

Which Species of *Ficus* subsection *Urostigma* in Thailand are used as Food, Ornamental Plants or Sacred Trees?

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ABSTRACT: During field trips in Thailand, October 2010 and November 2011, samples of *Ficus* subsection *Urostigma* were collected for a taxonomic project, at the same time information on the uses proved to be an additional profit. The uses of eight species were recorded, at least five species are food plants, especially in northern Thailand, six are (also) ornamental plants widely growing in every region, and seven species are sacred trees, present everywhere in the country.

KEY WORDS: *Ficus*, *Urostigma*, fig trees.

INTRODUCTION

Ficus subsect. *Urostigma* (Gasp.) C.C.Berg contains 27 species, of which 5 species are from continental Africa, Madagascar, and the Arab Peninsula and 22 species are found in Asia, Australia and the West Pacific (Berg and Corner, 2005). Twelve species were recorded for Thailand, which are all deciduous plants, and most are essentially hemi-epiphytic, without abundant aerial roots, though some species may be terrestrial. *Ficus orthoneura* H.Lév. & Vaniot is the only shrub within this subsection that is present in Thailand. The trees show intermittent growth, the leaves are always spirally arranged, the margin is always entire and the venation is basically pinnate and brochidodromous. The leaves are articulate in most species. Stipules

are often conspicuous as part of the terminal bud cover. They show differences in length, even on the same plant, usually quite long, thin and caducous on the open shoots, and shorter, usually not longer than 2 cm, persistent and thicker on the closed shoots. The figs are often borne below the leaves, sometimes in the leaf axils, and in some species on spurs on the older wood. They occur solitary or in pairs, to up to 8 figs together on the spurs. The staminate flowers of all species in Thailand occur near the ostiole (opening). The ovaries of the pistillate flowers are red-brown.

Mankind has already used *Ficus* species for a long time. *Ficus carica* L. is one of the famous species; it has been cultivated for more than 5000 years (Goor, 1965), and its products

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are sold worldwide even today. *Ficus* and the Asian people have a long standing relation, because *F. religiosa* L. is a sacred tree within Buddhism and Hinduism for more than 2500 years. At least 16 species are used in India as food (Ambasta, 1986), 10 species are known for their edible fruits (Verheij and Coronel, 1991) and 11 species are used as vegetables (Siemonsma and Piluek, 1993) in SE Asia. Many species are medicinal plants, 16 species are used in India in traditional medicine (Ambasta, 1986), and 26 species are used for medicinal reasons or as poison in SE Asia (de Padua *et al.*, 1999). Other species of *Ficus* are valuable for various products, e.g., the inner bark of *F. altissima* Blume is suitable for the production of paper, and the wood of *F. benghalensis* L., *F. glomerata* Roxb., and *F. retusa* L. is used for furniture (Ambasta, 1986). The latex from *F. elastic* Roxb. ex Hornem. contains rubber, which can be applied as natural rubber (Boer and Ella, 2000). The leaves of many species are fodder to cattle.

Ficus has a strong tradition in all levels of Thai society. Seventeen species are reported as food in Thailand, many species provide medicine or are related to religion (Eiadthong, 2004). *Ficus racemosa* L. is one of the famous fig species in Thai culture; it is the symbolic tree of Chumphon province, and its wood is very important in royal rituals, because the throne used during the royal coronation was made from its wood.

Similar to other groups of *Ficus*, species of *F. subsect. Urostigma* have also been used by humans for a long time. The legends of Buddhists recount a sacred fig tree which was important more than 2550 years ago, when Gautama Buddha became enlightened under this Bodhi tree in Bodh Gaya, India; *Ficus religiosa* L. is the scientific name for this species.

Another species, *F. arnottiana* (Miq.) Miq., is a well-known medicinal plant used in Indian traditional medicine to treat several ailments (Gregory *et al.*, 2009). And finally, young leaves of *F. superba* Miq. are eaten cooked as a vegetable in SA Asia (Siemonsma and Piluek, 1993).

In this study we investigated if more species of *Ficus* subsection *Urostigma* have been used and how they have been used.

MATERIALS AND METHODS

The studies were executed in the provinces of Chiang Mai and Chiang Rai in northern Thailand, Bangkok and Pathum Thani in the central part, Chachoengsao and Rayong in the south-eastern, Krabi and Nakhon Si Thammarat in the peninsular part of Thailand. Three main topics were studied: food, ornamental and religious use. Information on the use as food were recorded by interviewing the people in each area, e.g., 21 persons in Chiang Mai, 17 persons in Chiang Rai, 9 persons in Chachoengsao, 13 persons in Rayong, 28 persons in Nakhon Si Thammarat, and 7 persons in Krabi;

no persons were interviewed in Bangkok and Pathum Thani. The use as religious or ornamental plants was observed directly during the trip.

RESULTS AND DISCUSSION

Eight species from a total of twelve Thai species of the subsection are utilized, five species as food, seven as sacred trees, and six as ornamental plants.

Food Trees

Many species of *Ficus* subsect. *Urostigma* are used as food. The parts eaten are the fruits and leaves. De Padua *et al.* (1999) reported that the fruits and tender leaf buds of *F. religiosa* are edible. The young syconium (fig) of *F. virens* Aiton and young leaves of *F. superba*, *F. subpisocarpa* Gagnep., and *F. virens* are used as vegetables (Eiadthong, 2004).

Five species are used as food in the north, two species in the southeast and only one in the south. The Thai name “Phak Huead Deang (ผักเหือดแดง)” used in the north relates to three species, *F. geniculata* Kurz subsp. *geniculata*, *F. virens* var. *glabella* (Blume) Corner, and *F. caulocarpa* (Miq.) Miq.

Ficus superba : The species inhabits areas close to the sea in the south-eastern and peninsular. The Thai name is “Leab (เลียบ)”. The people in Rayong and Nakhon Si Thammarat use it as food. Young shoots (and leaves) are cooked as curry or boiled with coconut milk and served with

chili paste. The plants are usually collected in the wild.

Ficus subpisocarpa : The species is distributed all over Thailand. Its name is also “Leab (เลียบ)”, which shows the usual confusion with *F. superba*, especially in the coastal areas where both *F. superba* and *F. subpisocarpa* co-occur. However, this does not present a big problem for the utilization as similar parts are used for comparable dishes. Young shoots (and leaves) are cooked or eaten in the northern and south-eastern. In the northern, the species is cooked as a curry or used in a salad and the use in the south-eastern is similar to that of *F. superba*.

Ficus geniculata* subsp. *geniculata : It is found in all parts of Thailand, usually in plantations in the northern part. The young shoots (and leaves) are red. The Thai name is “Phak Huead Deang (ผักเหือดแดง)” and it is cooked as a curry or used as a salad.

Ficus geniculata* subsp. *insignis (Kurz) C.C.Berg: Also distributed in all parts of Thailand, but most common in the northern, where it is also used in plantations. Young shoots (and leaves) are pale green. The name is “Phak Huead Khaw (ผักเหือดขาว)” and it is also cooked as a curry or used as a salad like subsp. *geniculata*.

Ficus virens* var. *glabella : distributed in all parts of Thailand. Commonly used in plantations in the northern part and often misidentified as *F. geniculata* subsp. *geniculata*.

Young shoots (and leaves) are red, like *F. geniculata* subsp. *geniculata*, and it is also called “Phak Huead Daeng (ผักเหือดแดง)”. It is used in curries or salads, just like *F. geniculata* subsp. *geniculata*.

***Ficus caulocarpa*:** Distributed in all parts of Thailand. In the northern part this species grows together with and closely resembles *F. geniculata* and *F. virens*, and, therefore, it is usually misidentified as *F. geniculata* subsp. *geniculata*. Again, also called “Phak Huead Daeng (ผักเหือดแดง)”, because young shoots (and leaves) are also red. Its cooking process is similar to that of *F. geniculata*.

Religious or Sacred Trees

Ficus religiosa is a well-known sacred tree in Thai culture. It usually grows near Buddhist temples. People in the northern part believe that this tree is holy; every year, when a full moon is present, they have a ritual during which they place poles against the tree to support it, expecting support in life in return. Furthermore, it is also the symbolic tree of the province Prachin Buri. Not all trees of *F. religiosa* are automatically sacred trees. If sacred, then the tree should originally have been a cutting of the Mahabodhi Tree in the Sri Mahabodhi Temple in Bodh Gaya, or it should have grown large and been used in religious rituals or royal ceremonies. For other species, only big *Ficus* trees are accepted as sacred trees and the seedlings or saplings are not regarded sacred.

Sacred trees in Thailand are easy to recognize, because of the evident use of colourful cloths wrapped around the trunks, or there are flowering garlands hanging from the stems, or small shrines are placed close to the tree, and the trees may sometimes also have some gnomes around them.

The mature trees of seven species of *Ficus* subsect. *Urostigma* are regarded sacred in Thailand. The most popular is *F. religiosa*, which mostly grows near Buddhist temples, but Thai people commonly misidentify *F. rumphii* Blume as *F. religiosa* and also believe it to be related to Buddhism. Still, big sized specimens of *F. rumphii* are regarded sacred just like other colossal *Ficus* trees.

The sacred tree species found are *F. superba*, *F. subpisocarpa*, *F. geniculata* subsp. *geniculata*, *F. virens* var. *virens*, *F. virens* var. *glabella*, *F. caulocarpa*, and *F. concinna* (Miq.) Miq.

Ornamental Plants

In spite of the fact that all species of *Ficus* subsect. *Urostigma* in Thailand are deciduous trees some species are also popular as ornamental plants. They are usually cultivated in recreational parks or public places. Six species are especially popular ornamental plants.

Ficus religiosa is not only a sacred tree but also an ornamental that is commonly planted near monasteries or in official places. *Ficus concinna* is generally found in recreational

parks or public places, many are present in the Dusit Zoo in Bangkok, where its fruits are favorite among frugivorous birds, which makes the species a favourite landmark for bird watchers. Both subspecies of *F. geniculata*, and *F. virens* var. *glabella*, and *F. caulocarpa* are mainly planted in domestic areas in the northern part. Even when principally planted as food tree they are also used by many people as shade trees or as an ornamental plants.

One shrub species, *F. orthoneura* inhabits limestone mountains. We found it growing in a pot in Pathum Thani.

CONCLUSION

Eight out of twelve species of *Ficus* subsect. *Urostigma* in Thailand are used by the Thai people. In the northern part people know exactly how to use the shoots (and young leaves) for food. However, we never found the fruits to be eaten.

In all regions of Thailand species of the subsection are used as ornamental plant or as sacred, religious tree. Especially, *F. religiosa* is very popular as sacred tree, but it is also used as an ornamental plant.

The useful species *F. geniculata* subsp. *geniculata*, *F. geniculata* subsp. *insignis*, *F. virens* var. *glabella* and *F. caulocarpa* are valuable in all three uses that we evaluated (food, religious, ornamental).

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Appendix



A sacred tree, *Ficus superba*, in Kleang, Rayong province.



Ficus geniculata subsp. *geniculata* in Ban Tham village, Chiang Dao, Chiang Mai province.



A plate of *Ficus superba* shoots with coconut milk from Kleang, Rayong.