

CHAPTER 2

DESCRIPTION OF THE PLANTS

2.1 *Phyllanthus acidus* (L.)Skeels:

The *Phyllanthus acidus*, also called Malay gooseberry, Tahitian gooseberry, country gooseberry, star gooseberry, West India gooseberry, simply gooseberry tree, is one of the trees with edible small yellow berries fruit in the Phyllanthaceae family. Despite its name, the plant does not resemble the gooseberry, except for the acidity of its fruits (*Morton et. al, 1987*).

Synonyms of *Phyllanthus acidus* (L.)Skeels are:

Cicca disticha Linn.

Cicca acida Linn

Averrhoa acida Linn

Cicca acidissima Blanco

Phyllanthus distichus Muell.-Arg

(*Phyllanthus*- Wikipedia, the free encyclopedia,
http://en.wikipedia.org/wiki/Phyllanthus_acidus)

Taxonomic position of *Phyllanthus acidus* (L.)Skeels:

Kingdom	Plantae
Superdivision	Spermatophyta
Division	Magnoliophyta
Class	Magnoliopsida
Subclass	Rosidae
Order	Euphorbiales
Family	Euphorbiaceae
Genus	<i>Phyllanthus</i>
Species	<i>Phyllanthus acidus</i>

(*Phyllanthus*- Wikipedia, the free encyclopedia)
(http://en.wikipedia.org/wiki/Phyllanthus_acidus)



Fig 2.1(a) Photograph of *Phyllanthus acidus* (L.)Skeels tree with fruit twig.



Fig 2.1(b) Photograph of *Phyllanthus acidus* (L.)Skeels fruits.

Some of the local names of *Phyllanthus acidus* (L.)Skeels are listed in the Table 2.1 (a).

Table 2.1(a): Local names of *Phyllanthus acidus* (L.)Skeels:

Burmese -thinbozihpyoo
English -country gooseberry, stargooseberry, Malay gooseberry
Filipino-karmay, bangkiling, iba
French-cerisier de Tahiti
Indonesian-cerme, ceremai, caramele
Lao -mak nhom, nhombaanz, nhom ban
Malay -kemangul, chermala, chermai
Spanish-grosella
Thai- ma rom
Vietnamese-t[aaf]m ru[ooj]t, ch[uf]m ru[ooj]t
Java- cherme, tjerme, or tjareme
Laos- mak-nhom
India-star gooseberry, West India gooseberry, jimbling, chalmeri
Mexico -ciruela corteña, manzana estrella
El Salvador- pimienta or guinda
Costa Rica, Cuba, Guatemala, Nicaragua - grosella
Brazil-groselha
French West Indies - groseillier des Antilles
Puerto Rico - cereza amarilla, cerezo comun, cerezo de la tierra
Venezuela-cerezo agrio
Cuba- cerezo occidental Belize, Yucatan-wild plum
Jamaica-cheramina, jimbling, short jimbelin

(medicinalplants-india.blogspot.com/.../taxonomy-of-cicca-acida-tree-country. Html)

(www.stuartxchange.org/Iba.html)

(www.plantnames.unimelb.edu.au/new/Phyllanthus.html)

www.worldagroforestrycentre.org/sea/.../SpeciesInfo.asP

(Morton et al., 1987).

In Indian literature, *Phyllanthus acidus* (L.)Skeels is identified by the following vernacular names. Some of the vernacular names are given below the Table 2.1(b).

(www.ars-grin.gov/misc/mmpnd/Phyllanthus.html)

(forest.ap.nic.in/.../Family/Euphorbiaceae.htm)

Table 2.1(b): Vernacular names of *Phyllanthus acidus* (L.)Skeels

Sanskrit	-	Lavali, Laveni, Pandu, Skandhaphara
Hindi	-	Chalmeri, Harparauri, Harphanevadi
Bengali	-	Aamloki, Laboire
Manipuri	-	Lahori, Gahori
Kanarese	-	Rayara nelli
Marathi	-	Roi-avala, Harparrevdi
Napalese	-	Hari phala, Kaathe amalaa, Paate amalaa
Telegu	-	Racha Usiri
Tamil	-	Aru Nelli, Chinna Nillikai
Malayalam	-	Arinellikkaor, Caturanellikka nellikka puli
Rajasthan	-	Harpharevadi
Kanada	-	Aranelli
Assamese	-	Amlakhi

(http://en.wikipedia.org/wiki/Phyllanthus_acidus)

(www.plantnames.unimelb.edu.au/Sorting/Phyllanthus.html)

2.1.1: Botanical description of *Phyllanthus acidus* (L.)Skeels

Phyllanthus acidus (L.)Skeels is a curious and an ornamental shrub or tree, 6 1/2 to 30 ft (2-9 m) high, with spreading, dense, bushy crown of thickish, rough, main branches, in general aspect resembling the Bilimbi. At the branch tips are clusters of deciduous, greenish or pinkish branchlets 6 to 12 in (15-30 cm) long, bearing alternate, short-petioled, ovate or ovate-lanceolate, pointed leaves 3/4 to 3 in (2-7.5 cm) long, thin, green and smooth on the upper surface, blue-green with a bloom on the underside; altogether giving the impression of pinnate leaves with numerous leaflets. (*Morton et al., 1987*).

Leaves pinnate, 20-40 cm long. Leaflets alternate, simple, entire, shortly petiolate, broadly ovate to ovate-lanceolate, (4-)5-9 cm x (2-)2.5-4.5 cm, base obtuse to rounded, apex acute, petiole 2.5-4 mm long, stipules triangular -acuminate.

Flowers small, pink, in dense, cushion-shaped cymules at the nodes of leafless branches on older wood, and usually also on proximal branchlets of current year's growth, pale green to reddish; male flowers 4-merous, filaments and anthers free, dehiscing vertically; female flowers on a stout pedicel, 4-merous, disk deeply lobed or split, styles connate, deeply bifid, staminodes present, ovary superior.

Fruit drupaceous, oblate, 1-1.5 cm x (1.2-)1.5-2(-2.5) cm when fresh, shallowly 6- or 8-lobed, greenish yellow to creamy-white; flesh firm, sour with a hard, bony, grooved stone containing 6-8 smooth seeds.

(*Profile for *Phyllanthus acidus* (Tahitan gooseberry tree) USDA PLANTS.html.*)

http://en.wikipedia.org/wiki/Phyllanthus_acidus

2.2 *Croton caudatus* Geiseler:

Croton is an extensive flowering plant genus in the spurge family, Euphorbiaceae, established by Carl Linnaeus in 1737. The plants of this genus were described and introduced to Europeans by Georg Eberhard Rumphius (*Gledhill, 2008*).

The generic name of the plant, *Croton* is derived from the Greek word 'Kroton' meaning a sheep tick which the seeds of this plant resemble whereas the specific name, *caudatus* is derived from the Latin word 'caudum' meaning 'Tail like' which the shape of the inflorescence resembles(*Gledhill, 2008*).

Taxonomic position of *Croton caudatus* Geiseler:

Kingdom - Plantae

Division - Magnoliophyta

Class - Magnoliopsia

Order- Malpighiales

Family - Euphorbiaceae

Subfamily-Crotonoideae

Genus - *Croton*

Species - *Caudatus*

Botanical name - *Croton caudatus* Geiseler

(www.sith.itb.ac.id/herbarium/index.php?c=herbs&view=detail)

Some of the local names of *Croton caudatus* Geiseler are listed in the Table 2.2 (a).

Table 2.2(a). The local names of *Croton caudatus* Geiseler are:

Philippines- Alimpai.

Malaysia- Tapasan Komudi.

China- luan ye ba dou

English name-Caudated croton

French name-Crotonier caude (*wiki.answer.com*)

Burmese-Piak hi a, huai ahihleh (*zogam cdn.net/ news/ Manipur.../3438*)

Indonesian-Las casae de croton

(*elchoke.blogspot.com/2006/10/las-casas- de-carton.html.*)

In Indian literature, *Croton caudatus* Geiseler is identified by the following vernacular names. Some of the vernacular names are given below the Table 2.2(b).

Table 2.2(b). The vernacular names of *Croton caudatus* Geiseler are:

Bengali - Nan bhantur. (*books.google.co.in/books?isbn =8171541429*)

Manipuri - Khagi laicoi, Yong khulokpi pambi

Uttaranchal - Sawaka, Sonaphula (*http://jms.imde.ac.cn*)

Assamese - Lota-mahudi

(*assamplants.sulekha.com/bolg/post/2011/05/.../01/comments.htm/*)

Hmar - Ranlung-Damdeis

Arunachal Pradesh – Lotamahudi

Nepali name-Holongre

(*www.eson.org.np/ database/ index.php? tax=1 &work...obj*)



Fig2.2 (a): Photograph of *Croton caudatus* Geiseler plant



Fig 2.2(b): Photograph of Inflorescence of *Croton caudatus* Geiseler plant.



Fig 2.2(c): Photograph of yellowish gland of *Croton caudatus* Geiseler plant.

2.2.1: Botanic description of *Croton caudatus* Geiseler

Croton caudatus Geiseler belongs to the botanical family euphorbiaceae is a straggling shrub or woody climber. It is a large scandent shrub; young parts stellately bristly, hairy, bark brownish-black, old bark exfoliating in pieces exposing a whitish surface, blaze greenish white; wood whitish.

Leaves are 1.5-6 x 0.8-3.5 in., ovate, sub-orbicular or ovate-acuminate, coarsely toothed or crenateserrate, sub-coriaceous,

scaberulous above, stellately pubescent beneath, cordate or almost truncate. Racemes slender, 4.10 in long, stellately pubescent. The leaves are extremely variable, the smaller ones being ovate-cordate and 2.5 to 7.5 centimeters long and the larger ones, orbicular-cordate and 10 to 18 centimeters long. The margin is coarsely toothed and often has a gland at the sinus or else in the teeth. The racemes are very long, slender, 10 to 18 centimeters long solitary and terminal.

Flowers in fascicles, male flowers tomentose, petals as long as sepals, wooly, stamens 18-30; female flowers- sepals ovate, oblong, petals very small. Flr. & Frt, April- October, the male flowers are hairy, with sepals and petals of equal length. The fruit (capsule) is woody nearly spherical or broadly oblong, 2 to 2.5 centimeters long, terete or with 6 slender ridges, densely yellow-brown stellate-hispid.

The seeds are unusually variable most often dorsally compressed and slightly rugose. Flowering may occur during May-August, fruiting during July-October.

(assamplants.sulekha.com/bolg/post/2011/05/.../01/comments.html/)

2.3: Bibliography

1. Available at www.assamplants.sulekha.com/bolg/post/2011/05/.../01/comments.htm/, last accessed on 19-May-12.
2. www.elchoke.blogspot.com/2006/10/las-casas-de-carton.html.
3. Govaerts, R., Frodin, D. G. and Radcliff-Smith, A. (2000). World Checklist and Bibliography of Euphorbiaceae (and Pandaceae). The Royal Botanical Garden, Kew. 4 vols.
4. Gledhill, D. (2008). The Names of Plants (4edn). Cambridge University Press, 126.
5. <http://jms.imde.ac.cn>, last accessed on 19-May-12.
6. http://en.wikipedia.org/wiki/Phyllanthus_acidus, last accessed on 19-May-12.
7. <http://forest.ap.nic.in/./Family/Euphorbiaceae.htm>, last accessed on 19-May-12.
8. Morton, J., Julia, F. and Miami, F. L. (1987). Otaheite gooseberry. In: Fruits of warm climates, 217–219.
9. Medicinalplants-india.blogspot.com/.../taxonomy-of-cicca-acida-tree-country.html.
10. Nowicke, J. W. (1994). A palynological study of Crotonoideae (Euphorbiaceae). *Annals of the Missouri Botanical Garden*. 81: 245– 269.
11. Profile for *Phyllanthus acidus* (Tahitan gooseberry tree) USDA PLANTS.html, last accessed on 19-May-12.
12. Phyllanthus- Wikipedia, the free encyclopedia http://en.wikipedia.org/wiki/Phyllanthus_acidus.
13. Radcliffe-Smith, A. (2001). *Genera Euphorbiacearum*. Royal Botanic Garden, Kew, UK.

14. Webster, G. L. (1993). A provisional synopsis of the sections of the genus *Croton* (Euphorbiaceae), *Taxon*, 42: 793–823.
15. Webster, G. L. (1994). Synopsis of the genera and suprageneric taxa of Euphorbiaceae. *Annals of the Missouri Botanical Garden*, 81: 33–144.
16. Webster, G. L. (2001). Synopsis of *Croton* and *Phyllanthus* (Euphorbiaceae) in western tropical Mexico. *Contributions from the University of Michigan Herbarium*, 23: 353–388.
17. www.ars-grin.gov/misc/mmpnd/Phyllanthus.html, last accessed on 19-May-12.
19. www.assamplants.sulekha.com/bolg/post/2011/05/.../01/comments.htm/
18. [www.books.google.co.in/books? ISBN=8171541429](http://www.books.google.co.in/books?ISBN=8171541429), last accessed on 19-May-12.
19. www.elchoke.blogspot.com/2006/10/las-casas-de-carton.html, last accessed on 19-May-12.
20. [www.medicinalplants-india.blogspot.com/.../taxonomy-of-cicca-acida-tree-country. Html](http://www.medicinalplants-india.blogspot.com/.../taxonomy-of-cicca-acida-tree-country.html), last accessed on 19-May-12.
21. www.plantnames.unimelb.edu.au/new/Phyllanthus.html, last accessed on 19-May-12.
22. www.plantnames.unimelb.edu.au/Sorting/Phyllanthus.html, last accessed on 19-May-12.
23. www.stuartxchange.org/Iba.html, last accessed on 19-May-12.
24. www.sith.itb.ac.id/herbarium/index.php?c=herbs&view=detail, last accessed on 19-May-12.
25. www.worldagroforestrycentre.org/sea/.../SpeciesInfo.asp, last accessed on 19-May-12.

26. [www.eson.org.np/database/index.php?tax=1 &work...obj](http://www.eson.org.np/database/index.php?tax=1&work...obj), last accessed on 19-May-12.
27. www.wiki.answer.com, last accessed on 19-May-12.
28. www.zogamcdn.net/news/Manipur.../3438, last accessed on 19-May-12.