

First Report of *Lobesia botrana* on *Daphne gnidium* in North of Tunisia

Sonia Hammami, Laboratoire de Gestion et de Valorisation des Ressources Forestières, Institut National des Recherches en Génie Rural, Eaux et Forêts, Université de Carthage, Ariana, Tunisia ; **Faculté des Sciences de Bizerte, Université de Carthage, Tunisia**, **Olfa Ezzine, Samir Dhahri, and Mohamed Lahbib Ben Jamâa**, Laboratoire de Gestion et de Valorisation des Ressources Forestières, Institut National des Recherches en Génie Rural, Eaux et Forêts, Université de Carthage, Ariana, Tunisia

ABSTRACT

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In Tunisia, *Lobesia botrana* is a pest of grapevine. Larvae of *L. botrana* were observed for the first time in 2014 in Sejnane (Northwestern Tunisia) on *Daphne gnidium* and more recently, in 2017, in Delhiza (Northeastern Tunisia). Larvae need to enter into a bud at budburst to feed on young leaves. Pupae were observed from the end of May to early June on *D. gnidium* buds and adults emerged in June. After mating, female lays eggs by mid-June. In this paper, we present a first report of *L. botrana* on *D. gnidium* in Tunisia.

Keywords: Daphne gnidium, Lobesia botrana, North of Tunisia

Lobesia botrana is mainly known as a pest of grapevine (*Vitis vinifera*). The moth is polyphagous, it attacks a large diversity of host plants (Masante-Roca et al. 2007) and sometimes achieves its development on toxic plants such as *D. gnidium* (Ladhari et al. 2011). This evergreen shrub grows in the Mediterranean area and is used in traditional medicine (Mezghani 1992) as a diuretic agent to treat toothache (Borris et al. 1998) and against hepatitis (Bellakhdar et al. 1991). It also has an

antiproliferative effects (Chaouki et al. 2009). *D. gnidium* is a main host for *L. botrana* that would have spread in the vine (Marchal 1912). Larvae were observed feeding on other host species (more than 30) such as: *Actinidia chinensis*, *Arbutus unedo*, *Berberis vulgaris*, *Clematis vitalba*, *Cornus mas*, *Cornus sanguinea*, and *D. Laureola* (Bovey 1966; Thiéry and Moreau 2005).

L. botrana was firstly described and reported by Denis and Schiffermüller (1776) from Australia under the name of *Tortrix botrana*. The species is included in the genus *Lobesia* by Guenée (1845).

L. botrana is a Palaearctic insect. It was widespread in Central and Southern Europe (Noma et al. 2010), in North and West Africa and in Egypt

Corresponding author: Sonia Hammami
Email: sonia.hamamii@gmail.com

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(Abdel-Lateef et al. 1978; Ali et al. 1978; EPPO 2013; Nasr et al. 1995). It occurs in the Middle East, the Central of Asia, Japan, Thailand and America (EPPO 2013).

In Tunisia, this insect was reported for the first time on grapevine in Cap-Bon by Bovey (1966). Moreover, in 2014 we observed *L. botrana* for the first time on *D. gnidium* in Sejnane in Northwestern Tunisia (latitude 37°11'N, longitude 9°11' E, elevation 48 m). More recently, in 2017, we observed this pest in Delhiza (Cap-Bon) in Northeastern Tunisia (latitude 36°51'N, longitude 10°47' E, elevation 401 m). Morphological identification was done by Dr. Pasquale Trematerra (General and Applied Entomology, University of Molise, Campobasso, Italy) using the Razowski (2003) key.

In European vineyards, *L. botrana* has two to four generations per year on vine and it is active from early spring to late summer (Noma et al. 2010). The larvae go through five instars like all Tortricidae. Adult males emerge about a week before females (Valeria et al. 2011). Eggs are laid singly and more rarely in small clusters of two or three on or near buds, pedicels, flowers or fruits of host plants (Noma et al. 2010).

In this study, host plant infestation was estimated in April 2017 in Sejnane and Delhiza, by counting the number of infested buds per plant on 30 *D. gnidium* trees. In the laboratory, infested buds (Fig. 1) were observed under a binocular microscope (Leica, S42) to raise the eggs, different larval stages and pupae. A total of 12 infested buds was collected from Delhiza (0 and 3; average 0.4 buds/plant) and a total of 148 infested buds from Sejnane (0 and 21; average 4.9 buds/plant). Host plant infestation was higher in Sejnane (76%) than in Delhiza (26%).

The first and the second instars larvae were observed from the end of March until the beginning of April on buds (Fig. 2.b). Mature larvae (Fig. 2.c) were observed from mid-April to mid-May feeding on budburst and young leaves. Pupa was observed from the end of May to early June (Fig. 2.d). Adults (Fig. 2.e) flight was observed in June. After mating, female laid eggs (Fig. 2.a) by mid-June.

This work is the first report of *L. botrana* on the medicinal wild species *D. gnidium* in Tunisia and it will be continued by the study of its bio-ecology and its natural enemies.



Fig. 1. *Daphne gnidium*, a: Infested buds; b: Healthy buds.



Fig. 2. *Lobesia botrana*, a: Egg; b: Young larva (L1); c: Mature larva (L5); d: Pupae and e: Adult.

RESUME

Hammami S., Ezzine O., Dhahri S. et Ben Jamâa M.L. 2018. Premier signalement de *Lobesia botrana* sur *Daphne gnidium* au Nord de la Tunisie. Tunisian Journal of Plant Protection 13 (si): 199-202.

En Tunisie *Lobesia botrana* est connu comme ravageur de la vigne. Les chenilles de *L. botrana* ont été observées pour la première fois en 2014 dans la région de Sejnane (Nord-Ouest de la Tunisie) sur *Daphne gnidium*, et plus récemment, en 2017, à Delhiza (Nord-Est de la Tunisie). Les larves pénètrent dans le bourgeon pour se nourrir des jeunes feuilles. Les chrysalides ont été observées entre fin mai et début juin dans les bourgeons de *D. gnidium* et les adultes en juin. Après l'accouplement, la femelle dépose les œufs en mi-juin. Ce travail est un premier signalement de *L. botrana* sur *D. gnidium* en Tunisie.

Mots clés: *Daphne gnidium*, *Lobesia botrana*, Nord de la Tunisie

ملخص

همامي، سنية وألفة الزين وسمير الظاهري ومحمد الحبيب بن جامع. 2018. أول تقرير حول حشرة *Lobesia botrana* على نبتة *Daphne gnidium* في شمال تونس.

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لأول مرة في سجنان تعرف حشرة *Lobesia botrana* في تونس كافة على العنب. شوهدت يرقات *L. botrana* (شمال غربي تونس) على نبتة *Daphne gnidium* سنة 2014 ومؤخرا بدلهيزة (شمال شرقي تونس) سنة 2017. تخترق اليرقات البراعم لتتغذى من الأوراق الصغيرة. لوحظت الشرائق بين أواخر شهر ماي إلى أوائل شهر جوان داخل براعم *D. gnidium* والفراشة البالغة في جوان. بعد التزاوج، تبدأ الأنثى بوضع البيض في منتصف شهر جوان. هذا العمل هو أول تقرير لحشرة *L. botrana* على نبتة *D. gnidium* في تونس.

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