

**NOTES ON *HEORTIA VITESSOIDES* (MOORE)
(LEPIDOPTERA: CRAMBIDAE: ODONTIINAE), AN
ECONOMICALLY POTENTIAL PEST OF *AQUILARIA*
MALACCENSIS BENTH IN MALAYSIA**

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ABSTRACT

A lepidopteran moth, *Heortia vitessoides* (Moore) (Crambidae: Odontiinae) was recorded for the first time attacking saplings of *Aquilaria malaccensis* Benth (Thymelaeaceae) in several plantations in Malaysia. The larvae have a brown head and pale green body with a broad dotted black line along each side their abdomen. They live gregariously in shelters of leaves that are loosely tied together by silken threads. Their feeding activities could cause severe defoliations on saplings in the field. Even though most of the saplings survived from single infestation but repeated infestations could interfere the growth and development of the tree. Thus recurring infestations could pose a serious economic implication to productivity of the trees.

Keywords: Lepidoptera, Crambidae, Odontiinae, Pest, Malaysia

ABSTRAK

Rama-rama Lepidoptera, *Heortia vitessoides* (Moore) (Crambidae: Odontiinae) direkodkan buat kali pertama telah menyerang anak pokok *Aquilaria malaccensis* Benth (Thymelaeaceae) di beberapa ladang di Malaysia. Larva mempunyai kepala coklat dan badan berwarna hijau dengan garisan bertompok besar hitam sepanjang kedua sisi abdomen. Mereka hidup berlidung pada dedaunan yang terikat longgar bersama-sama dengan benang sutera. Aktiviti makan mereka menyebabkan kerosakan teruk daun anak pokok di lapangan. Walaupun kebanyakan anak pokok terselamat dari serangan tunggal tetapi serangan berulang boleh mengganggu pertumbuhan dan pertumbuhan pokok. Oleh itu serangan yang berulang-ulang boleh menyebabkan kerugian impak ekonomi yang cukup serius kepada produktiviti pokok.

Kata kunci: Lepidoptera, Crambidae, Odontiinae, Perosak, Malaysia

INTRODUCTION

Aquilaria malaccensis Lamk. (Thymelaeaceae) is one of the fifteen species in the Indomalesian genus *Aquilaria*. The tree is widely distributed in the South and Southeast Asia (CIFOR 1996). Like other species of *Aquilaria*, *A. malaccensis* produces resin-impregnated heartwood, known as gaharu or agarwood, a highly valuable forest product currently traded internationally. This fragrant wood is being used in many religious functions and medicinal and aromatic preparations. The leaves have been used recently in combination with other herbs as a tea preparation. The depleting sources from natural forests and high consumer demand around the world, particularly from the Middle East, have recently led to a spiraling price increase of the products. This scenario has inspired many individuals and companies in the region to establish wide scale *Aquilaria*

plantations. Plantations of *Aquilaria*, if successful, would definitely offer the best alternative to take pressure off the wild populations by reducing incidences of indiscriminate felling of trees in the search for gaharu, oleoresins that permeate the heartwood in response to wounding and fungal infection (Ng et al. 1977). To date, Malaysia has about 1000 ha of *A. malaccensis* planted as small scale plantations around the country. *Aquilaria malaccensis* is a fast growing species, adapted to wide range of soils and starts producing flowers and seeds as early as four years old. Like many plantation species, *A. malaccensis* is exposed to many insects and diseases when it is grown as a monoculture in a plantation. One of the insects recorded for the first time attacking *A. malaccensis* grown in a plantation in Malaysia is *Heortia vitessoides* (Moore) (Lepidoptera: Crambidae: Odontiinae). Because of its gregarious behaviour of the caterpillars, the pest has been mistakenly referred to as armyworms, *Spodoptera litura*, by many growers and in some reports.

THE INSECT

Egg

The eggs, yellowish green in colour, are laid in clusters on the underside of leaves.

Larva

The larvae live gregariously in shelters of leaves that are loosely tied together by silken threads (Fig. 1). A full grown larva, about 25 mm in length, has a brown head and pale green body with a broad dotted black line along each side its abdomen (Fig.2). Hairs are sparsely distributed on the abdomen. Mature larva crawls down to ground and pupates in the soil.

Pupa

The pupa, typically an obiect, 15 mm long and 3 mm wide, is dark brown in colour (Fig. 3).

Adult

The adult is a medium sized moth wing a span of 25-30 mm. The forewing is white with black with prominent spots and stripes (Fig. 4). The hindwing is white with black marginal band. The head and thorax are white and black stripes. The abdomen is yellow with dorsally black stripes.

Natural enemies

Heortia vitessoides has some natural enemies. A braconid parasitoid that has yet to identified, was recorded from field collected larvae. Another natural enemy seen in the field preying on the larvae of *H. vitessoides* was *Sycanus dichotomous* (Hemiptera: Reduviidae) (Fig. 5). This is a general predator preying on soft bodied arthropods particularly caterpillars.

The damage

Young larvae of *H. vitessoides* feed gregariously on young leaves. They scrap the surface of the leavesmaking the leaves appear transparent. As the larvae mature, they tend to eat all of the leaves on one branch before moving on to the next. They also build web as they feed on the leaves.Trees with recurring infestations are often totally defoliated.

The outbreaks

A sporadic attack of *A. malaccensis* was first observed in one of the earliest plantations in Lipis, Pahang in 2007. Subsequently outbreaks were reported to occur in the trial plots in Merchang, Terengganu and Kg. Kota Siam, Kinta, Perak, in March and August 2009, respectively.

DISCUSSION

Heortia vitessoides is widely distributed throughout the Indo-Australian region including Malaysia (Robinson et.al. 1994). The moth has been considered as one of the emerging pests of *A. malaccensis* in India (Kalita et. al. 2001).even though *H.vitessoides* is an indigenous species in Malaysia, it has not been reported to feed on *Aquilaria*. The larva might have been feeding unnoticeably on wild *Aquilaria* or on other plants such as *Phaleria* spp. (Robinson et.al. 1994). Since *Aquilaria* is now being grown in a large plantation, the moth has taken an advantage to establish itself on this abundant food resource. This phenomenon has led many incidences of the moth attacking *Aquilaria* trees that have been planted in the vicinity of forest areas. These recent outbreaks indicate that the insect can be a potential pest of *Aquilaria*, particularly during its early establishment in the field. Even though most of the saplings survived from the first infestation but their growth and development might be retarded in repeated infestations. Such outbreaks could pose a serious economic implication on productivity of the tree. The presence of natural enemies such as parasitoids and predators in association with pest indicates that natural enemies are functioning in the ecosystem. However, the effectiveness of the natural enemies in regulating the pest population has yet to be quantified. Thus much more research is required into the growing and management of *Aquilaria*, including its pest management, to realize the full potential of the tree.

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REFERENCES

- CIFOR, 1996. Manual of Forest Fruits, Seeds and Seedlings. Version 1. CD-Rom Publication No. 1. CIFOR, Bogor, Indonesia.
- Kalita, J., Bhattacharyya, P. R., Nath, S. C. 2001. *Heortia vitessoides* Moore (Lepidoptera: Pyralidae): A serious pest of Agarwood plant (*Aquilaria malaccensis* Lamk.). *Geobios.* 29, 13-16.
- Ng, L.T., Chang, Y.S., Kadir, A.A. 1977. A review of Agar (Gaharu) producing *Aquilaria* spp. *J. Trop. For. Prod.* 2:272-285.
- Robinson, G.S., Tuck, R.K., Shaffer, M. 1994. *A field guide to smaller moths of South-East Asia*. Malaysian Nature Society, Kuala Lumpur.



Fig. 1. Larvae of *H. vitessoides* gregariously feeding on *Aquilaria* leaves



Fig. 2. A mature larva of *H. vitessoides*



Fig. 3. A pupa of *H. vitessoides*



Fig. 4. An adult *H. vitessoides*



Fig. 5. A predator, *Sycanus dichotomous* searching for *H. vitessoides* larvae on *Aquilaria*