. The corolla is composed of five petals *ca.* 5 cm long, yellow with purple at the base, and with the stamens united into a tube. The fruit is an ovoid capsule *ca.* 1.5–3 cm long, splitting open to release the seeds, which are covered with fine white hairs (cotton).

USES: The juice from the leaves is dripped onto infected (*palangia* or *kona*) or fresh cuts (*lavea*).

VI

SCIENTIFIC NAME: *Spondias dulcis*

FAMILY: Anacardiaceae (cashew family)

ENGLISH NAMES: Otaheite apple, Polynesian plum

Spondias dulcis is native to the Malaysian area, but is now widely distributed in Southeast Asia, and was introduced by ancient seafarers into Polynesia as far east as the Marquesas. It is widely cultivated in villages and plantations in Tonga and the rest of Polynesia, but is not reported to be naturalized. The tree is grown mainly for its edible fruit that is much esteemed by Tongans, but is also valued for its use in native medicines, some of which date to ancient times.

The plant is a large, spreading tree up to 20 m in height. The alternately arranged, odd-pinnately compound leaves have 5–15 pairs of lanceolate to elliptic leaflets mostly 4–10 cm long. The tiny flowers are numerous in large, branched panicles, and have a white corolla *ca.* 2 mm long. The fruit is an ovoid or obovoid drupe up to 8

cm long and yellowish at maturity, with an edible outer, fibrous, fleshy portion enclosing the large seed.

USES: An infusion of the bark or leaves is taken as a potion for treating stomachache (*langa kete*). An infusion of the leaves is occasionally dripped onto eye inflammations such as “pink eye” (*mata kovi*) and red, watery eyes (*pokia*). Also, an infusion of the bark is sometimes taken as a potion for treating diarrhea (*fakalele*) and teething problems (*nifo tonga*) of infants.

VOLOVALO

SCIENTIFIC NAME: *Premna serratifolia*

FAMILY: Verbenaceae (verbena family)

Premna serratifolia, formerly known as *Premna obtusifolia*, is distributed from tropical East Africa to the Marquesas, and is native to Tonga, where it most commonly occurs near the shore in littoral scrub vegetation. Several other species have been described in the area, but these may all be part of one variable and wide-ranging species.

The plant is a shrub or small tree up to 3 m or more in height. The simple, oppositely arranged leaves have an ovate to oblong blade up to 20 cm long. The tiny flowers are numerous in widely branching panicles. The white, sympetalous corolla is four-lobed and 2–3 mm long. The fruit is a black, globose drupe 3–9 mm in diameter, with a persistent saucerlike calyx at the base.

USES: An infusion of the leaves is sometimes rubbed onto the skin to treat skin inflammation (*kulokula*) and is taken as a potion for the same purpose.