

### **Rafflesia – The largest individual flower producing flowering plant genus in the world**

**Rafflesia** R. Br. ex Gray (Rafflesiaceae) is a holoparasitic flowering plant genus. The genus is named after Sir Thomas Stamford Raffles (1781 – 1826), a diplomat, orientalist, naturalist and a founder of London Zoo. **Rafflesia** was first discovered in the rain forests of Bengkulu, Sumatra in 1818. It was discovered even earlier by Louis Auguste Deschamps (1765 – 1842), a French surgeon and naturalist, exploring the flora of Java between 1791 and 1794, but his notes and illustrations, seized by the British in 1803, were not available to western science until 1861.



**Rafflesia** consists of 39 species (Sofiyanti, 2011; Siti-Munirah, 2012), and inhabiting specialised localities in the tropical rainforests of Sumatra, Java, Borneo, Peninsular Malaysia, southern Thailand and the Philippines. Species of **Rafflesia** are root parasites with no visible stems and leaves, but, surprisingly they produce the largest flower in the world. They are parasitic to the roots of **Tetrastigma** vines (Vitaceae). Their vegetative body is a kind of highly reduced mycelium and is residing

absolutely inside the host plant, **Tetrastigma**. In other words, the vegetative body is an endophyte, and emerging out only during flowering. The endophyte cells are undifferentiated and cytologically similar to the cells of the embryo of Rafflesiaceae, suggesting that the vegetative stage exhibits a prolonged period of embryonic growth (protracted juvenilism), after which the endophyte proceeds directly to flowering (Lachezar Nikolov, pers. comm. 24 July 2013).

Members of Rafflesiaceae produce the largest flowers among all flowering plants. **Rafflesia arnoldii** R. Br. produces the largest individual flower on earth, measuring up to 1 meter in diameter and weighing about 7 kg. The flower appears and smells like rotting flesh, hence, its local names which translate to "corpse flower" or "meat flower". The cabbage-like flower buds appear 19 to 21 months before anthesis.



Most species have unisexual flowers, but a few have bisexual flowers. Flowers are fleshy, reddish orange or reddish brown, and last only for five days. Flowers usually have 5 petals, very rarely 6, and only exceptionally flowers with 7 petals occur. Sometimes, female flowers of **R. azlanii** produce 10 petals, due to very rare gene mutation. The carrion-scented flowers are pollinated by carrion flies (**Lucilia** species). Little is known about seed dispersal. However, tree shrews (**Scandentia** species) and other forest mammals eat the fruits and disperse the seeds. **Rafflesia** is one of the official state flowers of Indonesia, the Sabah state in Malaysia, and of the Surat Thani Province, Thailand.



**Rafflesia keithii** Meijer - Habitat in Sabah, Borneo

Photo Courtesy: M.Y. Siti-Munirah, Kepong Herbarium (KEP),  
Forest Research Institute Malaysia (FRIM)



**Rafflesia arnoldii** R.Br. at Palupu Reserve near Bukittinggi, Indonesia

Photo Courtesy: Mr. Davis

## References

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