

Secondary Metabolites as Stimulants and Antifeedants of *Salix integra* for the Leaf Beetle *Plagiodera versicolora*

Amir Reza Jassbi*

Laboratory of Ecological Chemistry, Division of Applied Bioscience, Graduate School of Agriculture, Hokkaido University, Kita-ku, Sapporo 060-8589, Japan. Fax: +81-11-706-4281. Email. arjassbi@hotmail.com

* Corresponding Address: Department of Phytochemistry, Medicinal Plants Research Institute, Shahid Beheshti University, Evin, Tehran, Iran. Fax: +98-21-2418679. Email. a-jassbi@cc.sbu.ac.ir

Z. Naturforsch. **58c**, 573–579 (2003); received January 30, 2003

Plagiodera versicolora, a willow beetle living on *S. sachalinensis*, is found on *S. integra* during early June in Hokkaido Island, Japan. This insect selects several species of willows (*Salix*), including *S. integra* as host plant in Honshu Island of Japan. To determine the reasons for the limited distribution of this beetle on the willows of Hokkaido, the feeding preference of the insect to leaves of *S. integra* and its constituents was performed. Feeding-bioassay guided fractionation of an 80 % aqueous acetone extract of fresh leaves of *Salix integra* to *Plagiodera versicolora* resulted in isolation of feeding stimulant and antifeeding constituents. Chlorogenic acid (**1**) and 3,5-dicaffeoyl quinic acid (**2**) were identified as antifeedants and 1,2-di[(9Z,12Z,15Z)-octadeca-9,12,15-trienoyl]-3- β -D-galactopyranosyl-*sn*-glycerol (MGDG, **3**) as feeding stimulants. The feeding test was performed by an agar disk method. The treated agar disks contained sucrose and test sample in different doses. The antifeeding activities of **1** and **2** and stimulant activity of **3** may be one of the reasons for the limited presence of *P. versicolora* on *S. integra* in Hokkaido.

Key words: *Salix integra*, *Plagiodera versicolora*, Chrysomelidae