

Pollen-feeding in *Ancylopus pictus asiaticus* STROHECKER, 1972 (Coleoptera, Endomychidae)

Kazuo YAMAZAKI

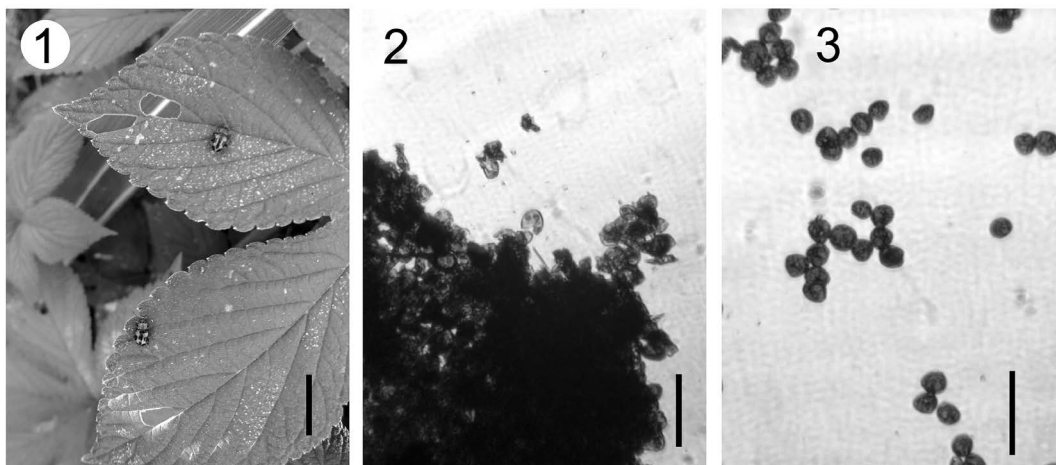
Osaka Institute of Public Health, 8–34 Tōjō-chō, Tennōji, Osaka, 543–0026 Japan
e-mail: kazu-yamazaki@iph.osaka.jp

Ancylopus pictus asiaticus STROHECKER, 1972 (Coleoptera, Endomychidae) is commonly found in grasslands, marshes, and paddy fields in Japan (from Hokkaido to Ishigaki-jima), Korea, Taiwan, China, India, and Vietnam (SOGO & YOSHITOMI, 2017). Before I observed a pollen-feeding behavior that is reported here, its primary microhabitats were decaying plant materials and mushrooms (SOGO & YOSHITOMI, 2017). These habits suggest mycophagy in this beetle, as in many other endomychid species (SHOCKLEY *et al.*, 2009). However, this study aims to report on the habit of facultative pollen-feeding in this species.

Adults of *Ancylopus pictus asiaticus* were observed from 16:30 to 17:00 on September 27, 2014 at the riverbank (34°35'N, 135°30'E, ca. 5 m above sea level) along the Yamato River in Osaka City, Osaka Prefecture, central Japan. Seven adults were moving their mouthparts on leaves that were scattered with pollen of the Japanese hop *Humulus japonicus* (SIEB. & ZUCC.) (Cannabaceae) (Fig. 1). Four males and one female were collected, placed in a plastic vial, and brought to the laboratory. Several inflorescences of *H. japonicus* were sampled for reference. The beetles were kept under laboratory conditions for 48 h, during which they excreted some fecal pellets. *A. pictus asiaticus* adults, their fecal pellets, and *H. japonicus* inflorescences were preserved at –20°C in a freezer for later examination.

First, fecal pellets were loosened with a small amount of distilled water using tweezers, slide-mounted with a droplet of safranin, and observed under an optical microscope at 250 ×. Pollen extracted from the inflorescences was observed in the same manner. Lastly, the body surface of the beetle specimens was inspected under a stereomicroscope at 50 ×.

Fecal pellets were found to be filled with pollen grains, most of which were broken, along with fibrous tissues surmised to be fungal hyphae and particles as yet unidentified (Fig. 2). Pollen grains were similar in size to those observed in the fecal pellets (ca. 20 μm in diameter), with spherical shape and surface patterns (Fig. 3).



Figs. 1–3. Pollen feeding in *Ancylopus pictus asiaticus* adults. — 1, Pollen foraging behavior on *Humulus japonicus* leaves; 2, pollen grains in fecal pellets; 3, *H. japonicus* pollen. Scale: 1, 10 mm; 2 & 3, 100 μm.

These observations combined with the beetles' behavior on the leaves indicated that *Ancylopus pictus asiaticus* adults fed on the pollen grains. However, the pollen grains were not detected on the beetles' body surface, suggesting that this endomychid does not play a role in pollination.

Humulus japonicus flowers are anemophilous and scatter a large amount of pollen, often causing pollen disease (pollinosis) in autumn (SAITO, 1968). Thus, abundant pollen may accumulate around the plants that *Ancylopus pictus asiaticus* adults use as a feeding site. Pollen is a proteinaceous food source for many insects, and a number of Cucujoidea species are known to feed on pollen (COOK *et al.*, 2004; GIORGI *et al.*, 2009). However, pollen-feeding is thought to be rare among endomychids (e.g., SHOCKLEY *et al.*, 2009). Although *A. pictus asiaticus* appears to be mainly mycophagous, the present study suggests a facultative pollen-feeding habit.

I thank Dr. Nobuo HAMADA of the Osaka Museum of Natural History for providing his expert advice on pollen observation.

References

- COOK, S. M., D. A. MURRAY & I. H. WILLIAMS, 2004. Do pollen beetles need pollen? The effect of pollen on oviposition, survival, and development of a flower-feeding herbivore. *Ecological Entomology*, **29**: 164–173.
- GIORGI, J. A., N. J. VANDENBERG, J. V. MCHUGH, J. A. FORRESTER, S. A. ŚLIPiŃSKI, K. B. MILLER, L. R. SHAPIRO & M. F. WHITING, 2009. The evolution of food preferences in Coccinellidae. *Biological Control*, **51**: 215–231.
- SAITO, Y., 1968. [Pollinosis in Japan.] *Journal of Otolaryngology of Japan*, **71**: 1036–1043. (In Japanese.)
- SHOCKLEY, F. W., K. W. TOMASZEWSKA & J. V. MCHUGH, 2009. Review of the natural history of the handsome fungus beetles (Coleoptera: Cucujoidea: Endomychidae). *Insecta Mundi*, **72**: 1–24.
- SOGOŪ, K., & H. YOSHITOMI, 2017. A revision of the genus *Ancylopus* (Coleoptera, Endomychidae) of Japan. *Elytra, Tokyo*, (n. ser.), **7**: 421–438.

Manuscript received 11 September 2018;
revised and accepted 25 September 2018.