ABSTRACT


The sexual life cycle of *Periphyllus koelreuteriae* (Takahashi) has been observed and recorded for the first time in Taiwan by this study. *P. koelreuteriae* (Takahashi) completes it's life cycle on the host plant, *Koelreuteriae formosana* (Hayata), all year round. The asexual cycle of viviparous generations occurs in spring, summer and autumn, while the sexual oviparous generation appear in winter with eggs as the overwintering form. Nymphs of aestivating form are produced in summer. Both winged and wingless viviparae can be found in the field throughout the year, except from July to September when the aphid population is extremely low. The wingless oviparous females appear in the period of foliage falling of the host plants (December to February) accompanied by the lowest temperature of the year. Males and eggs are found from mid-January to early February; and nymphs of aestivating form emerge from March to June. About 20 overlapping generations of this aphid occur each year. (Morphological characters of this aphid are described and illustrated by photos.) The body of the 1st to 4th instar normal form nymphs and wingless viviparae are yellowish brown in color, with long hairs covering the entire body, red compound eyes, with 6 antennal segments, and blackish brown spots on the back of meta-thorax and the first four abdominal segments; legs are black (dark) except the femur of fore-legs and mid-legs, which are lighter in color. The winged 4th instar nymphs have wingbuds on meso- and meta-thorax. The body of winged viviparous females are long and black (dark) with transparent wings and stigma on forewings. The 1st instar aestivating form nymphs are light yellow in color and flat in shape, with few hairs and 4 antennal segments, front margin of the head have four lamellates and the verge of meso- and meta-thorax and the first six abdominal segments all have lamellates, and have no siphunculi. The 2nd to 4th instar nymphs and female of aestivating form are dark brown in color and sclerotized, with 6 antennal segments and without lamellate, and have siphunculi. Sexuparae, winged or wingless, are dark brown and sclerotized. The wingless oviparous females are long, and the abdomen end is significantly longer than that of viviparous females. Male aphids are small in size and blackish in color with transparent wings. Eggs are golden in color and elliptic in shape. The fundatrix is black, wingless and sclerotized, with 5 antennal segments, and short legs and siphunculi.

(Key words: *Periphyllus koelreuteriae* (Takahashi), holocyclic life cycle, aestivating form, morphological characters)

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