

## ***Dioscorea oppositifolia* Linnaeus [Dioscoreaceae] - a new distributional record for Tripura, India**

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### **Abstract**

The occurrence of *Dioscorea oppositifolia* Linnaeus (Dioscoreaceae) is recorded from the forest floor and the barren land in Tripura for the first time. The tuber of this plant is mostly popular to Chakma and Reang communities as delicious vegetable. The tuber is also applied externally to ulcers, boils and abscesses by different tribal inhabitant of the state. The Chakma community uses its leaf for the treatment of snakebites. The plant is rare in the state probably due to the loss of habitat by rubber plantation.

**Key words:** *Dioscorea oppositifolia*, Distribution, New record, Ethnic uses, Tripura

### **INTRODUCTION**

*Dioscorea* Linnaeus is a genus of over 600 species (Ayensu 1972) of tuberous herbaceous angiospermic climbers, climbing to 20 meter on supports. The genus belongs to Dioscoreaceae of Dioscoreales. Species of *Dioscorea* are native throughout the tropical, especially in tropical America, subtropical and warm temperate regions of the world, with only a few species extending into the temperate regions (Caddick *et al.* 2002; Seikh *et al.* 2009). In India, so far 50 species of *Dioscorea* have been reported (Prain & Burkill 1936; Deb 1983) out of which 30 species are distributed in Arunachal Pradesh (Saikia *et al.* 2011). Ayensu & Coursey (1972) reported that Asia, South America and West Africa are the major yam growing regions in the world.

Deb (1983) reported seven species of *Dioscorea* for the state of Tripura viz. *D. alata* Linnaeus, *D. bulbifera* var. *bulbifera* Linnaeus, *D. bulbifera* var. *sativa* (Hooker f.) Prain, *D. glabra* Roxburgh, *D. hamiltonii* Hooker f., *D. pentaphylla* Linnaeus and *D. pubera* Blume. Recently, Majumder *et al.* (2009) reported the occurrence of *D. hispida* Dennstedt in Tripura.

During December 2013 to January 2014 some specimens of *Dioscorea* have been collected from Tripura by the authors which were later on identified as *D. oppositifolia* Linnaeus. But, the occurrence of this species and its uses in Tripura was unknown before its present collections.

*Dioscorea oppositifolia* Linnaeus is popular to Reang and Chakma communities of living in Tripura for its edible tubers which grow over 2 kg when grown in deep loam soil.

The starchy tuber also contains mucilage. According to the traditional Chakma people of Tripura, it is a delicious food like *D. alata* and its leaf extract can be used to treat snakebites. The species is well known as '*Tegpata alu*' by Chakmas and '*Tasher*' by Reangs of the state.

The tubers of *D. oppositifolia* are also used as an herbal tonic. It stimulates the stomach, spleen and has effects on lungs and kidneys. The tubers are eaten for the treatment of poor appetite, chronic diarrhea, asthma, dry coughs, frequent or uncontrollable urination, diabetes and emotional instability (Poornima & Ravishankar 2007).

## MATERIALS AND METHODS

Fresh and mature plant parts including flowers, fruits, bulbils and tubers were collected from the field. Specimens were made into herbarium sheets following Jain & Rao (1977) and identified using literature available viz. Flora Andhrika- Plant Wealth of Andhra Pradesh, India (Raju 2012); Flora of Nilgiris Biosphere (<http://opendata.keystone-foundation.org>), Indian medicinal plant (Kirtikar & Basu 1935). The specimens were matched with the Kew herbarium catalogue – online database (<http://www.kew.org/herbcat>, 2006), specimen number of matched sheet is K000098232 and deposited at the Herbarium of the Department of Botany, Tripura University. The collected tubers and bulbils were planted separately in the experimental garden at Tripura University campus for further observation.

### Taxonomic treatment:

*Dioscorea oppositifolia* Linnaeus, Sp. Pl. 2: 1033 – 1034. 1753; Hooker *f.*, Fl. Brit. India 6: 292. 1892; Gamble, Fl. Pres. Madras 1512(1056). 1928; *Dioscorea batatas* Decaisne, Rev. Hort. 3: 243. 1854. *Dioscorea opposita* Thunberg, Fl. Jap. 151. 1784. *Dioscorea japonica* Thunberg, Acta Phytotax. Sin. 20: 206. 1982.

**Common names:** Chinese yam, Chinese-potato, Cinnamon vine, Cinnamon yam, Japanese yam, Long Chinese yam (English); *Tegpata alu* (Chakma); *Tasher* (Reang)

Climber; perennial root-stock single, tuberous, 30 – 100 cm long, cylindrical, descending deeply into the soil. Bulbils opposite, brown, surface rough, 5 – 12 cm in diameter. Stems twining to right, 0.5 – 1 cm in diameter, scabrous, radish in juvenile stage. Simple leaf is alternate in the lower part of the stem, opposite above the middle, coriaceous; elliptic, 10 – 17 x 3 – 5 cm, entire, acuminate, base rounded-cordate, 3 – 7 nerved, green, waxy; petiole angular, 1 – 3 x 0.5 – 1.2 cm. Dioecious; male spikes clustered 10 – 30 cm long; stamens 6; female spikes 6 – 10 cm long, solitary/paired; capsules quadrately obovate 2 × 1.9 cm, glabrous; *seeds* winged.

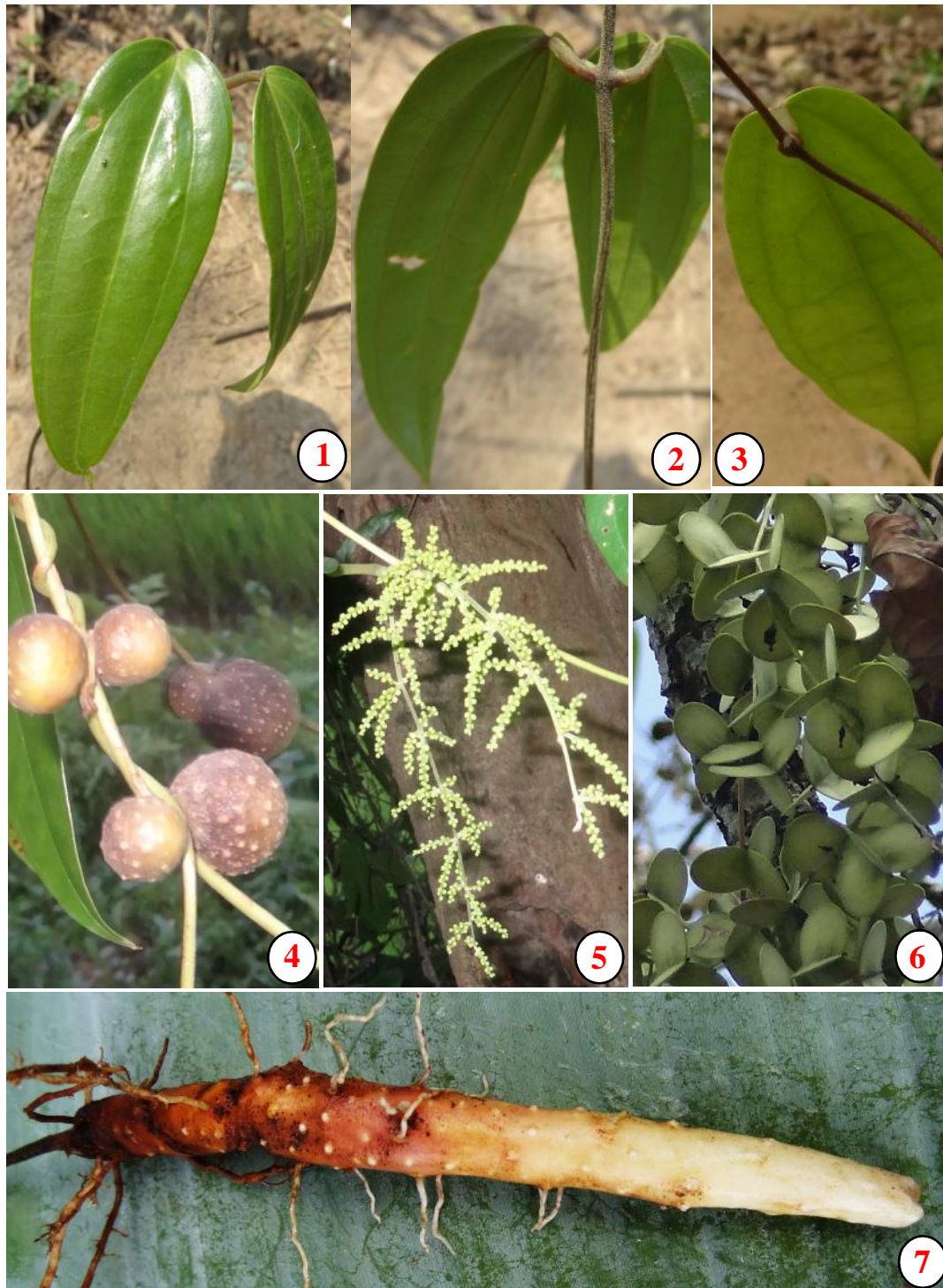
**Flowering:** September – November; **Fruiting:** December – January.

**Habitat:** Shady forest floor of semi-evergreen to deciduous forests and barren land.

**Distribution:** USA, China, Sri-Lanka, Bangladesh; India [Kerala, Andhra Pradesh, Odisha, Arunachal Pradesh, Karnataka, Assam, Tripura]. (GISD 2005)

**Exsiccates:** Uttar Devipur, South Tripura, *C Paul 0452*, December 10, 2013 (23°23'32.23" N 91°35'36.58" E; ±83 m); Muhuripur R.F., *C Paul 0453*, January 5, 2014 (23°14'37.40" N 91°35'19.54" E; ±37 m).

**Status:** Locally rare.



**PLATE - I:** *Dioscorea oppositifolia* Linnaeus: 1. A leaf; 2. Opposite phyllotaxy, elevated veins below and indumentum on stem; 3. Alternate phyllotaxy; 4. Bulbils in opposite pairs; 5. Male panicle; 6. Fruits; 7. Underground root-stock (tuber)

## CONCLUSION

The present study revealed the traditional uses of *Dioscorea oppositifolia* Linnaeus by different tribal inhabitants of Tripura. This species is very important from the food security as well as from medicinal points of view at least this remote North-East Indian state. The collection of the species from the state is an addition for the so far known flora of Tripura state. The species need to be studied for its nutritional qualities and for its cultivation.

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