Stephania elegans Hook. f. & Thomson
MENISPERMACEAE

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Local Names

***Stephania elegans*: Nepali:** Taro lahara, Baatule paati, Baatulapaate; **Tamang** Paathaa, Tam Barki, Laharache; **Hindi:** Nagbel, Rajpatha, Dudhiya, Sankhjadi, Satwa, Myanaru**; English** Elegant Tape Vine (Jain and Jain 2018).

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Botany and Ecology

The genus *Stephania* Loureiro (1790: 608) (Menispermaceae) was described by the Portuguese botanist João de Loureiro based on two species, namely, *S. rotunda* Loureiro (1790: 608) and *S. longa* Loureiro (1790: 609). There are 71 genera and ca. 350 species in family Menispermaceae (Forman 1991; Semwal et al. 2010). More than 60 species of *Stephania* are currently recognized (Hu et al. 2008). They are distributed in tropical and subtropical Asia, tropical Africa, and Oceania, with a center of diversity located in South-East Asia. Among them, 37 species are recorded in China (Hu et al. 2008), 15 in Thailand (Forman 1991), and seven species in Nepal and Laos each (Press et al. 2000; Newman et al. 2007).

***Stephania elegans*:** Herbaceous vines. Branches slender, striate, glabrous, or subglabrous. Petiole 2–4 cm; leaf blade conspicuously peltate, narrowly triangular or ovate-triangular (sometimes subtriangular), 5–10 × 2.5–5.5 cm, papery, usually brown when dry, adaxially glossy, both surfaces glabrous, base subtruncate to slightly concave, sometimes cordate, apex slightly acuminate, sometimes obtuse, minutely mucronate, upward and downward each palmately 4- or 5-veined, raised abaxially, reticulation slightly conspicuous. Inflorescences simple (or compound) umbelliform cymes; peduncles slender and straight; flowers with pedicels, light green or purple. Male flowers: sepals 6, dark purple, obovate, ca. 1.6 × 1 mm, glabrous. Female flowers: perianth as in male flowers. Drupes red, broadly obovate-globose, ca. 7 mm, base subtruncate; endocarp 5–6 mm; condyle not perforate. Fruiting November. (Hu et al. 2008; WCSP 2020; Wu et al. 1994-2013).

Stephania elegans is one of the seven species reported in Nepal and commonly distributed in mixed subtropical forests, altitude up to 1000–1700 m a.s.l. (above sea level) (Press et al. 2000) and sometimes up to 2500 m a.s.l. (Fig. 1). *Stephania elegans* Hook.f. & Thomson is accepted species and its native range is Himalaya to China (Yunnan) and Indo-China. It is distributed in Nepal, Sikkim, NE-India,

Fig. 1 *Stephania abyssinica* (Menispermaceae), Mt. Kenya National Park, Kenya. (Photo R.W. Bussmann)

Bangladesh, Bhutan, N-Thailand, Myanmar, China (Yunnan), and Jammu & Kashmir. Genetically, it has (n = 18) chromosome number (Verma et al. 2018). It is found nearby village, open forest, cliff of forest, limestone mountains, secondary forest, and on river-banks. It occurs as a small herbaceous climbing shrub. Based on herbarium specimens, it is distributed in Doti, Panchthar, and Sindhuli districts and the river-sides of Marsyangdi, Bagmati and Koshi (Figs. 1, 2, 3, and 4).

Fig. 2 *Stephania abyssinica* (Menispermaceae), Mt. Kenya National Park, Kenya. (Photo R.W. Bussmann)

Fig. 3 *Stephania abyssinica* (Menispermaceae), Mt. Kenya National Park, Kenya. (Photo R.W. Bussmann)

Fig. 4 *Stephania abyssinica* (Menispermaceae), flowers, Mt. Kenya National Park, Kenya. (Photo R.W. Bussmann)

Phytochemistry

Semwal et al. (2010) stated that this genus contains alkaloids, gindarudine, tetrahydropalmitine, flavonoids lignans, steroids, terpenoids, and coumarins. Nine alkaloids are isolated from the leaves, stems, and roots; they are epihernandolinol, hasubanonine, aknadinine (Brossi 1988), N-methylcorydalmine, cyclanoline, magnoflorine, isotetrandrine, isochondodendrine, and cycleanine (Singh et al. 1981; Singh et al. 2004).

Local Medicinal Uses

Stephania elegans*:** The root is used for headache, cuts (Pant and Pant 2004), stomachache (Manandhar 1986, 1987), postpartum hemorrhage (Adhikari et al. 2019). Similarly leaves and steam buds are used to reduce blood in urine, appetizer, bodyache, backache, high bleeding during menstruation, gastritis, and abdominal pain (Adhikary et al. 2011). *S. elegans* is frequently used in traditional medicine because it contains alkaloids compound on its leaves, stems, and roots. It has traditionally been used for the treatment of asthma, tuberculosis, dysentery, hyperglycaemia, cancer, malaria, fever, intestinal complaints, sleep disturbances, and inflammation in Asian and African countries (Chopra et al. 1958; Gaur 1999; Kirtikar and Basu 2004; Semwal et al. 2010). The leaf of the plant is used to cure boils, blood and dysentery as ethnomedicine of Bantar, one of the dominant ethnic groups of Morang district, Nepal (Acharya and Pokhrel 2006). Root paste used to treat cuts and wounds (Singh et al. 2017). The methanolic extract of ***Stephania elegans showed antioxidant and anticancer capabilities (Sharma et al. 2017).

***Stephania abyssinica*:** Leaves are crushed and applied to wounds, especially tortoise bites. The roots serve as aphrodisiac. The plant powder is rubbed into small cuts on aching body parts (Kokwaro 2009). Used to treat headaches and fever (Singh et al. 2017). Root decoction used to remedy gonorrhea (Yineger et al. 2008). The leaf decoction is used to treat rabies (Giday et al. 2010), to treat stomachache, and expel a retained placenta after birth (Giday et al. 2009). Root powder is applied to wounds, and the root tonic used against impotence (Giday et al. 2007).

Stephania tetrandra is used to treat snakebites (Houghton and Osibogun 1993), and the species is commonly used in Chinese traditional medicine (Wu 2005).

It is evident that ***Stephania*** species possess anti-inflammatory, antioxidant, anti-diarrheal, antimicrobial, insecticidal, anti-nociceptive, neuro-protective, analgesic, and anti-hyperglycaemic activities (Das et al. 2019). Ethanolic extract of ***Stephania glabra*** and ***Stephania hernandifolia*** have been reported to exhibit free radical scavenging activity (Sharma et al. 2010; Singh et al. 2014).

Local Food Uses

***Stephania elegans*:** The leaves are eaten as vegetable (Singh et al. 2017).

Local Handicraft and Other Uses

***Stephania elegans*:** Extracts from the leaves have shown mild insecticidal properties against fruit flies in Thailand. The leaves are sometimes harvested from the wild for medicinal purposes and to make a jelly. The active constituent in Chinese "Jin Bu Huan Anodyne" tablets contain alkaloid (tetrahydropalmatine) comes from species of *Stephania*. These tablets are exported to western market from China (Aronson 2016). The whole plant is used as fodder for cattle in Dhading district of Nepal (Shah et al. 2018). Plant is ritual (Shrestha et al. 2018). The propagation of *Stephania* plants is possible by seeds. Root juice of *Stephania elegans* is also used as anthelminthic in calves in Nepal (Dangol 2008) and India (Quattrocchi 2012).

Stephania abyssinica*:** The extract of the whole plant is used for mastitis in cattle (Kokwaro 2009). The stem fibers are used for baskets (Beentje 1994). Eaten by livestock (Bussmann 2006). The stems are used to make ropes to tie house-posts, tools, to make milk containers (Bussmann et al. 2011). Various uses in ethnoveterinary medicine (Teklehaymanot and Giday 2007; Teklehaymanot et al. 2007). The leaf decoction is used to treat rabies (Giday et al. 2010). ***Stephania dinklagei is used as fish poison (Neuwinger 2004).

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