

First report of the poplar leaf miner, *Phyllonorycter populifoliella* (Treitschke) (Lepidoptera: Gracillariidae) from India

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Abstract

Here we report about the discovery of the poplar leaf miner, *Phyllonorycter populifoliella* (Treitschke) in India. The mines of this micromoth were found in noticeable density on the leaves of poplar, *Populus* sp. (Salicaceae) in the northern mountainous region Ladakh in 2017–2018. We provide short morphological diagnosis, describe bionomics and analyze molecular data of *Ph. populifoliella* from India comparing sequences with those from other countries in Eurasia where the species is known as native. We also illustrate male and female genitalia, an adult of the moth, the leaf mines and the infestation plot in Ladakh, and discuss the occurrence of the species in the country.

Key words: Novel distributional record, leaf-mining micromoth, *Populus*, Ladakh, DNA-barcoding

Introduction

Poplars, *Populus* spp. (Salicaceae) are important components of natural forests and agroforestry in India (Ahmad & Faisal 2012). Poplar stands cover the territory of 317,800 ha; mixed stands of poplars and willows are found on the area of 5,000 ha in India (National Poplar Commission 2015). Overall, 18 poplar species are known to occur in India, among which six species are indigenous: *Populus ciliata* Royle, *P. alba* L., *P. euphratica* Oliver, *P. gamblei* Dode, *P. glauca* Haines, and *P. tremula* L. (Fang *et al.* 1999; Naithani & Nautiyal 2012; Kumar & Singh 2012; Mushtaq *et al.* 2018) (Table S1). Other 12 species, including several representatives of the sections Aigeiros (black poplars) and Tacamahaca (balsam poplars), have alien origin (North American, Eurasian) (Table S1). After introduction of black and balsam poplars to India in early and mid 20th century, they become naturalized and nowadays are cultivated intensively in the country, especially North American *Populus deltoides* (Aigeiros) that performs better than others (Kumar & Singh 2012). Timber from alien poplar trees is in growing demand for plywood, board, match, paper, and sports goods industries in India (Kumar & Singh 2012).

In India, overall, 133 insect species have been documented on poplars (Ahmad & Faisal 2012). Rishi (1979) identified 32 insect pests associated with poplars in Kashmir Valley, a region that, together with Ladakh, belongs to Jammu and Kashmir union territory situated in the Northern India. Singh & Singh (1987) listed various poplar pests and diseases in India. Further, Pandey *et al.* (2007) highlighted eight major insect pests from poplar and willow plantations of the Ladakh region, i.e. leaf-chewers (Lepidoptera, four species; Coleoptera, one species), gallers (Hymenoptera, one species; Hemiptera, one species) and scales (Hemiptera, one species).