Zootaxa 3884 (4): 301–318
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.3884.4.1
http://zoobank.org/urn:lsid:zoobank.org:pub:2F61B0CD-9FBA-42CB-958D-28008232F2BF

Sawflies of the genus *Emphytopsis* (Hymenoptera, Tenthredinidae) associated with *Stewartia* (Theaceae) in Japan

AKIHIKO SHINOHARA[1,5], TAKESHI SAITO[2], SHIN-ICHI IBUKI[3] & HIDEHO HARA[4]

[1]*Department of Zoology, National Museum of Nature and Science,4-1-1 Amakubo, Tsukuba, Ibaraki, 305-0005 Japan. E-mail: shinohar@kahaku.go.jp*
[2]*Nishimoro 3-10-17, Kanuma, Tochigi, 322-0029 Japan. E-mail: mosaku@bc9.jp*
[3]*Wami 1355-13, Nakagawa, Tochigi, 324-0612 Japan. E-mail: banbi-fa@ktd.biglobe.ne.jp*
[4]*Forestry Research Institute, Hokkaido Research Organization, Bibai, Hokkaido, 079-0198 Japan. E-mail: hara-hideho@hro.or.jp*
[5]*Corresponding author*

Abstract

Japanese species of the sawfly genus *Emphytopsis* Wei & Nie, 1998, are reviewed and the following four species are recognized and keyed: *E. flatoserrula* Wei, 2011, from Kyushu, *E. nigromaculata* (Takeuchi, 1952) from Honshu, Shikoku and Kyushu, *E. shinoharai* Wei & Niu, 2011, from Honshu and Shikoku, and *E. vernalis* Shinohara, n. sp., from Honshu and Kyushu. *Stewartia pseudocamellia* Maxim. (Theaceae) is recorded as a host plant for *E. nigromaculata* and *E. vernalis* and the larvae of these two species are briefly described. The life history of these two species is discussed based on field observations and rearing records.

Key words: *Emphytopsis vernalis*, *Emphytopsis nigromaculata*, new species, host plant, *Stewartia pseudocamellia*, life history

Introduction

Emphytopsis Wei & Nie, 1998 (Hymenoptera, Tenthredinidae) is a small East Asian genus of sawflies comprising eight Chinese and three Japanese species (Wei & Niu 2013). It belongs to the subfamily Allantinae and is close to the genera *Taxonus* Hartig, 1837, and *Allomorpha* Cameron, 1876 (Wei & Nie 1998). From these two genera, *Emphytopsis* is separated by the absence of closed middle cells and the apically shortly petiolate cell 1A (i.e., crossvein a joins vein 1A before the junction of crossvein cu-a with 1A) in the hindwing of both sexes and the characteristic yellowish white or pale brownish (greenish in life in some species) and black color pattern of the adults (Fig. 2). *Emphytopsis* shares with *Allomorpha* a basal position of the junction of the crossvein 1cu-a with the vein Cu in the forewing, but, in addition to the features given above, the thick and flattened flagellomeres of the latter genus will distinguish the two genera. Wei *et al*. (2011) revised the world species and Wei & Zhou (2012) and Wei & Niu (2013) described one new species each from China thereafter.

In Tochigi Prefecture, central Honshu, Japan, Saito and Ibuki recently found infestation of *Stewartia pseudocamellia* Maxim. (Theaceae) by sawfly larvae and observed their biology. Saito first found the damage of the plant in Kanuma City in 2007 and later confirmed occurrence of two closely related species of sawflies feeding on the same plant in Kanuma City and Nikko City by rearing experiments in 2008 to 2012. Ibuki also found the sawfly larvae feeding on the same plant in Nakagawa Town and reared them in 2011 to 2012. Severe damages were observed in Kanuma City in 2007 and 2008 but heavy infestations almost ceased thereafter. The adult material obtained by the rearing experiments as well as the adult specimens collected on *S. pseudocamellia* in the same or nearby localities were forwarded to Shinohara, who determined the two species as *Emphytopsis nigromaculata* (Takeuchi, 1952) and an undescribed species of the same genus. This paper is a review of the Japanese species of *Emphytopsis* based on this material and the other available Japanese specimens including all the relevant types. A new species, *E. vernalis*, is described and biological notes on *E. nigromaculata* and *E. vernalis* are given based on Saito's and Ibuki's observations.

Accepted by A. Taeger: 21 Oct. 2014; published: 17 Nov. 2014

Acknowledgements

We thank N. Hirai and S. Kobayashi (Osaka Prefecture University, Sakai), T. Keino (Nishitokyo), H. Nagase (Kamakura), T. Naito (Himeji) and I. Togashi (Hakusan) for making the material available for the present study. We also thank F. Ito (Kanmaki) for offering excellent photography used in Figure 2 and A. Taeger and M. Prous (Senckenberg Deutsches Entomologisches Institut, Müncheberg) and an anonymous reviewer for their helpful comments on the manuscript. This study was partly supported by JSPS KAKENHI Grant No. 25440223.

References

Nagase, H. (2004) Hymenoptera (excl. Formicidae). *In*: *Insect Fauna of Kanagawa*. Kanagawa Konchû Danwakai, Odawara, pp. 1241–1326. [in Japanese]

Nagase, H. (2007) Hymenoptera. *In*: Research Group of the Tanzawa Mountains (Ed.), *Results of the Scientific Research on the Tanzawa Mountains, Appendix: A List of Plants and Animals*. Hiraoka Environmental Science Laboratory, Sagamihara, pp. 286–310. [in Japanese]

Naito, T., Yoshida, H., Nakamine, H., Morita, T., Ikeda, T., Suzuki H. & Nakanishi, A. (2004) Species diversity of sawflies in Hyogo Prefecture, central Japan. *Museum of Nature and Human Activities, Hyogo, Monograph of Natural History and Environmental Science*, (1), [1–2] + [pl.1–10] + 1–85. [in Japanese]

Nakamura, K. (2003) Hymenoptera (excl. Formicidae). *In*: Tochigi-ken Shizen-kankyô Chôsa Kenkyû-kai Konchû Bukai (Ed.), *Insects of Tochigi I, Basic Survey of Natural Environment in Tochigi Prefecture*. Tochigi-ken, Rinmu-bu, Utsunomiya, pp. 249–336. [in Japanese]

Takeuchi, K. (1952) New and unrecorded sawflies from Shikoku, Japan (II) (Hymenoptera: Symphyta). *Transactions of the Shikoku Entomological Society*, 3, 47–54.

Takeuchi, K. (1955) *Coloured Illustrations of the Insects of Japan. Vol. II*. Hoikusha, Osaka. 190 pp., 68 plates. [in Japanese]

Togashi, I. (1965) Tenthredinidae. *In*: Asahina, S., Ishihara, T. & Yasumatsu, K. (Eds.), *Iconographia Insectorum Japonicorum Colore naturali edita. Vol. III*. Hokuryûkan, Tokyo, pp. 245–254, pls. 123–126. [in Japanese]

Togashi, I. (1992) Japanese sawflies of the genus *Taxonus* Hartig (Hymenoptera: Tenthredinidae) (Part 1). *Proceedings of the e Society of Systematic Zoology,* (47), 37–44.

Togashi, I. (1998) Hymenoptera. *In*: *Insects of Ishikawa Prefecture*. Ishikawa Pref. Govt., Kanazawa, pp. 252–304. [in Japanese]

Togashi, I. (2008) Tenthredinidae. *In*: Hirashima, Y. & Morimoto, K. (Eds.), *Iconographia Insectorum Japonicorum Colore naturali edita. Vol. III. Revised Edition.* Hokuryûkan, Tokyo, pp. 489–499, pls. 142–145. [in Japanese]

Viitasaari, M. (2002) The Suborder Symphyta of the Hymenoptera. *In*: Viitasaari, M. (Ed.), *Sawflies 1 (Hymenoptera, Symphyta)*. Tremex Press, Helsinki, pp. 11–174.

Wei, M.-C. & Nie, H.-Y. (1998) Hymenoptera: Pamphiliidae, Cimbicidae, Argidae, Diprionidae, Tenthredinidae, Cephidae. *In*: Wu, H. (Ed.), *Insects of Longwangshan Nature Reserve*. Chinese Forestry Publishing House, Beijing, pp. 344–391. [in Chinese with English summary]

Wei, M.-C. & Niu, G.-Y. (2013) A new species of the genus *Emphytopsis* Wei et Nie (Hymenoptera, Tenthredinidae) feeding on *Stewartia gemmata*. *Acta Zootaxonomica Sinica*, 38, 134–137. [in Chinese with English summary]

Wei, M.-C., Xu, Y. & Niu, G.-Y. (2011) Revision of *Emphytopsis.* Wei & Nie (Hymenoptera: Tenthredinidae) with descriptions of seven new species from China and Japan. *Zootaxa,* 2803, 1–20

Wei, M.-C. & Zhou, P.-P. (2012) A new species of *Emphytopsis* Wei & Nie (Hymenoptera: Tenthredinidae) with a key to world species of the genus. *Entomotaxonomia,* 34, 429–434.

Xiao, G.-R. (1987) A new genus of Tenthredinidae from China (Hymenoptera: Symphyta). *Scientia Silvae Sinicae*, 23, 299–302. [in Chinese and English]

Yoshida, H. (2006) *Symphyta (Hymenoptera) of Osaka Prefecture, Japan*. West Japan Hymenopterists' Club, Kakogawa, (4 pp.) + 24 pls. + 127 pp. [in Japanese]