A Note on the Identity of Carnivorous Plants of Karungalakudi, Tamil Nadu, India

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Abstract
Karungalakudi is blessed with rich herbaceous flora including two carnivorous plant groups, viz. fly traps and bladder worts. In the present communication, a total of 6 insectivorous plants are reported, and it is confirmed that the reported occurrence of *Drosera brevifolia* Pursh, *Utricularia minor* L., *U. resupinata* Greene ex Bigelow and *U. uniflora* R. Br. in Karungalakudi is due to a misidentification.

Key words: Karungalakudi, Fly-traps, Bladder worts, Misidentification.

Introduction
Karungalakudi is situated 40km away from Madurai district and it lies at 10° 9’ 34” to 10° 9’ 45”N latitude and 78° 21’ 31” to 78° 22’ 3”E longitude. Detailed botanical studies were conducted in various places of Karungalakudi between January 2006 – October 2008. All the collected specimens were poisoned, processed and labeled by standard herbarium methods (Jain and Rao, 1993). The correct identity of the herbarium specimens were then confirmed by further critical study with the help of relevant floras, monographs and revisions (Gamble and Fischer, 1997; Janarthanam and Henry, 1992; Matthew, 1983; Taylor, 1989). Their identification was later confirmed by matching specimens with previously authenticated specimens available at Botanical Survey of India (BSI), Southern Circle, Coimbatore. All collections are deposited in Ashoka Trust for Research in Ecology and the Environment (ATREE) Herbarium, Bangalore. An artificial key is given for easy identification and further collection of carnivorous plants from Karungalakudi and the enumeration follows alphabetical order of the family, binomials followed by voucher specimen number and distribution.

Key to the Carnivorous plants of Karungalakudi.

1a. Leaves with hair like tentacles; Flowers actinomorphic-----------------------------2
1b. Leaves absent / Foliar organs not as above; Flowers zygomorphic-------------------3
2a. Plants scapigerous; Stipules present----------------------------------------------Drosera burmanii
2b. Plants non-scapigerous; Stipules absent------------------------------------------Drosera indica
3a. Flowers yellow----------------------------------------------------------------------------Utricularia bifida
3b. Flowers other than yellow-----------------------------------------------4

4a. Racemes hairy------------------------------------------------------------Utricularia hirta
4b. Racemes glabrous------------------------------------------------------5

5a. Mouth of trap basal---------------------------------------------------Utricularia polygaloides
5b. Mouth of trap lateral----------------------------------------------------Utricularia minutissima

**Systematic Enumeration**

**Droseraceae (Fly-trap Family)**

NOTE: *Drosera* L., commonly known as sundew, has about 135 species (Schlauer, 1996), among which only three are found in India (Ghosh, 1997). *D. brevifolia* Pursh. so far has been reported only from the United States (Britton and Brown, 1913; Llyod, 1942) and the reported occurrence of *Drosera brevifolia* in Karungalakudi (Ramya et al., 2008) is incorrect as it is a case of mistaken identity of *D. indica*.

*Drosera burmanii* Vahl.

Specimens Examined: *Kottai* 1019, 1052.

Distribution: India, West Africa, Myanmar, China, Taiwan, Malesia and Australia.

*Drosera indica* L.

Specimens Examined: *Kottai* 1222, 1359.

Distribution: India (Deccan Peninsula, Bihar and West Bengal), Srilanka, Myanmar, Tropical Africa, Madagascar, Japan, Australia, China and Malesia.

**Lentibulariaceae (Bladder wort Family)**

NOTE: *Utricularia* L., commonly known as bladder wort, has about 214 species (Taylor, 1989) distributed mostly in tropics and subtropics and a few are temperate (Cook, 1996) where in 35 species are present in India (Janarthanam and Henry, 1992). Over the last 8 years, 3 additional species have been described from India, including *U. janarthanamii*, *U. naikii* and *U. babui* (Yadav et al., 2000 and 2005). Recently Ramya et al (2008) reported *U. resupinata* Greene ex Bigelow and *U. uniflora* R. Br. from Karungalakudi but there is no authentic report either from Tamil Nadu (Chandrasekaran, 1987; Matthew, 1983; Ravikumar, 1993) or from India (Janarthanam and Henry, 1992; Taylor, 1989) and the record of its occurrence in Karungalakudi is due to a misidentification. The areas of distribution for *U. resupinata* is Eastern Canada, United States and Central America (Baker, 1926; Britton and Brown, 1913; Eyles and Robertson, 1963; House, 1924; Keller and Brown, 1905; Lloyd, 1942; Tatnall, 1946; Taylor, 1989 and 1991) and for *U. uniflora* is Southern Australia, SE Victoria, New South Wales, Southern Queensland and Tasmanina (Gibson, 1999; Taylor, 1989). Similarly in India, *U. minor* L. has been recorded so far
only from the Himachal Pradesh, Jammu and Kashmir at 2500-4300m altitude (Janarthanam and Henry, 1992; Taylor, 1989) hence the record of its occurrence in Karungalakudi (Ramya et al., 2008) is erroneous.

_Utricularia bifida_ L.

Specimens Examined: Kottai1035, 1050.

Distribution: India, Sri Lanka, Japan and South to North Australia.

_Utricularia hirta_ Klein ex Link.

Specimens Examined: Kottai1200, 1356.

Distribution: India (Bihar, Madhya Pradesh, Meghalaya, Orissa, Tamil Nadu, Uttar Pradesh and West Bengal) and Malesia

_Utricularia minutissima_ Vahl.

Specimens Examined: Kottai1210, 1357.

Distribution: India (Karnataka, Kerala, Orissa, Tamil Nadu, Uttar Pradesh and West Bengal), Japan and Australia.

_Utricularia polygaloides_ Edgew.

Specimens Examined: Kottai1227, 1349.

Distribution: India (Andhra Pradesh, Karnataka, Kerala, Madhya Pradesh, Orissa, Tamil Nadu and West Bengal) and Sri Lanka.

**Results and Discussions**

Carnivorous plant flora of Karungalakudi consists of two species of Droseraceae and four species of Lentibulariaceae. Due to prolonged anthropogenic pressures, the carnivorous plants of Karungalakudi are locally endangered. In the future, if pressures persist, the carnivorous plants - priceless gift of nature - will be extinct locally from Karungalakudi.

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