

REMARKABLE TREES ON NII CAMPUS

3. The Golden Amaltas

S. Natesh*

Consultant Advisor, NII, New Delhi

Common name: Amaltas, golden shower tree, Indian laburnum

Botanical Name: *Cassia fistula* L.

Family: Pea Family (Fabaceae, Subfamily Caesalpinioideae)

Where to Find: Fairly common on the campus - In front of the main building, near Director's bungalow, opposite the RSH, and elsewhere



Amid the lush green ambience near the Director's bungalow, a lone Amaltas tree in full bloom is singularly eye-catching. There are 17 Amaltas trees on our campus.

*Unless otherwise acknowledged, the photographs are mine.

In the peak of the Delhi summer during the months of May and June, when the sky is hazy, the air is hot and dust-laden with temperatures soaring above 40°C, it is only natural for most of us to obey the urge to stay indoors and avoid getting into the sun. However, the Amaltas tree thrives precisely under these conditions! If there is one thing that could bring a smile to your face it is the Amaltas tree in full bloom. Its golden yellow flowers that droop down in long, chandelier-like inflorescences are truly a sight for gods.

Amaltas, or Indian laburnum is a native of India and south-east Asia (and thus has names in several Indian languages). The tree (Sanskrit *karnikāra*) finds a mention in the Ramayana (*Kishkindha Kānda* and *Aranya Kānda*) as growing near the Pampa lake and at the hermitage of the sage Matanga. It is also mentioned in the *AnushāsanaParva* of the Mahabharata as being found in the Kushika country. Currently, it grows wild in our drier forests but is cultivated widely all over the country, especially as an avenue tree as well as in parks and gardens.

COMMON NAMES	
Assamese:	Sonaaru
Bengali:	Amaltas, Bandarlatthi, Sonali
English:	Golden shower, Indian laburnum
Gujarati:	Garmala
Kannada:	Kakke
Malayalam:	Kanikkonna, Konna
Manipuri:	Chahui
Marathi:	Bahava
Oriya:	Sonaari
Sanskrit:	Aragwadha, Karnikara, Suvarnaka, Swarnapushpi, Swarnamukhi
Tamil:	Konnai, Sarakonrai
Telugu:	Raela

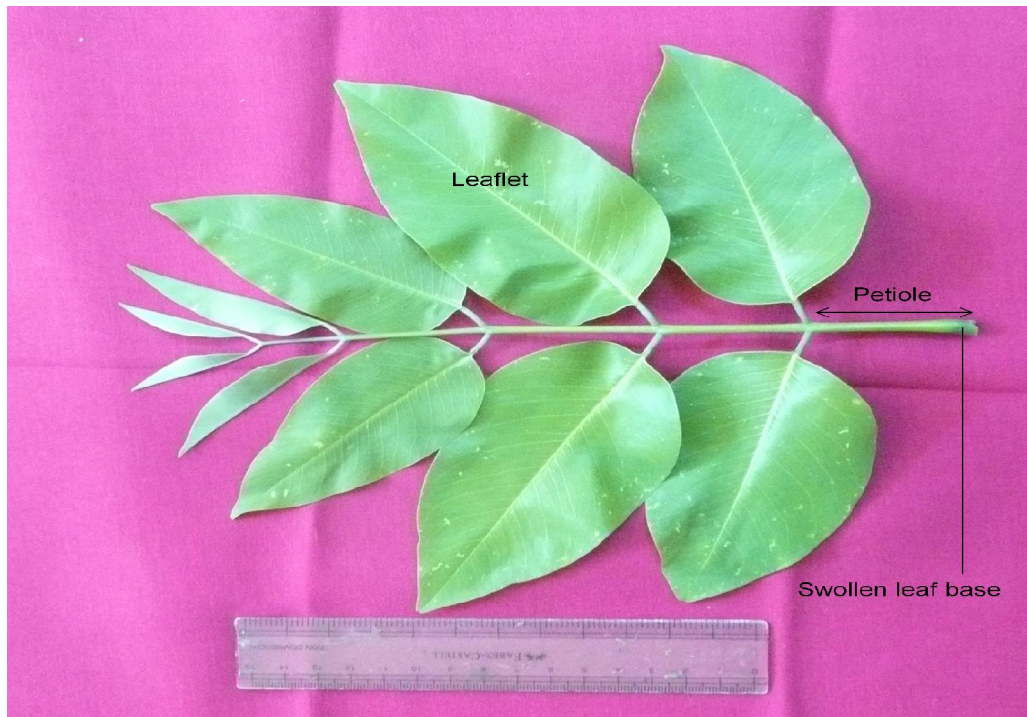
A moderate-sized tree reaching up to 9-10 m in height, Amaltas has an irregular canopy. The bark in younger trees is smooth and greenish-grey but turns brittle and yellowish-grey in older ones.

Leaves are alternately arranged in a spiral around the stem. New leaves often have a coppery sheen but turn a rich green as they mature. They are compound (once divided) and feather-like with 4-8 pairs of leaflets. The leaflets are somewhat oblong and ovate in shape and have smooth margins.

The fragrant flowers are arranged on terminal drooping clusters (inflorescences), often up to 40 cm long. Flowering in Delhi commences by the end of April usually peaking in mid-late May and continuing into early June. The tree is often leafless at the beginning of the flowering season. Each flower has a long stalk (pedicel) with green sepals and golden-yellow petals. There are 10 stamens of unequal length arranged as follows: three short and straight; four bent ones of median length; and three long ones bent into an 'S'. The shortest- and median length stamens together face the longer stamens. Of these, only the four median-length stamens are fertile. The pistil is greenish and curved a like 'C'.



The bark is smooth and greenish when the tree is young but turns darker and rough in older trees



n
The leaf is compound (once divided), feather-like and up to 45cm long, arranged alternately on the stem. Each leaf has between five and eight pairs of large leaflets. Thus the number of leaflets is always even. The base of the petiole (leaf stalk) is swollen. New leaves sometimes have a rich coppery tinge (see painting on page 0), but as they grow older they become shiny green. Leaves are shed in early April and fresh ones emerge in May.



Flowers occur in long drooping inflorescences resembling a chandelier. The older flowers are arranged towards the base and younger ones towards the tip. Such inflorescences are technically called 'racemes'.

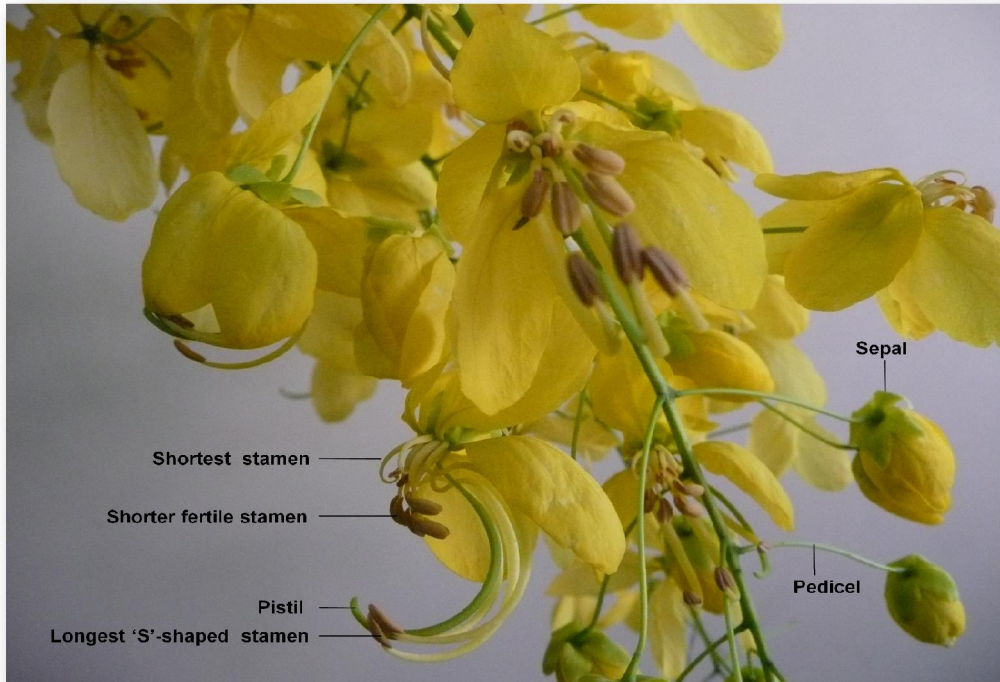
The fruit is a legume or a pod as in the gul mohar, but its shape here is cylindrical. The pod measures 30-60 cm in length and could contain between 40 and 100 seeds. Young fruits are green, but become brown and woody as they mature. They fall to the ground without splitting open.

ECONOMIC USES OF AMALTAS

Besides being an ornamental, Amaltas is economically useful in several ways. The wood is useful as fuel and for making agricultural implements. The bark yields an orange dye. Its Sanskrit name *Aragwadha* translates to 'disease destroyer'. In Ayurveda, the fruit pulp has been employed as a gentle laxative and has also been considered efficacious in treating skin diseases such as scabies, boils and glandular swellings. The fruit pulp is found to be a source of micronutrients (K, Ca, Fe, Mn), amino acids (aspartic acid, glutamic acid and lysine, and energy (18kJ/g) according to one study. Antioxidant properties have also been reported in the stem bark, leaves, flowers and fruit pulp.



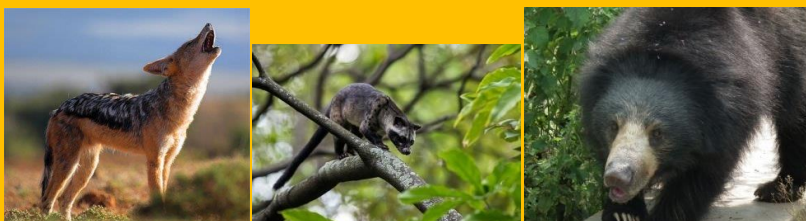
Each raceme could be 40-60cm long. The golden-yellow flowers with long pedicels amply justify the Sanskrit name Swarnapushpa (also Swarnamukhi, Suvarnaka). When in full bloom there are few trees more breathtakingly beautiful than an Amaltas.



Above and below: The petals are the strikingly attractive part of the flower. The 10 stamens are arranged at three levels in a characteristic 3+4+3 arrangement: three shortest and straight (sterile) +four curved mid-sized (fertile)+three long ones bent like an 'S' (sterile). The short- and mid-sized stamens face one direction and the long stamens face the other. The pistil (which is the future fruit) is bent like a 'C' in the same direction as the long stamens.

How do Amaltas seeds get dispersed?

Unlike in most other leguminous plants, when mature pods of Amaltas fall on the ground, they do not open (dehisce) to release the seeds. So how do the seeds get dispersed in nature? There is some evidence from Troup's work of 1911 at Dehra Dun (*Silviculture of Indian Trees*, Oxford Clarendon Press) that jackals feed on the pulp and ingest the seeds too. The seeds pass through their digestive tracts intact and are ejected in the scat. These then germinate and grow into saplings. On the Ridge in Delhi, where the tree grows naturally, it is thought that jackals and civets are involved in its dispersal (Krishen 2006, *Trees of Delhi*, Dorling Kindersley (India) Ltd). However, this remains to be confirmed. In South India, recent evidence points to sloth bears (*Melursus ursinus*) as being the agents of dispersal (Sreekumar & Balakrishnan 2002, *Biotropica* 34: 474-477).



(Photo credits (left to right): <https://answersingenesis.org/kids/mammals/dogs/jackal/>; <http://animaladda.com/wp-content/uploads/2013/07/Asian-Palm-Civet-3.jpg>; http://commons.wikimedia.org/wiki/File:Bear_-_Melursus_ursinus_at_Bannerghatta_National_Park_8470.JPG)



The Department of Posts, Government of India released a Rs 20 postage stamp of Amaltas on 20 November, 2000.

Amaltas or the golden shower is also the national flower of Thailand. Its yellow flower is said to symbolize the royalty.



i-POD? no, a-POD (Amaltas-Pod) – The fruit is a legume or a pod that is long (30-60cm) and cylindrical. Pods are green to begin with but mature into woody brown structures (left). If you promise to be gentle, you could probably play the ‘dandiya raas’ with them during the navratri festival if you are a Gujarati or use them for ‘kolāta’ if you are a Kannadiga! Pods of the previous season still hang on the tree when flowering of the current season commences. If you cut a pod open longitudinally, you will find neatly arranged horizontal compartments (middle) each of which lodges a seed. In this particular pod, I counted 100 compartments! It reminds me of a residential tower with 100 stories with one exclusive apartment on each floor, occupied by just one privileged tenant! The seeds, which loosely resemble coffee beans, are smooth, somewhat lens-like in shape with a deep groove on one side (right).

AMALTAS IN PAINTINGS



Amaltas is a very popular tree in India because of its strikingly beautiful flowers. Small wonder it has been painted by well-known artists. One of them is Marianne North (1830-90), who, although had no formal training in illustration, made up for it through her natural artistic talent and prolific work. She devoted her life to travelling to various parts of the world and painting plants. In all, she created 833 paintings depicting 900 species of plants. Today, these are exhibited in a special gallery at the Royal Botanic Gardens, Kew. Her painting of Amaltas may be seen on the next page. Also reproduced are paintings by two of India's contemporary artists, A. Ramachandran and Sunita Kumar.

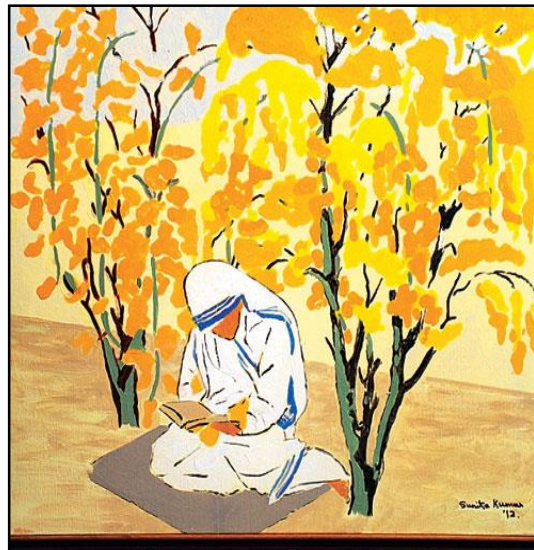
"Foliage and flowers and a pod of the Amaltas or Indian Laburnum" from India (Painting 336) by Marianne North.

Source: Marianne North Online Gallery,
<http://www.kew.org/mng/gallery/336.html>



Above Left: *Amaltas Tree*, by A. Ramachandran. 2001, Oil on canvass.
<http://www.artoframachandran.com/node/322>

Above Right: *Indian Laburnum*, by Sunita Kumar. "This painting, titled *Indian*



Laburnum, is how I visualise Mother on an outing. She's not reading a love story book — she's praying!"

http://www.telegraphindia.com/1130226/jsp/entertainment/story_16604517.jsp#.U5BNuU0Wb8o

Amaltas and the Malayali New Year



Amaltas - or *Kanikkonna* as it is known in Malayalam - is the state flower of Kerala. Malayalis celebrate *Vishu*, their new year, in April on the same day when Punjabis observe *Baisakhi*, Tamilians their *Putthōndu*, Assamese their *Rongali Bihu*, and Bengalis their *Naba Barsha*. Malayalis believe, no doubt on the principle of 'well begun is half done', that the first thing(s) they see upon waking up on the morning of *Vishu* would ensure good luck and success throughout the year. Hence, on the eve of the new year, the lady of the house arranges the *vishukkani* - an assortment of things to be seen first thing on the morrow. Ritually included in the *vishukkani* are the golden yellow flowers of *Kanikkonna*. Other traditional 'must-see' ingredients include certain cereals, gold coins, fruits, a length of cloth, and a handmade metal-alloy mirror known as *valkannadi** - all these arranged neatly in a brass bowl and placed in front of the image of god Krishna. Lighting brass lamps, family members seek god's blessings and open their eyes to the *vishukkani*. Thus *Kanikkonna* or Amaltas is greatly sought after by Keralites during the *vishu*, so much so that people rob off flowers from standing trees on the eve of the festival. So next time if you notice Amaltas flowers suddenly disappearing from your locality around *baisakhi*, you surely know which of your neighbours to catch!

**Valkannadi*, literally meaning the mirror with a handle, is made from an undisclosed metal alloy (and not from silver-painted glass) by an extended family in the village of Aranmula in Kerala. The mirror cannot be made anywhere else as it received a geographical indication tag in 2004-05.

(Photo credit: <http://all-of-tje-world-mogelo.blogspot.in/2011/04/vishu-new-year-festival-celebrated-in.html>)

Acknowledgements: I am grateful to Dr C. Satish Kumar, Jawaharlal Nehru Tropical Botanical Gardens, Palode, Thiruvananthapuram for valuable inputs on the *Vishu*. Enthusiastic help and assistance received from Geeta Rauthan and Laxman Thapa is greatly appreciated.