10. Chinese Fan Palm

S Natesh¹
Consultant Advisor, NII, New Delhi

**Common Name:** Chinese Fan Palm, Chinese Fountain Palm

**Botanical Name:** *Livistona chinensis* (Jacq.) R. Br. Ex Mart.

**Family:** Coconut family (*Arecaceae*)

**Where to see:** Near the Research Scholars’ Hostel, Neem Tree House

Illustration of a young *Livistona chinensis* plant from Oswald de Kerchove de Denterghem’s *Le Palmiers*, t. 32, 1878, Paris.

**Image Credit:** http://botanicalillustrations.org/illustration.php?id_illustration=177653

The Chinese fan palm is perhaps one of the most common palms you will notice in the gardens and traffic roundabouts in Delhi and elsewhere in India. It is also now increasingly used in masses as ground cover in outdoor landscapes and indoors (especially airports and shopping malls). Like most other palms, it has a single unbranched stem at the tip of which emerge several large, bright-green fan-shaped leaves. It is indeed the drooping segments of the

¹Unless otherwise acknowledged, the photographs and artwork are mine.
leaves that give a graceful, fountain-like aspect inspiring the sobriquet 'Chinese fountain palm'. The species is native to Australia, Malay Peninsula, New Guinea and the Asian mainland. However, being very hardy, beautiful and evergreen, this palm is widely cultivated across the world.

*This Chinese fan palm* tree in front of the Research Scholars’ Hostel (RSH) is bearing fruits.

**Table 1. Common names of *Livistona chinensis***

<table>
<thead>
<tr>
<th>Language</th>
<th>Common Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Chinese fan palm, Chinese fountain tree, Chinese livistona</td>
</tr>
<tr>
<td>French</td>
<td>Palmier évantail de Chine; Latanier de la Chine (Mauritius)</td>
</tr>
<tr>
<td>Indian languages</td>
<td>No names available</td>
</tr>
<tr>
<td>Portuguese</td>
<td>Falsa-latânia, palmeira-leque-da-china</td>
</tr>
</tbody>
</table>
A row of Chinese fan palm trees near the RSH

The genus was established by the famous plant biologist Robert Brown (1773-1858) in honour of Patrick Murray (1632-1671), baron of Livingston and a pioneer of botany, who had a botanical garden on his estate near Edinburgh where he had assembled more than 1000 plants from his travels across Scotland, and from seeds received from foreign contacts. This collection of plants formed the nucleus of the Royal Botanic Garden, Edinburgh in 1670. Since there is no provision to Latinize 'ing' in Livingston, Brown transcribed it to 'is' and named the genus *Livistona*. The genus has 36 species. The species *Livistona chinensis* was first described as *Latania chinensis* in 1801, from plants cultivated and subsequently naturalized in Mauritius and brought to Schonnebrunn Gardens, Vienna in 1788, its Latin name derived from the name used in Mauritius, "Latanier de la Chine". Subsequently, it was transferred to *Livistona* in 1838.

The Chinese fan palm is relatively slow-growing, typically reaching a height of up to 15m. Young specimens are slow to form a trunk. The trunk (also known as caudex or stipe) is
The younger part of the trunk towards the top bears remnants and scars of leaf bases (left) whereas the older part towards the base is characteristically wrinkled and fissured (right).

covered with persistent bases of the leaves, except at the lower portion where the surface is wrinkled and spongy. Between 40 and 60 leaves (referred to as ‘fronds’) are spirally arranged at the tip of the trunk to form a crown. The petioles are up to 2.5m long, flat on the upper (ventral) surface, and convex and keeled on the lower (dorsal) surface. Towards the

The leaf lamina is fan-shaped or sub-orbicular, and could be as large as 1.2m x 2m with pleated segments (left). The petiole is strong and reaches a length of 2.5 m, its lower (dorsal) surface being keeled (right).
The base of the petiole where it joins the trunk is broader and flatter (left) than the distal part where it joins the lamina (right). The lamina is divided into 50-90 pleated segments which are lobed, with the lobes hanging downwards (right).

The petiole is about 2.5 m long, (left) and strong enough to hold the lamina aloft. The basal one-third or one-half portion has downwardly-pointing spines on the margins.
The many uses of the Chinese fan palm

Non-medicinal uses

The Chinese fan palm is primarily cultivated for its ornamental value, given its beauty and cold-hardiness. However, in China its wood has been used to make umbrella handles and walking sticks for centuries. The Chinese also weave the young leaves into hats, attractive fans (see images below) and brushes.

In the north-eastern India, the midribs of the leaves are used to make brooms for sweeping.


Medicinal uses

- **Antitumor** - Hot water extract of the dry fruits of *Livistona chinensis* have long been used in traditional Chinese medicine (TCM) as an anticancer agent. This has been confirmed through studies on cell lines. Chinese scientists have also discovered promising inhibitory effects of seed extract of the palm on a variety of tumour cell lines such as HepG2 human liver cancer, HL-60 human myeloid leukemia and CNE-1 human nasopharyngeal carcinoma cell lines in the laboratory.

- **Anti-osteoporosis** - Phenolic compounds isolated from the roots of the Chinese fan palm have shown anti-osteoporotic effect in rats.

- **Cell protective** - Phenolic compounds from the fruits exhibited remarkable cell protective activity against cell damage.

- **Antibacterial** - Phenolic compounds in seeds and fruits also have antibacterial effects owing to their astringent nature.

base where it joins the trunk, the petiole becomes broader, its basal one-third or one-half length covered with downwardly pointing spines. The lamina of the leaf is approximately circular (sub-orbucular) or fan-shaped, 1.2-2m long and 2m broad, comprising 50-90 pleated segments. The veins are parallel, 8-9 on each side of the midrib. Each segment at its apex has

![Chinese Fan Palm with inflorescence. Note the pollen fallen on the subtending leaf. Image credit: http://commons.wikimedia.org/wiki/File%3ALivistona_chinensis_-_kew_2.jpg](image)

**Chinese Fan Palm** with inflorescence. Note the pollen fallen on the subtending leaf. Image credit: http://commons.wikimedia.org/wiki/File%3ALivistona_chinensis_-_kew_2.jpg

![Fruit bunches can be seen in the axils of the leaves (left). Fruits look like olives (right) and are blue-green to blue-black and persist on the tree for several weeks.](image)

**Fruit bunches** can be seen in the axils of the leaves (left). Fruits look like olives (right) and are blue-green to blue-black and persist on the tree for several weeks.
Top: Semi-mature fruits of Chinese fan palm. The lines AA' and BB' in this image denote respectively the cross section and vertical section of the fruit. Middle: Cross section of the fruit (along the plane AA'). Bottom: Vertical section of the fruit (along the plane BB'). Note that in both these sections the pericarp (wall of the fruit) has three distinct portions - the outermost thin, greenish epicarp, the large middle portion known as mesocarp and the innermost stony and hard endocarp. The endocarp surrounds the kernel or the seed. Note also that the seed coat or testa characteristically intrudes into the kernel (IT) in the Chinese fan palm.

Deep lobes that hang downward, giving the crown a pleasing fountain-like appearance. In time, however, the lobes turn brown and shabby.

Flowering usually starts in March-April. The inflorescence is 1-1.2m long, and clustered. Flowers occur in clusters of 4-7; buds are approximately globose, 2-2.5mm long, white-to-yellowish, with 3 triangular sepals and petals respectively. The filaments are united at the base and free at the upper part; the style is the same height as the anthers. The fruit is globose, sub-globose or ellipsoidal, 15-26mm long, 9-18mm wide, and blue-green to blue-black. It is a drupe, like a coconut. The pericarp or the fruit wall is divided into three parts: the outermost epicarp, the middle mesocarp and the innermost endocarp. The epicarp is glossy and has a ceramic look; the mesocarp is fleshy, slightly oily and somewhat fibrous; while the endocarp is woody and encloses the seed or kernel. Seed production is usually copious, making the species a potential weed under the right
conditions. The seed is rounded or ellipsoidal, 14mm long, 10mm wide, brown to greyish and variously kidney-like in longitudinal section. The testa (seed coat) intrudes into the seed to one-half to two-thirds through to form a cavity filled with loose, brown crystalline tissue.

**Acknowledgements:** I would like to convey my appreciation to Geeta Rauthan, Laxman Thapa and Sriram Mali for their ready assistance in various ways.
