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Utricularia australis R. Br. (Lentibulariaceae): an addition to the carnivorous plants of Odisha, India

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ABSTRACT

Utricularia australis, a carnivorous aquatic plant species is reported here as a new record for the flora of Odisha, India from Rairangpur Forest Division, Odisha. The botanical description, ecology, distribution and associate plants of the species have been provided along with colour photographs for easy identification in the field.

Keywords: *Utricularia australis*; carnivorous plants; Rairangpur Forest

INTRODUCTION

Odisha is a home of diverse, rare and endemic flora and fauna due to the widespread landscapes, soil types, variety of vegetation and micro climatic conditions. Regardless of tough hilly terrain, wetlands and valleys, the region has been explored from floral wealth point of view by many organizations like Botanical Survey of India (BSI), Council of Scientific and Industrial Research (CSIR), Universities, Research foundations and NGOs leading to the identification of many plant species. Among them, very less exploration was done for insectivorous plant or carnivorous plant species. The wetlands & moist deciduous forest of the state provides suitable climatic conditions for such species as they grow usually in low pH, low sunlight, less nutrient land and near paddy fields (Harms, 1999; Guiral and Rougier 2007; Peroutka et al. 2008; Fleischmann, 2012). There are five genera (*Aldrovanda*, *Drosera*, *Nepenthes*, *Pinguicula* and *Utricularia*) belonging to 3 families (Droseraceae, Nepenthaceae and Lentibulariaceae) reported so far from India. In Odisha, about 15 species of *Utricularia* (Family: *Lentibulariaceae*) are reported (Saxena and Brahmam 1995; Dash 2016). During survey on forest fire in Rairangpur Forest Division, Odisha, on 28th March 2021, authors collected a aquatic species of genus *Utricularia* L. (21° 97' 94.44" latitude, 86° 13' 83.24" longitude, 417.71 m elevation, Plate 2). The flowers were dissected and detailed morphological observations were carried out based on living specimens and in the fields described in field data book. Afterward, consultation from the

available literature on the genus *Utricularia* (Oliver and Jun 1859; Clarke 1884; Barnhart 1916; Subramanyam 1979; Taylor 1989; Janarthan and Henry 1992; Crow 1992; Saxena and Brahmam 1995; Yadav et al. 2000; Barry et al. 2004; Yadav et al. 2005; Rahman 2005; Guang et al. 2007; Lowrie et al. 2008; Govekar and Sardesai 2011; Dash 2016; Reut and Jobson, 2010; Kumar et al. 2018; Rajasekar and Rajendran 2018; Mishra and Kumar 2019; Mishra and Kumar 2021) revealed that the plant is *Utricularia australis*. In India, the species is recorded from Karnataka, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Uttar Pradesh and Andhra Pradesh (Kullayiswamy et al., 2013). The literature survey on flora of Odisha suggested that the species has not hitherto been recorded from within the geographical boundary of Odisha state (Saxena & Brahmam, 1994; Dash 2016). Therefore, it is reported here as a new addition to the carnivorous plants of Odisha. The voucher specimen was prepared and one herbarium was deposited at Biodiversity and Conservation Lab., Ambika Prasad Research Foundation, Odisha.

TAXONOMICAL TREATMENT

Utricularia australis R. Br., Prodr. 430.1810. Saxena in Indian Forester 96: 249.1970; Gandhi in Saldanha & Nicolson, Fl. Hassan 563.1976; Taylor in Steenis, Fl. Males. I.8; 299.1977 & in Kew Bull. Add. Ser. 14: 598. f. 184.1989; Srivastava in J. Econ. Tax. Bot. 4: 188. 1983; Pandaey et al. in J. Econ. Tax. Bot. 5: 865.1984; Bennet, Namechang Fl. Pl. Ind. 580.1987. *Utricularia flexuosa* Sensus Clarke in Hook. f., Fl. Brit. India, Syn. *U. australis* R. Br., non Vahl 1804 (Plate 1).

Aquatic herb, submerged, up to 40 cm in length, 0.66 mm thick, terete; Foliar organs up to 2.6 cm long, primary segment have two slightly equal parts, secondary segments many; Bladders are about 1.8-2.0 x 2.3-2.5 mm, obliquely obovoid, stalked; Inflorescence raceme, erect, emergent above water, 12-16 cm long, 3-7 flowers; Pedicels 2-3 cm long, glabrous; Calyx lobes 2, slightly unequal, upper lobe 2.0 - 2.6 x 1.4- 1.9 mm, lower lobe 1.5-2.2 x 1.5-2.0 mm, obtuse at apex; Corolla yellow, reddish brown lines with spots, ca 11 mm long; Spur ca 5.0 - 6.5 mm long, conical, obtuse at apex. Fruit capsule, minute seeds (Plate 1).

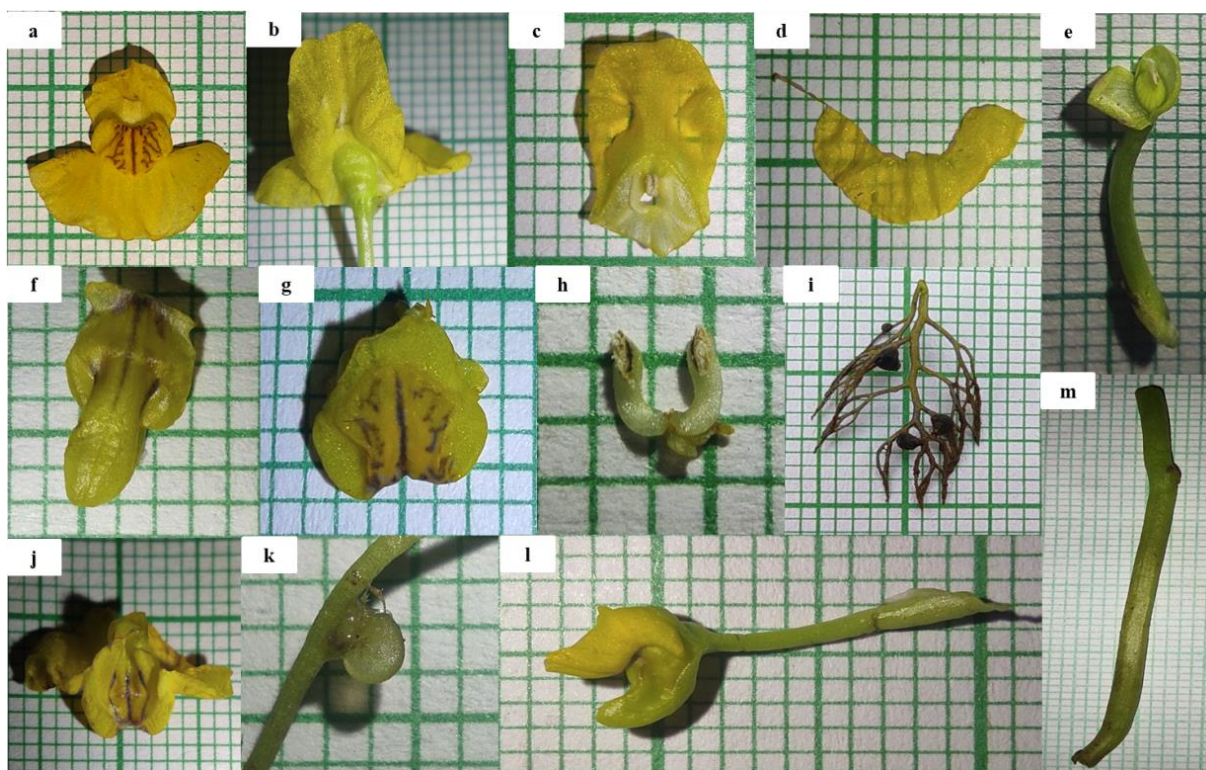


Plate 1: Vegetative parts of *Utricularia australis*, a-h, j & l) Floral parts; i & k) Bladders; m) Inflorescence stalk

Specimen examined: INDIA: Odisha, Mayurbhanj, Rairangpur Forest Division, 21° 97' N & 86° 13' E, 417 m, 28-03-2021, Sweta Mishra & Sanjeet Kumar, 0043.

Phenology: Flowering & Fruiting- March-April

Associate species: The associated species are *Cynodon dactylon* (L.) Pers.; *Hydrilla verticillata* (L.f.) Royle; *Ipomoea carnea* Jacq.; *Nelumbo nucifera* Gaertn.; *Nymphaea nouchali* Burm. f.; *Utricularia gibba* L. etc.

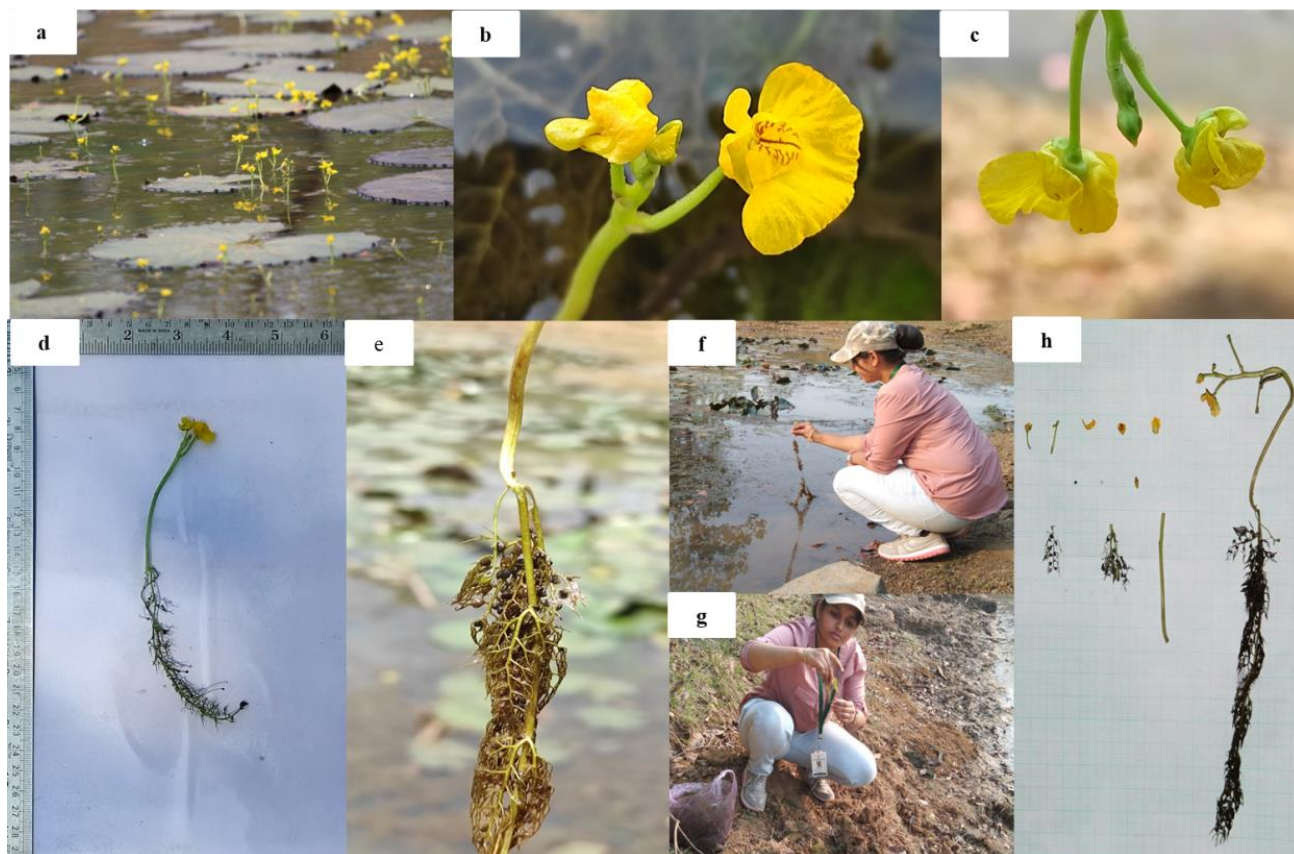


Plate 2: Habitat, vegetative parts of *Utricularia australis* and collection of plant specimen

Distribution: Karnataka, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Uttar Pradesh, Andhra Pradesh and Odisha.

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Conflict of Interest

The authors declare that there are no conflicts of interests.

Ethical approval

The ethical guidelines for plants & plant materials are followed in the study for species collection & identification.

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Data and materials availability

All data associated with this study are present in the paper.

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