

낙엽송을 가해하는 한국미기록 낙엽송잎벌(신칭)(벌목, 잎벌과)의 발견

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Discovery of *Pachynematus itoi* Okutani (Hymenoptera: Tenthredinidae) infesting *Larix kaempferi* (Lamb.) Carriere from Korea

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ABSTRACT : *Pachynematus itoi* Okutani, belonging to the family Tenthredinidae (Hymenoptera), which infested *Larix kaempferi* (Lamb.) Carriere in the middle areas of Korea, is reported for the first time from Korea. External characteristics of adults are briefly redescribed with photos. Also its damages and bionomic data are discussed.

KEY WORDS : Fauna, Tenthredinidae, New record, Systematics, Korea

초 록 : 우리나라 중부지방에서 낙엽송의 잎을 가해하며 피해를 발생시키는 잎벌과의 낙엽송잎벌(신칭)을 처음으로 발견하여 보고한다. 본 연구를 통해 확인된 피해범위 및 관찰된 생활사 결과를 보고하며 성충의 암수 외부형태 특징을 도해하였다.

검색어 : 분포, 잎벌과, 미기록종, 분류, 한국

Introduction

Pachynematus itoi Okutani, 1955, is a notorious sawfly pest of larch in Japan. It was first described by Okutani (1955) based on the material obtained during the mass occurrence of the species in 1955-1956 in Nagano Prefecture, central Honshu, and the biology of the species was studied in detail by Torii & Takizawa (1956), Ito (1956, 1957), and Takizawa (1957). Occasional outbreaks

of *P. itoi* have been recorded in larch forests in northern and central Honshu (Takizawa, 1994), but this sawfly has not been found outside of Honshu in Japan. Xiao *et al.* (1992), on the other hand, recorded the species from Heilongjiang, Jilin, and Hebei in the northeastern China.

Recently we found its damage in the northern and middle part of Province Kangweon in Korea. The damage has been observed since 2004. Its damages are severest

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in June to July covering 850 ha of the forests in the middle area of Korea.

In the present study, we report *Pachynematus itoi* for the first time from Korea. External characteristics are redescribed along with photos. Also its bionomics observed is briefly discussed. Material studied is deposited in the collection of the Korea National Arboretum (KNA), Pocheon, and Korea Forestry Research Institute (KFRI), Seoul, Korea.

Systematic Accounts

Pachynematus itoi Okutani 낙엽송잎벌(신칭) (Figs. 1-7)

Pachynematus itoi Okutani, 1955: 98-100.

Diagnosis. *Pachynematus itoi* can be separated from the related nematine sawflies by its pale brownish coloration, with three characteristic black spots on the mesonotum, and the basally strongly infuscated wings.

Adult. Female (Fig. 1-2). Length 8 mm. Pale yellowish brown, with following parts black: very narrow area around each ocellus, cervical sclerite, large bell-shaped spot on mesoscutal median lobe, large elongate spot on each mesoscutal lateral lobe, most of mesopleuron (except for anterior half of mesepisternum), part of metascutum, entire metapleuron, legs (except for pale brown fore and middle tibiae and tarsi), median part and narrow lateral margins of propodeum, median parts of a few basal abdominal terga, and obscure spots on lateral margins of 2nd to 7th abdominal terga. Mandible, except for basal part, blackish brown. Antenna dark brown, becoming blackish towards apex. Wings blackish infuscated, more strongly so in basal 2/3; veins black, with veins C and R pale brown; stigma black in basal 1/3 and pale brown in apical 2/3. Sawsheath dark brown. Clypeus deeply emarginated; hind tibia with longitudinal depression on outer surface; claws with rather small inner tooth. Sawsheath short, dorsally pointed and apically truncate in lateral view.

Male (Fig. 3-4). Length 6.5 mm. Pale yellowish brown, with following parts black: most of dorsal surface of

head, including ocellar and postocellar areas, cervical sclerite, entire mesonotum, mesopleuron, metanotum and metapleuron, all coxal bases, and dorsal part of abdomen (laterally becoming pale brown). Mandible, antenna, and wings as in female, but veins C and R not paler than other veins and stigma with only median part pale brownish. Hind tarsus more or less darkened. Structure similar to female; eighth abdominal tergum with conspicuous median process at posterior margin.

Egg (Fig. 5). Oval, 1.37 mm × 0.52 mm. Pale yellow and change to yellowish brown before hatching.

Larva (Fig. 6). Matured larva 14-17 mm. Head black, thoracic legs brown. Body dark green with a large black spot on dorsal surface of thorax, with two black hair bundles on each of 1st to 7th abdominal segments.

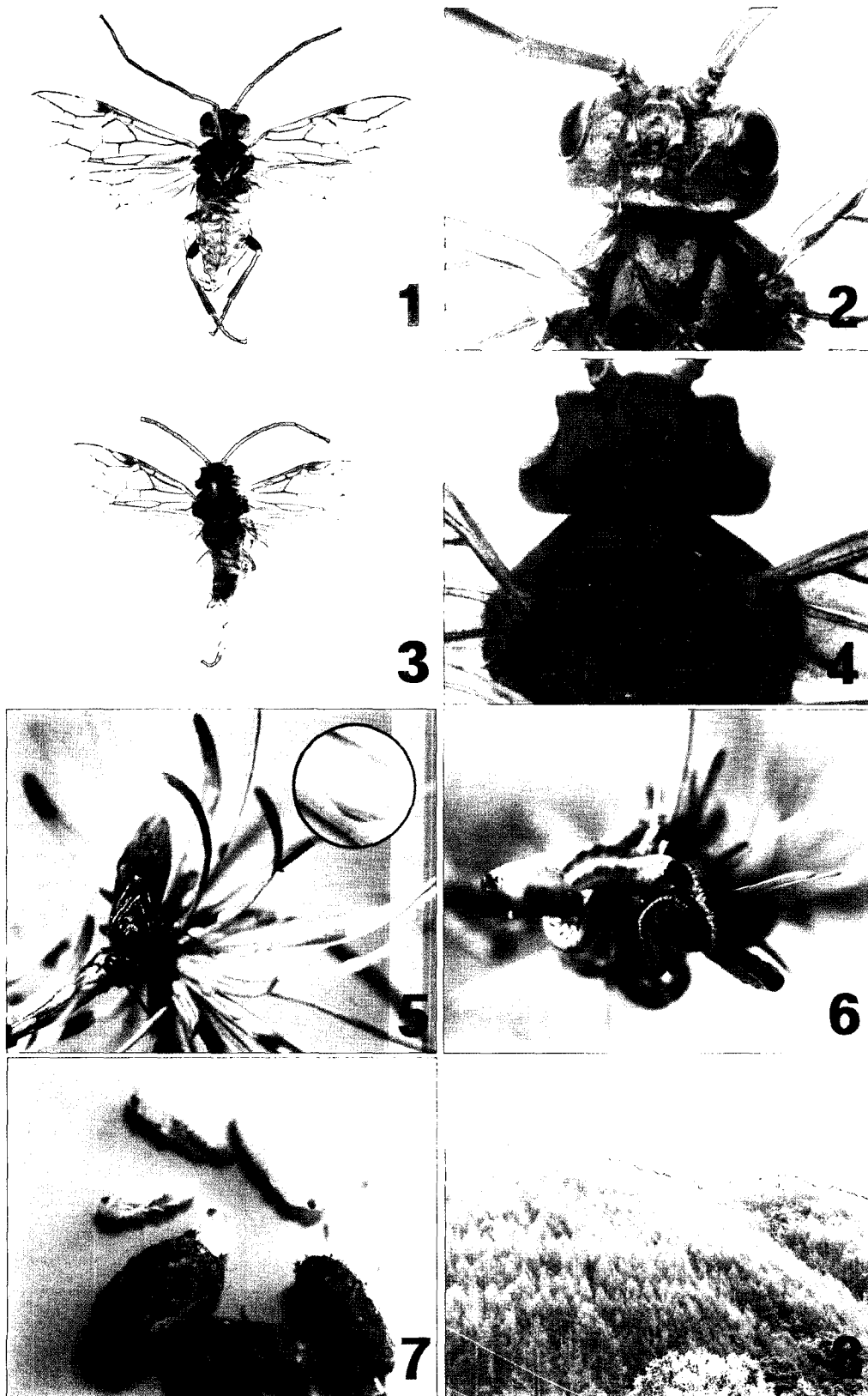
Pupa (Fig. 7). Length 8~9 mm. Milky white. Compound eye red. Cocoon 8.9 mm × 3.9 mm, oval shaped, dark reddish brown.

Adult material examined. 10♂ 10♀ Cheolwon, Gangweon-do, 10. VI. 2006 (J.D. Park, I.K. Park, S.C. Shin)-coll. KNA. 2♂ 3♀ Cheolwon, Gangweon-do, 8. VII. 2005 (C.S. Kim); 50♂ 30♀ same locality, 10. V. 2006 (J.D. Park); 30♂ 20♀ same locality, 8. VII. 2006 (J.D. Park); 10♂ 5♀ Taebaek, Province Kangweon, 17. VIII. 2006 (J.D. Park) - coll. KFRI & KNA.

Distribution. Korea (new record), Japan, China (Northeast: Heilongjiang, Jilin, Hebei).

Host plant. *Larix kaempferi* (Lamb.) Carriere, *L. olgensis* Henry, and *L. gmelini* (Rupr.) Rupr. (see Xiao *et al.*, 1992).

Biology. After the damage of *Larix kaempferi* (Lamb.) Carriere by *Pachynematus itoi* was first found in Inje and Yanggu, Kangweon Province in 2004, it has been spreaded to Chuncheon, Cheolweon, Wonju, Hwengseong, and Taebaek areas in the Province. Larvae prefer leaves of the spur rather than the new shoot of the host plant for feeding. It has three generations a year in this country, with the emergence of adults of the 1st generation from May, the second during late June to early July, and the third generation emerges in August. They overwinter in prepupal stage within a cocoon under the fallen leaves or ground surface. The female lays eggs under the leaf tissue forming a linear egg mass including 1-7 eggs per leaf.



Figs. 1-8. 1-2, female; 3-4, male; 5, eggs; 6, larvae; 7, pupa and cocoon; 8, Gangweon-do Infested area in 2004.

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