

## FIRST RECORD OF LORANTHACEAE MISTLETOES ON GYMNOSPERM HOSTS FROM NEPAL

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### ABSTRACT

Loranthaceae mistletoes rarely infect gymnosperm hosts. *Scurrula pulverulenta* (Wall.) G. Don and *Scurrula elata* (Edgew.) Danser have been recorded for the first time from the gymnosperm hosts *Metasequoia glyptostroboides* Hu & W. C. Cheng (Taxodiaceae) and *Pinus roxburghii* Sargent (Pinaceae) respectively from the Kathmandu valley, Nepal.

**Key words:** Gymnosperm, mistletoe, Nepal, new record, *Scurrula*.

Loranthaceae is the largest mistletoe family with 75 genera and ca. 900 species (Nickrent 2002) having major centers of diversity in tropical and south temperate habitats (Barlow 1987). Genus *Scurrula* is represented by five species in Nepal among them Hara et al. (1982) have reported four *Scurrula* species (*S. parasitica* L., *S. elata* (Edgew.) Danser, *S. pulverulenta* (Wall.) G. Don and *S. cordifolia* (Wall.) G. Don), and for the first time Devkota and Glatzel (1995) have reported a new species (*S. gracilifolia* (Schult.) Danser from Nepal.

Mistletoes have been reported to infect a wide range of woody host plants worldwide. Reports of dwarf mistletoes (Viscaceae) infecting gymnosperm hosts are common (Hawksworth and Wiens 1996 and Geils et al. 2002), whereas the infection of Loranthaceous mistletoes on gymnosperm hosts is of rare occurrence. None of the studies from the South Asian region in the past

(Alam 1986, Pundir 1994, Devkota and Acharya 1996, Devkota 2003) have reported Loranthaceous mistletoes infecting gymnosperm hosts. However, Grierson and Long (1983) have reported *Scurrula parasitica* L. parasitizing *Pinus roxburghii* Sargent from Bhutan. Similarly, Hawksworth et al. (1993) have reported *Dendrophthoe falcata* (L.f.) Etting (Loranthaceae), infecting only four gymnosperm hosts out of a total 401 host species. *S. elata* (Edgew.) Danser and *S. pulverulenta* (Wall.) G. Don are not reported from gymnosperm hosts from China (personal communication with Gilbert<sup>1</sup>).

The study was carried out in the Godawari area, including the Royal Botanical Garden between 1500 to 1800 m, about 16 km south-east of Kathmandu valley. Study area lies at the bottom of the Phulchoki mountain having warm temperate climate with three distinct evergreen broad-leaved

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forest types: i) mixed forest of *Schima-Castanopsis* at lower elevations, ii) Mixed forest of *Oak-Laurel* in the middle elevations, and iii) evergreen *Oak* forest at higher elevations.

Mistletoe species - *Scurrula elata* (Edgew.) Danser (Loranthaceae)

Host - *Pinus roxburghii* Sargent (Pinaceae)

The mistletoe was recorded on a *Pinus roxburghii*- Chir pine tree in the premises of Fishery Research Division, HMG Nepal at an elevation of 1560 m north of the Royal Botanical Garden. Host tree was 25 m tall having 41.5 cm diameter at breast height. There are five infections of *S. elata* in the middle of the host canopy at 12 m height from the ground. Vegetative growth of the mistletoe in this host was retarded by having small sized unhealthy leaves.

An infected host branch of 61 cm length having 8.5 mm diameter was collected with three infections. The lowest infection was the largest with a ball like primary haustorium measuring 2.75 cm in diameter. Nature of host tissue proliferation caused by the infection of *S. elata* was similar to the results of Devkota (2003) from the Annapurna Conservation Area, Central Nepal Himalayas. Epicortical roots are produced travelling in both acropetal and basipetal directions of the infected host branch producing only two secondary shoots.

Mistletoe species - *Scurrula pulverulenta* (Wall.) G. Don

Host - *Metasequoia glyptostroboides* Hu & W. C. Cheng

Out of 13 tree individuals of *Metasequoia glyptostroboides* Hu & W. C. Cheng (Dawn redwood, an exotic species to Nepal) in the Conservation and Education Section located in the north of Herbarium building at the Royal Botanical Garden, a single infection of *Scurrula pulverulenta*

(Wall.) G. Don was recorded on only one tree at 1550 m elevation.

The host tree was approximately 12 m tall having 26.8 cm diameter at breast height. There was a single infection of mistletoe on a 5 cm diameter host branch at about 9 m height from the ground. Infection was not collected since it was the only one. An epicortical root of approximate 1.5 m length was produced by the mistletoe in basipetal direction with few secondary shoots. Vegetative growth of the mistletoe showed normal growth as in other angiosperm hosts having long epicortical root and large sized leaf.

We are grateful to the University Grants Commission, Kathmandu for supporting the study. We would also like to thank to the National Herbarium and Plant Laboratories, Godawari, Lalitpur for their help, and to Mr. M. Gilbert for providing the information on the host range.

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