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# Attack of Killer Mistletoe on *Bauhinia variegata* Linn. in New Forest Campus, Dehradun, Uttarakhand, India

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**ABSTRACT: *Bauhinia variegata* Linn. is a valuable tree species, known for beautiful flower. It is planted as ornamental tree in various places in New Forest Campus, Dehradun. Mistletoes attack various tree species and severely affect their productivity. Aim of the study was to identify species of mistletoe which attacked *Bauhinia variegata* and to which extent infestation occurred. For the study, a survey was carried out in New Forest Campus. Study reveals that all the mature trees were invariably infested by the mistletoe. Species was identified as *Scurrula pulverulenta* (Wall.) G. Don. Suitable management strategies are suggested to curb the spread of mistletoe.**

**Keywords:** Mistletoe, Benda, Kachnar, Genetic improvement, Infestation.

## INTRODUCTION

*Bauhinia variegata* L. is a medium-sized economically important deciduous tree. It is locally known as Kachnar and belongs to the family Fabaceae subfamily Cercidoideae (Mao and Dash 2020). It is usually found in the sub-Himalayan tract and outer Himalayas from the Indus eastwards, ascending to 1830 m right upto Assam. A tree of dry deciduous forests, it occurs frequently on the southern slopes of dry rocky hills of east, central and south India. In its natural habitat, the absolute maximum shade temperature varies from 37.5°C to 47.5°C and the absolute minimum from 0°C to 17.5° C. The tree appears to adopt itself to rainfall ranging from 500 mm in the parts of Deccan and the Peninsula and as high as 2500 mm of Khasi and Jaintia hills of Meghalaya. In the western Himalayas, it ascends upto 1200 m, and in the Peninsula upto an elevation of 1250 m. It grows best in sandy loams and well drained soils (Luna, 1996). The species has been raised in plantation scale in Uttar Pradesh and Tamil Nadu. The species occurs naturally in the North Indian moist deciduous and Northern tropical dry deciduous forests as distinguished by Champion and Seth (1968).

The leaves, flowers and flower buds of Kachnar are eaten as vegetable (Khare *et al.* (2018). The wood is greyish-brown, hard and moderately heavy, mainly used for agricultural implements and fuel. The Bark is used as astringent tonic (Rajkapoor *et al.*, 2006) and dried buds are useful in diarrhea (Mali and Dhake 2009). Seeds contain oil. The leaves are a good fodder (Gautam, 2012). Species also planted in gardens for its beautiful purple flowers and typical notched leaves. In Forest Research Institute, Dehradun, species is planted various places.

Mistletoes are destructive partial parasites. They attack different species of trees and shrubs and causes great damage in both natural and plantation forests, orchards and parks throughout the world. They severely damage their hosts in various ways such as timber, fruit, oil content etc. (Chandra *et al.*, 2018). Therefore, it is essential that mistletoe species which is infesting host plant should be indentified and extent of infestation to be reported so that suitable measures can be adopted to curb the spread these mistletoes. There is no information available on mistletoe infestation on *B. variegata* in the New Forest Campus.

## MATERIAL AND METHODS

The study was conducted during September 2024 in Forest Research Institute Campus, Dehradun (Uttarakhand State, India). The average annual rainfall is 2118 mm of which 80 per cent is received from the south-west monsoon during July, August and September and remaining from retreating monsoon in the cold weather. Except May and June relative humidity is well over 40 per cent. Maximum temperature reaches upto 44°C and minimum upto 1°C It has elevation of 640 m and lies at N latitude 30°20′37.7″ and E. Longitude 77° 59′ 52.1″. *Bauhinia variegata* is planted in various places at the Forest Research Institute, Dehradun such as compartment no. 1, Trevor Road, takle road, etc. Observations for infestation of mistletoes on the *Bauhinia variegata* were recorded. Mistletoe species was collected, systematically studied and description was recorded. Species was authenticated from DD Herbaium, Forest Research Institute, Dehradun.

## RESULT AND DISCUSSION

It was observed that most of the trees of Kachnar were infested by Mistletoes in varying degrees. In compartment no.1 infestation was quite high and in other sites it was observed in initial stage (Fig. 1). It is locally known as Banda and was identified as *Scurrula pulverulenta* (Wall.) G. Don.

**Species Description.** A stout woody parasite with dark-grey bark. Leaves opposite, 10-15 cm. long, broadly ovate or ovate-oblong, coriaceous, thickly mealy-tomentose when young, base acute or rounded; petiole 1.2-1.7 cm. long. Racemes 1.2-6 cm. long, axillary, solitary or fascicled. Flowers 2.5 cm. long. Pedicels 0.5-0.7 cm. long, grey- scurfy outside. Calyx-limb 0. Corolla slender, tubular, curved; segments 4, linear, green. Style very slender. Fruit 0.7 cm long, turbinate, grey, tomentose. Flowers: September-May and probably throughout the year.

Mistletoe infestation on commercially important tree species have been reported by a number of researchers Gill and Hawksworth (1961); Hawksworth (1963); Pundir (1979); Ghosh *et al*. (1984); Kalita and Chandra (2002); Kalita *et al*. (2006); Chandra *et al*. (2010); Chandra (2014); Chandra and Naithani (2017). In the current investigation, attack of *S. pulverulenta* was observed on branches of *B. variegata* trees wherever it was found. Infestation was in initial stage, however, in few trees, it was observed in advance stage.

**Fig. 1.** Infestation of *Scurrula pulverulenta* (Wall.) G. Don. on the branches of *Bauhinia variegata* L.

## CONCLUSION

Mistletoes are partial parasites and they attack various tree species. *B. variegata* is an important tree species of varied uses. However, the quality and quantity of timber and flower are being affected by the mistletoe infestation. As infestation advances, quality and quantity may severely be declined. To curb the spread of mistletoe infestation, suitable measures should be adopted. Removal of mistletoes manually may be the best practice to stop the spread of infestation. In advance stage, it is difficult to remove mistletoe and it can heavily damage the tree. Therefore, it is suggested that mistletoes should be removed in initial stage. It will aid in enhancing the timber and flower's yield and quality. Genetic improvement programme for selection of superior mistletoe resistant genotypes of Kachnar should be taken up for raising new plantation.

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**Conflict of Interest.** None.

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