

# THREE NEW DISTRIBUTIONAL RECORDS TO ARUNACHAL PRADESH, NORTH EAST INDIA

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**ABSTRACT:** *Disporum longistylum* (H.Léveillé & Vaniot) H.Hara (Uvulariaceae), *Myosoton aquaticum* (L.) Moench (Caryophyllaceae) and *Passiflora quadrangularis* L. (Passifloraceae) are recorded first time from Arunachal Pradesh, North Eastern India. Detailed descriptions and photographs are provided for easy identification.

**Key words:** New records, *Disporum*, *Myosoton*, *Passiflora*, East Siang, Arunachal Pradesh.

## I. INTRODUCTION

North Eastern Institute of Folk Medicine (NEIFM), an Autonomous organization under Ministry of AYUSH, Government of India, located at Pasighat, Arunachal Pradesh is meant to record the ethno-botanical information's from the ethnic groups habituated at the north eastern parts of India. As part of the program, from the recent botanical survey at East Siang district of Arunachal Pradesh three taxa, viz. *Disporum longistylum*, *Myosoton aquaticum* and *Passiflora quadrangularis* was collected and by further study turns out new record to the flora of Arunachal Pradesh.

The genus *Disporum* Salisb. ex DC. is represented by about 30 species distributed in Western USA, Canada, Japan, China, India, Sri Lanka, Thailand, to Western Malaysia. Among them, 14 are located in China, of which 8 are endemic. In India, Srivastava (1996) has reported 3 species of *Disporum* from Sikkim, while Dasgupta (2006) reported only one species in India, meanwhile Balachadran & Ravikumar (2014) added *Disporum longistylum* to the Flora of India from Khasi hills of Meghalaya.

*Myosoton aquaticum* (L.) Moench is a monotypic taxa (Rana et al., 2009) belongs to the family Caryophyllaceae distributed in all temperate parts of the world.

*Passiflora* L. (1753: 955) is the largest genus of Passifloraceae with ca. 530 species. The species vary from lianescent herbs to trees and woody vines (Hansen 2006). It is mostly distributed in warm temperate to tropical regions of the World, but they are rare in Asia, Australia, and tropical Africa (Beninca et al., 2007). Approximately 96% of the species are distributed in America; however this recorded species also available in India, China, Southeastern Asia, Australia, the Pacific islands, and neighboring regions. Many species having ornamental value and a few are cultivated for their edible fruits. (Patel et al. 2011).

## II. MATERIALS AND METHODS

During the recent botanical survey at Pasighat and its surrounding areas the species of *Disporum*, *Myosoton* and *Passiflora* were collected. These species were studied further with the available literatures (Songyun and Tamura 2000; Majumdar 1993; and Yinzheng et al., 2001) and they are confirmed them as *Disporum longistylum* of

Uvulariaceae, *Myosoton aquaticum* of Caryophyllaceae and *Passiflora quadrangularis* of Passifloraceae.

While referring the State Floras, such as Flora of Namdapha, Arunachal Pradesh (Chauhan et al., 1996), Materials for the flora of Arunachal Pradesh (Hajra et al., 1996, Kumar et al., 2004, Choudhary 2008, Dash 2009), recent study from Pakke Wildlife Sanctuary and Tiger Reserve in East Kameng District (Tag et al., 2012) and the verification of specimen in Botanical Survey of India, regional circle at Itanagar was confirmed that these three species are not reported from Arunachal Pradesh. The voucher specimens will be deposited at CAL and deposited NEIFM Herbarium, Pasighat, Arunachal Pradesh, for future reference. A detailed description, geographical distribution, ecology and photos are provided for its easy recognition.

### III. RESULTS AND DISCUSSION

#### A. Taxonomic enumeration

##### 1. *Disporum longistylum* (H.Léveillé & Vaniot) H.

Hara in J. Jap. Bot. 59. 40.1984; Flora of China @ efloras.org. Vol. 24: 156. UVULARIACEAE

Erect, slender herbs, up to 1 m high. Rhizome without creeping stolon. Stem usually branched in the upper part. Petiole 3–5 mm; leaf blade lanceolate to elliptic, 12–15 × 4–6 cm, base obtuse, sub-oblique, apex long acuminate, dark green above, pale below with usually 3–5 distinct nerves from the base and 3–4 slender nerves in between the main nerves. Inflorescences terminal, umbellate, 2–8 flowers; pedicels 1.5–2.2 cm, angular, ribbed. Tepals base spurred, pale brown, green on middle and maroon from half of the middle to apex, oblanceolate to obovate, 1.7–2.4 cm × 4–6 mm, apex acuminate; spurs 4–5 mm. Stamens 6, 1.8 cm, exserted; filaments filiform, 1–1.3 cm, anthers 3–4 mm, bended, yellow. Ovary 2–3 mm. Style 1.5 cm, exserted.

**Fl.** Mar–Jun. **Fr.** Sep–Dec.

**Distribution:** China and India (Balachandran and Ravikumar 2014).



**Fig. 1.** *Disporum longistylum* (H. Léveillé & Vaniot)

H. Hara

**Specimen examined:** Arunachal Pradesh, Pasighat, Yaapgo village, 2-5-2015, 243 m asl, 28° 03' 37.70" N longitude & 95° 17' 48.17" E latitude; *K. Jeyaprakash*, NEIFM -0484.

#### **Habitat and Ecology:**

*Disporum longistylum* (H.Léveillé & Vaniot) H. Hara is occasionally found on the slopes of evergreen forests along stream sides and only three individual has located. It is commonly associated with *Ampelocissus hoabinhensis* C.L. Li, *Aesculus assamica* Griffith., *Mikania micrantha* Kunth, *Phlogocanthus thirciflorus* Nees, *Cyathula prostrata* (L.) Blume, *Polygonum chinense* Linnaeus, *Amorphophallus napalensis* (Wall.) Bogner & Mayo, *Dioscorea bulbifera* L., *Elsholtzia blanda* (Benth.) Benth., *Piper sylvaticum* Roxb., *Chloranthus officinalis* Blume, *Mussaenda frondosa* L. and *Solanum spirale* Roxb.

2. *Myosoton aquaticum* (L.) Moench, Methodus, 225 1794. *Cerastium aquaticum* L., *Malachium aquaticum* (L.) Fries; *Stellaria aquatica* (L.) Scop. CARYOPHYLLACEAE



Plant 10-15 cm high; stem weak, glandular hairy. Proximal leaves petiolate, distal leaves sessile, pubescent or glabrous, base rounded or bracts leaf like, margin glandular hairy; pedicel 1-2 cm, slender, densely glandular hairy. Sepals ovate-lanceolate, 4-5 mm, to ca. 7 mm in fruit. Petals bifid up to the base; lobes lanceolate, 3-3.5 mm. Stamens shorter than petals. Ovary ovoid; styles linear, curved. Capsule pendent from spreading pedicel, exceeding sepals. Seeds rusty brown, globose, ca. 1 mm, mammillate.

**Fl.** January-Jun, **Fr.** Jun-Aug.

**Distribution:** Nepal, Bhutan (Naithani 1990) and India [Himachal Pradesh (Chaudhary & Wadhwa 1984), Manipur (Singh et al., 2000), and Jammu & Kashmir (Singh et al., 2002)].

**Specimen examined:** Arunachal Pradesh, Pasighat, PLT road, 5-4-2015, 184 m asl, 28° 04' 09.31" N longitude & 95° 19' 08.70" E latitude; K. Jeyaprakash, NEIFM-461.

**Habitat and Ecology:**

*Myosoton aquaticum* (L.) Moench is abundantly found in waste lands, road side, valleys, forests borders, field margins of Pasighat and this species is used as fodder. This species commonly associated with *Cyathula prostrata* (L.) Blume, *Polygonum chinense* L., *Amorphophallus napalensis* (Wall.) Bogner & Mayo, *Dioscorea bulbifera* L., *Solanum*



**Fig. 2.** *Myosoton aquaticum* (L.) Moench

*spirale* Roxb. *Ageratum conyzoides* L., *Eclipta prostrata* (L.) L., *Fagopyrum esculentum* Moench, *Fimbristylis bisumbellata* (Retz.) Link., and *Digitaria ciliaris* Retz. (Koeler).

**3. *Passiflora quadrangularis* Linnaeus** Syst. Nat., ed. 10, 2: 1248. 1759. *Granadilla quadrangularis* (L.) Medikus. PASSIFLORACEAE

Herbaceous vines, woody at base. Growing up to 15 m high. Young stem quadrangular, narrowly winged. Stipules ovate-lanceolate. Petiole 3-5 cm, with 2 or 3 pairs of cupular glands. Leaf blade broadly ovate to sub orbicular, 5-15 × 7-13 cm, membranous, lateral veins 8-12 pairs, base rounded to cordate, margin entire, apex cuspidate. Tendril thick and strong, up to 36 cm; bracts leaf like, ovate. Pedicel 1-3 cm, triangular. Flowers opposite to tendril, violet to red, 6-8 cm across. Sepals pale green outside, creamy inside, throat and margin purple, narrowly ovate oblong, 3-4.5 cm, sub succulent. Petals red to pale violet red, oblong-oblancoate, 2.5-4 cm. Corona in 5 series, brown-white-purple, filamentous; outer 2 series 3-6 cm; middle series ca. 2 mm, capitate; inner 2 series 1-2 mm, threadlike; disk cupular. Androgynophore purple to creamy. Stamens 5, free, filaments creamy with purple dots, anther versatile, dorsifixed.

Ovary ovoid or cylindrical; styles purple, stigma capitate, 3-lobed, dark green. Berry green-yellow-orange at maturity, ovoid or cylindric, 20-23 cm, rind thick and fleshy. Seeds many, 7-9 mm, flat.

**Fl. & Fr.:** Feb-Aug.

**Distribution:** Global; India: Tamil Nadu (Nair & Henry 1983), Kerala (Sasidharan 2004, Nayar et al. 2006) and Maharashtra (Almeida 1998).

**Specimen examined:** Arunachal Pradesh, Pasighat, Tebo, 182 m asl, 28° 05' 20.17" N longitude & 95° 18' 23.66" E latitude; K. Jeyaprakash, NEIFM- 451.

**Habitat and Ecology:**



**Fig. 3.** *Passiflora quadrangularis* Linnaeus

*Passiflora quadrangularis* Linnaeus is found only one individual under cultivation in Tebo of Pasighat. The commonly associated species are *Chenopodium album* L., *Alternanthera sessilis* (L.) R. Br. ex DC., *Sacciolepis indica* (L.) Chase, *Oldenlandia diffusa* (Willd.) Roxb., *Ricinus communis* L., *Tabernaemontana divaricate* (L.) R. Br. ex Roem. & Schult., *Solanum nigrum* L., *Spilanthes acmela* (L.) L., *Morus indica* L., *Crysopogon aciculatus* (Retz.) Trin., *Xanthium indicum* (L.) Koen.

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