Ilseopsis (Euscrobipalpa) parki sp. n., a leaf miner and spinner on Lycium chinense in Korea (Lepidoptera: Gelechiidae)

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Abstract. Ilseopsis (Euscrobipalpa) parki sp. n., a gelechiid micro-moth, is described from adults reared from larvae attacking the leaves of Lycium chinense Mill. (Solanaceae) in Korea. The male moth and genitalia of both sexes are figured, and the taxonomic position and bionomics of the species are discussed.

INTRODUCTION

At the request of Professor K.T. Park, Department of Agrobiology, Kangweon National University, Chuncheon, Korea, I undertook the critical examination of a series of a gelechiid micro-moth which was suspected to represent an undescribed gnorimoschemine species. The species is a leaf miner of Lycium chinense Mill. (Solanaceae) which is cultivated in Korea and China for the production of a medicinal drug and as a tea plant. It proved to be unknown and to represent a rather disjunct taxon of the gnorimoschemine tribe in the Gelechiidae.

Ilseopsis (Euscrobipalpa) parki sp. n.

Adult medium-sized, cinereous, comparatively broad-winged, wingspan about 11–12 mm, forewing ground colour grey with a brownish hue, an inconspicuous but otherwise well defined pattern comprising blackish stigmata and a pale subterminal transverse band. Male genitalia elongate, the saccus long and slender; aedeagus very long, almost parallel-sided, with a sclerotized serrate ledge near apex. Female subgenital plate longer than broad, rather membranous, apophyses very long, signum large, a slender curved prong arising from a coarsely serrate base.

Head with frons conspicuously white, lustrous, labial palpus, thorax and tegula grey; elongate third segment of palpus with indication of dark annuli. Forewing ground colour deep grey with chocolate hue due to a dense mixture of scales partly with dark tips and partly chocolate brown; a central triad of diminutive blackish stigmata, additional traces of black on costa, groups of black scales indicate an apical blackish stigma; a pale transverse band of cinereous stigmata at least indicated subterminally; cilia grey. Hindwing deep grey to blackish with dense, grey cilia. Legs blackish with pale ringlets, especially on third tarsus. Forewing up to 6.2 mm in males, about 5.6–6 mm in females.

Genitalia

Male. Comparatively slender and delicate, elongate, with long and thinly ligulate saccus. Uncus arched and rounded, gnathos a pendulous spine. Paired sacculus process short,
bar-like, parabasal process somewhat broader, rounded terminally with short obtuse peak on inner side; medial saccus excision narrowed and deep; valva narrowly clavate, curving gently inwards terminally, tip rounded; aedeagus conspicuously long, almost parallel-sided, without inflated caecum; tip rounded, bearing a weak subterminal spine, dorsal margin a little below apex with a short but striking, slightly spiralled serrate ledge.

Female. Subgenital plate longer than broad, central zone membranous, forming a bifurcate lobe covered by fine microchaetae; apophyses distinctly longer than subgenital plate and slender. Signum a large but slender curved spine arising from a rounded, coarsely serrate sclerite. For detailed genitalia morphology see Povolný (1991).

S.B. Ahn; holotype deposited in Center for Insect Systematics, Kangweon National University, Chuncheon, Korea; 4 paratypes in coll. Povolny; all other paratypes in the collection of Prof. K.T. Park.

Comments

A knowledge of the identity of the food plant of species in the essentially Palaeartic subgenus *Euscrobisalpa* Povolny, 1967 can provide a good base for any conclusion on possible specific relationship. Habitually the moths of *I. (E.) parki* sp. n. are somewhat reminiscent of some Chenopodiaceae-mining species [e. g. *I. (E.) atriplicella* (Fischer v. Rösslerstamm, 1841) – *I. (E.) obsoletella* (Fischer v. Rösslerstamm, 1841) species group]. However, the genitalia of *I. (E.) parki* sp. n. reveal a distinctive taxon having no close relationship with this group of species. There exists only a limited number of species of this subgenus mining Solanaceae in the Palaeartic Region. These include first the western European taxa *I. (E.) costella* (Humphreys & Westwood, 1845) and the related *I. (E.) hyposcymella* (Stanton, 1869). The next but non-related group of Solanaceae miners are *I. (E.) gallincolella* (Mann, 1872), a widely distributed, essentially mediterranean species.

Fig. 2. *Illiopsis* (*Euscrobisalpa*) *parki* sp. n., male genitalia of a paratype. Especially the entire structure of aedeagus (right) and the long sacculus are species-specific and partly autapomorphic characters.

Fig. 3. *Illiopsis* (*Euscrobisalpa*) *parki* sp. n., female subgenital plate together with spine of signum corporis bursae.
mining *Lycium* spp. (see Povolný, 1990), *I. (E.) erichi* (Povolný, 1964), which is also widely distributed [eastern Mediterranean, Hungary, Lower Austria, southern Slovakia, Ukraine, Iran, Mongolia, Kyrgyzstan and (western) China] and mines *Lycium* spp. (Povolný, 1990), and *I. (E.) vicaria* (Meyrick, 1921), a semidesert species ranging from northern and southern Africa through Arabia and Iran to Pakistan. These three species sharing similar foodplants are mutually related. The next probable miners of Solanaceae are the species of the *I. (E.) astri* (Povolný, 1980)-group endemic to the Asir Mountains in southwestern Arabia and showing clear relationship to some subtropical and tropical Solanaceae miners from Africa and India. These three species groups of the Palaeartic Solanaceae miners of this subgenus show no close relationship and are separated geographically (Europe, Mediterranean to Central or East Asia; saharosindhan distribution pattern; southwestern Arabia and tropical Africa and Asia). Taxonomically *I. (E.) parki* sp. n. is quite isolated from each of these groups, as is mainly evidenced by its clear autapomorphic genitalia characters (the uncharacteristic serrate ledge and the general form of the aedeagus and extremely long ligulate saccus) having no parallel within the known palaeartic taxa of this subgenus. A similar serrate ledge on the aedeagus is present in many neotropical gnorimoschemine genera including leaf miners of Solanaceae. This fact emphasizes the unique position of *I. (E.) parki* sp. n. in the subgenus and is an aid in the identification of the species.

**Bionomics**

According to Prof. Park the larvae produce leaf mines on fresh leaves of the very early growth stage of the food plant. Later they roll-up and spin 2 or 3 adjacent leaves and feed on them. The mines and larvae are found from early May to early October and about three generations may occur during the growing season. *Lycium chinense* is cultivated for the production of medicinal drugs used in Chinese medicine and also as a tea herb in Korea.

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**REFERENCES**


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