

***Thladiantha ziroensis* Yanka H. & Arup K. Das, *sp. nov.* (Cucurbitaceae) from Arunachal Pradesh, India**

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Abstract

Recent floristic exploration in the Lower Subansiri District of Arunachal Pradesh led to the discovery of a new species of the genus *Thladiantha* Bunge (Cucurbitaceae) from the Joram area near Ziro Valley. The plant is now named as *Thladiantha ziroensis* Yanka H. & Arup K. Das and the species epithet was constructed from the name of Ziro Valley from where the plant was collected. The species is morphologically close to *T. lijiangensis* A.M. Lu & Zhi Y. Zhang and *T. cordifolia* (Blume) Cogn. and is extremely rare. The plant is used in folk medicines by the local tribals.

Key words: *Thladiantha ziroensis*, New species, Ziro valley, Arunachal Pradesh

INTRODUCTION

During floristic survey in the Lower Subansiri District of Arunachal Pradesh (India) one climber with yellow male flowers was collected from the Joram area near Ziro at a place between 1500 - 2000 m. On verification of different literature the plant was recognized as a hitherto unidentified species of Cucurbitaceae from the genus *Thladiantha* Bunge [Clarke 1879; Hajra *et al.* 1996; Chauhan *et al.* 1996; Flora of China @ efloras.org]. The genus *Thladiantha* was established by A.A. von Bunge [Enum. Pl. China Bor. 29. (March) 1833] and the name *Thladiantha* comes from Greek “thladias-anthos”, meaning eunuch flower probably referred to Bunge’s first impression that the flowers are not capable of producing fruit (Misra & Sahoo 2014). *Thladiantha* is represented by 26 accepted species (<http://www.theplantlist.org>) and two species (*T. cordifolia* and *T. hookeri*) are recorded for India (Clarke 1879; Hajra *et al.* 1996). While, *T. cordifolia* is with wide distribution, *T. hookeri* is known from the Khasi Hills area of Meghalaya and from Arunachal Pradesh only (Hajra *et al.* 1996; Renner & Pandey 2013).

The presently collected plant is now named as *Thladiantha ziroensis*, which is morphologically close to *T. lijiangensis* A.M. Lu & Zhi Y. Zhang and *T. cordifolia* (Blume) Cogn. and can be easily distinguished from those by its calyx and fruit structures (Table 1).

Taxonomic treatment

***Thladiantha ziroensis* Yanka H. & Arup K. Das, *sp. nov.* [PLATE - I]**

Perennial with annual climbing branches. Roots tubercular near base, much thickened, woody, branched. Stem twisted near base, rooting at nodes, much branched, 4-ribbed, internodes 17 – 21.5 cm long, young stem slightly puberulent, gradually brownish and glabrous on maturity. Tendrils simple, unbranched, glabrescent rigid. Stem branched, twisted near the base, climbing by means of tendrils; internodes 17 - 21.5 cm, slender, robust,

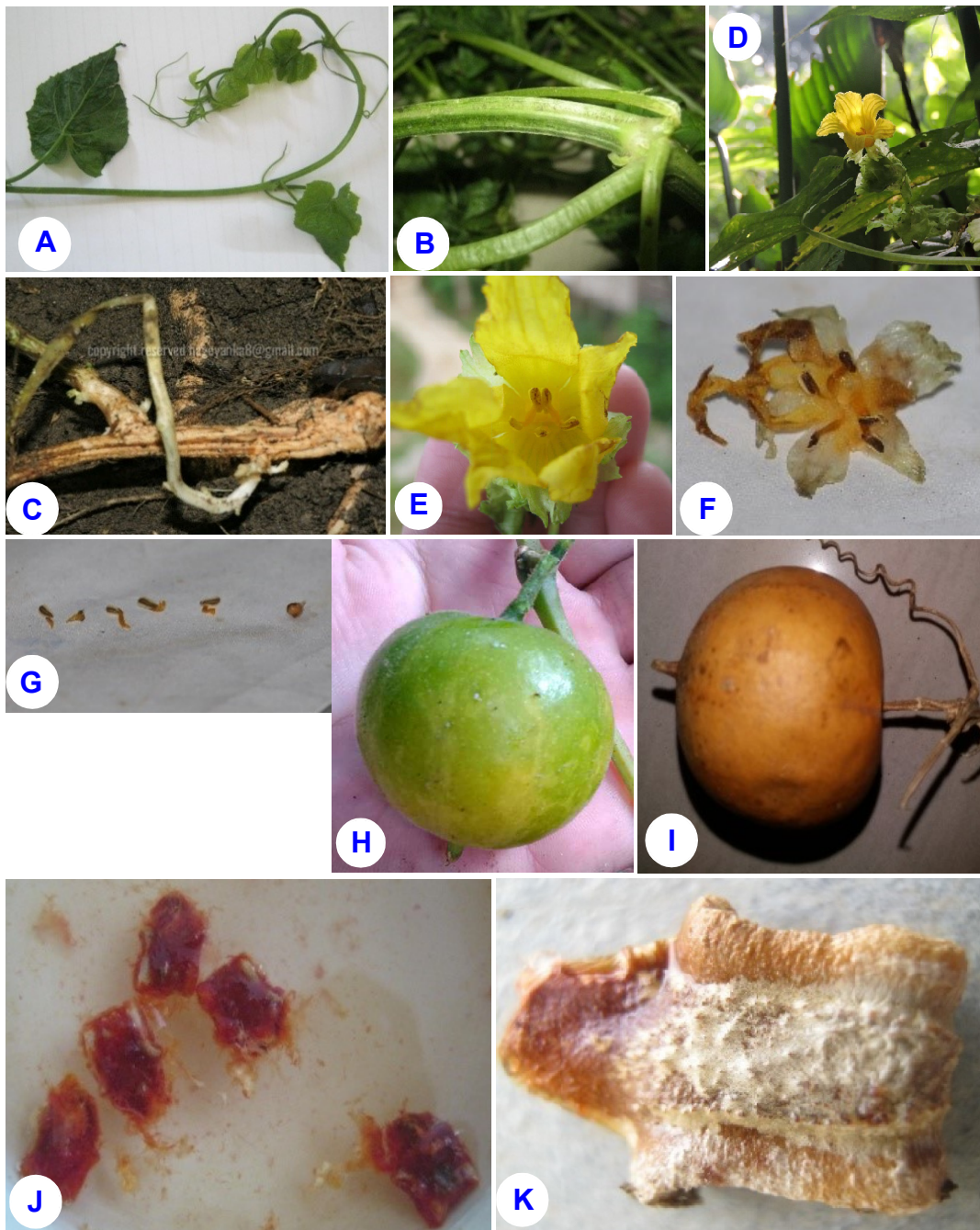


PLATE - I. *Thladiantha ziroensis* Yanka H. & Arup K. Das: **A.** Leafy twig; **B.** 4-ribbed stem with a node and petiole and base of tendril; **C.** Basal part of plant showing tuberous root-stock; **D.** Male inflorescence; **E.** Male flower; **F.** Splitted male flower showing attachment of stamens; **G.** Stamens and pistilode; **H.** Mature fruit; **I.** Dried fruit; **J.** Seeds with fruit pulp; **K.** One seed [Photos by: Yanka Hage]

acute angular, sulcate, young stem and branches green and slightly puberulent, matured stem and branches brownish, glabrous. Petiole 8 – 10.5 cm long, sulcate, slightly swollen near base; lamina broadly ovate-cordate, 8 – 17 x 11.5 – 21.5 cm, irregularly dentate, long-acuminate, base cordate with rounded lobes with basal sinus open 2.5 – 4.5 cm deep and 1.5 – 2.5 cm wide, both surfaces scabrous, hirsute on veins, densely pubescent; membranous or papery when dry. Plants dioecious. Male flowers 1 - 2 in racemes on a 4.5 – 8.5 cm long peduncle; bracts imbricate, glabrous; calyx pale green, net veined, hypanthium campanulate, calyx lobes 5, 5 – 8 mm long, with 3 – 4 conical segments at tip; corolla widely campanulate, yellow, 2.5 - 3 cm long and 3 - 3.5 cm wide at mouth, segments 5, broadly tripartite, 10 – 15 x 4 – 8 mm, 3-4 nerved, margin irregular, apex shortly acute-rounded; Stamens 5, filaments 3 – 4 mm, adnate near base; anthers, ellipsoid, slightly curved, narrow, 2-3 mm, pistilode hemispherical. Female flowers 1 – 2 on 3 – 5 cm long peduncle; calyx and corolla as in the male flowers; ovary globose. Fruits spherical, 2.5 – 5.5 cm across, tipped with 3 – 6 mm long persistent base of style, glabrescent, turn brownish on ripening. Seeds 3 – 5, 8 x 12 mm, flattened, broadly rectangular with extended rounded apex, two-winged, surface rough with angular outgrowths, covered with reddish or wine-red pulp in ripe fruits.

Local names: *Riiko* (in Apatani); *Riik*, *Rangke* (in Nyishi)

Flowering: May – June; **Fruit ripening:** September – October

Type location: Ziro and Joram areas of Ziro Valley in the Lower Subansiri District of Arunachal Pradesh. Grows at an altitude of around 1500 to 2500 m in sub-tropical to temperate undisturbed forests.

HOLOTYPE: Joram area near Ziro Valley, Lower Subansiri District, Arunachal Pradesh, India, altitude 1500 - 2500 m amsl, at 27° 51.329' N & 93° 773' E, *Yanka & A.K. Das 008*, dated 16.06.2017 [ARUN]

ISOTYPE: Joram area near Ziro Valley, Lower Subansiri District, Arunachal Pradesh, India, altitude 1500 - 2500 m amsl, at 27° 51.329' N & 93° 773' E, *Yanka & A.K. Das 009*, dated 16.06.2017 [Herbarium of Rajiv Gandhi University, HAU]

PARATYPE: Ziro, Lower Subansiri District, Arunachal Pradesh, India, altitude 1500 - 2000 m, at 27.60' N & 93.81' E, *Yanka & A.K. Das 002*. dated 18.09.2015 [Herbarium of Rajiv Gandhi University, HAU]

Distribution: So far, the species is known to grow in the Ziro Valley of Lower Subansiri District of Arunachal Pradesh, India only. Rare and endemic.

Etymology: The species epithet '*ziroensis*' is based on the name of Ziro Valley in the Lower Subansiri District of Arunachal Pradesh where from the plant has been collected.

Specimens of related species examined: *Thladiantha cordifolia*, barcode K000742811 from Indonesia, and bar code K000742818 and *Thladiantha hookeri* barcode K000742815 from India, Royal Botanical Garden, Kew.

Ecology: Growing on bushes near streams in sunny places.

Ethnomedicinal Importance: The plant is used by local ethnic communities [Apatani and Nyishi] in the treatment of various ailments viz., fever, stomach problem and debility. The Plant is bitter and dried useful plant parts are sold in the local market.

The new species can be recognised easily from its two closely similar species as presented in Table 1.

Table 1. Comparison of *Thladiantha ziroensis* sp. nov. with two allied species *T. lijiangensis* and *T. cordifolia*

Characters	<i>T. lijiangensis</i> A.M. Lu & Zhi Y. Zhang	<i>T. cordifolia</i> (Blume) Cogn.	<i>T. ziroensis</i> Yanka H. & Arup K. Das
Stem	Pubescent, later on glabrescent	Pubescent	Glabrescent
Tendrils	Simple	Simple	Simple or branched
Leaves	Deeply cordate, acute, adaxially pale yellow pubescent	Young leaves narrowly tripartite, acute, surface yellow pubescent	Deeply cordate, long acuminate, glabrescent or sparingly covered with short hairs, green
Peduncle	7 – 17 cm	5 – 12 cm	2 – 5 cm
Inflorescence	Many flowered	Few flowered	1 – 2 flowered
Calyx	Segments triangular-lanceolate	Segments linear	Segments broadly ovate
Corolla	Yellow, segments ovate, acute, 5-nerved	Yellow, segments recurved, 4-nerved	Yellow, segments irregularly tripartite, 1-2 nerved, inner surface lined with short glandular hairs
Anthers	Ovoid	Ovoid	Ellipsoid, slightly curved
Ovary	Ellipsoid densely covered with yellow, hispid hairs	Elongated, pubescent	Spherical, sparingly pubescent
Fruits	Globose, scabrous	Oblong, 3-5 × 2-3 cm, scabrous, slightly pubescent, with 10 elongated striae.	Globose to obovate, 2.5 – 5.5 cm across, glabrescent when young, turn brownish when ripe
Seeds	Broadly ovate, 5.5 x 4 mm, blackish, smooth	Ovate, 5 × 3.5 mm, reticulate	3 – 5, 8 x 12 mm flattened, broadly rectangular with an extended rounded apex, two-winged, surface rough with angular outgrowths

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