

First Record of the Marsh Fly Genus *Ditaeniella* (Diptera: Sciomyzidae) from Korea

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ABSTRACT

Members of this family Sciomyzidae are known as marsh flies and snail-killing flies because most of the known larvae are obligate predators of Mollusca, especially freshwater and terrestrial Gastropoda. Most species are found in the shallow ephemeral aquatic habitats with rich organic substrates, such as the hard-water streams, small ponds and lakes in mountain valleys. To date, a total of 8 marsh fly species in 4 genera have been known in Korea. During a taxonomic survey of the family Sciomyzidae in Korea, the authors have found the genus *Ditaeniella* Sack, 1939; thus, it was discovered for the first time in Korea. This genus can be distinguished by the other related taxa with hairs over much of the mesopleuri, hairs on the prosternum and one orbital seta. In addition, the nominate species, *Ditaeniella grisescens* Meigen, 1830 was also firstly recoded in the Korean fauna.

Keywords: new record, Diptera, Sciomyzidae, *Ditaeniella grisescens*, Korea

INTRODUCTION

The family Sciomyzidae has more than 540 species comprising 61 genera across the world's biogeographical regions (Rozkošný, 1995; Elberg et al., 2009). Members of this family are known as marsh flies and snail-killing flies because most of the known larvae are obligate predators of Mollusca, especially freshwater and terrestrial Gastropoda. The marsh fly habitat consists of hard-water streams, small ponds, lakes in mountain valleys, and they also thrive in shallow ephemeral aquatic habitats with rich organic substrates (Knutson and Vala, 2011).

Until now, 4 species of the genus *Ditaeniella* have been known in world. Of that, 2 species, *D. parallela* (Walker, 1852) and *D. trivittata* (Cresson, 1920) are recorded in Nearctic region. And *D. patagonensis* (Macquart, 1851) is only recorded in Neotropical region. Also, only one species, *D. grisescens* (Meigen, 1830) is known to be occurred in Palearctic region (Knutson and Vala, 2011).

The family Sciomyzidae is very poorly studied and documented in the Korean peninsula. The first record of this genus from Korea was given by Steyskal (1951), who described a new species, *Tetanocera chosenica*, from Seoul.

Subsequently, Steyskal (1956) also described a new species, *Pherbellia ditoma*, from Andong. Park (1967) recorded *Sepedon aenescens* Wiedemann that was misidentified as *S. spegea* (Fabricius). Knutson (1977) mentioned *Pherbellia nana reticulata* (Thomson). Rozkošný and Kozánek (1989) described a new species, *Pherbellia koreana*, from North Korea, with a newly record species in the Korean fauna, *Sepedon noteoi* Steyskal misidentified as *S. spinipes* (Scopoli). Rozkošný et al. (2010) added two species to the Korean fauna, *Colobaea eos* Rozkosny and *Tetanocera elata* (Fabricius), while reviewing the Korean Sciomyzidae. Until now, eight species in four genera were known to occur in the Korean fauna.

During a taxonomic survey on the family Sciomyzidae in Korea, the authors found an additional genus, *Ditaeniella* Sack, 1939, along with the nominate species, *Ditaeniella grisescens* (Meigen, 1830), to be added to the inventory of Korean fauna.

The specimens examined in the present classification were based on the collections from several domestic localities throughout Korea, which were deposited in the School of Applied Biosciences, Kyungpook National University, Daegu, Korea.

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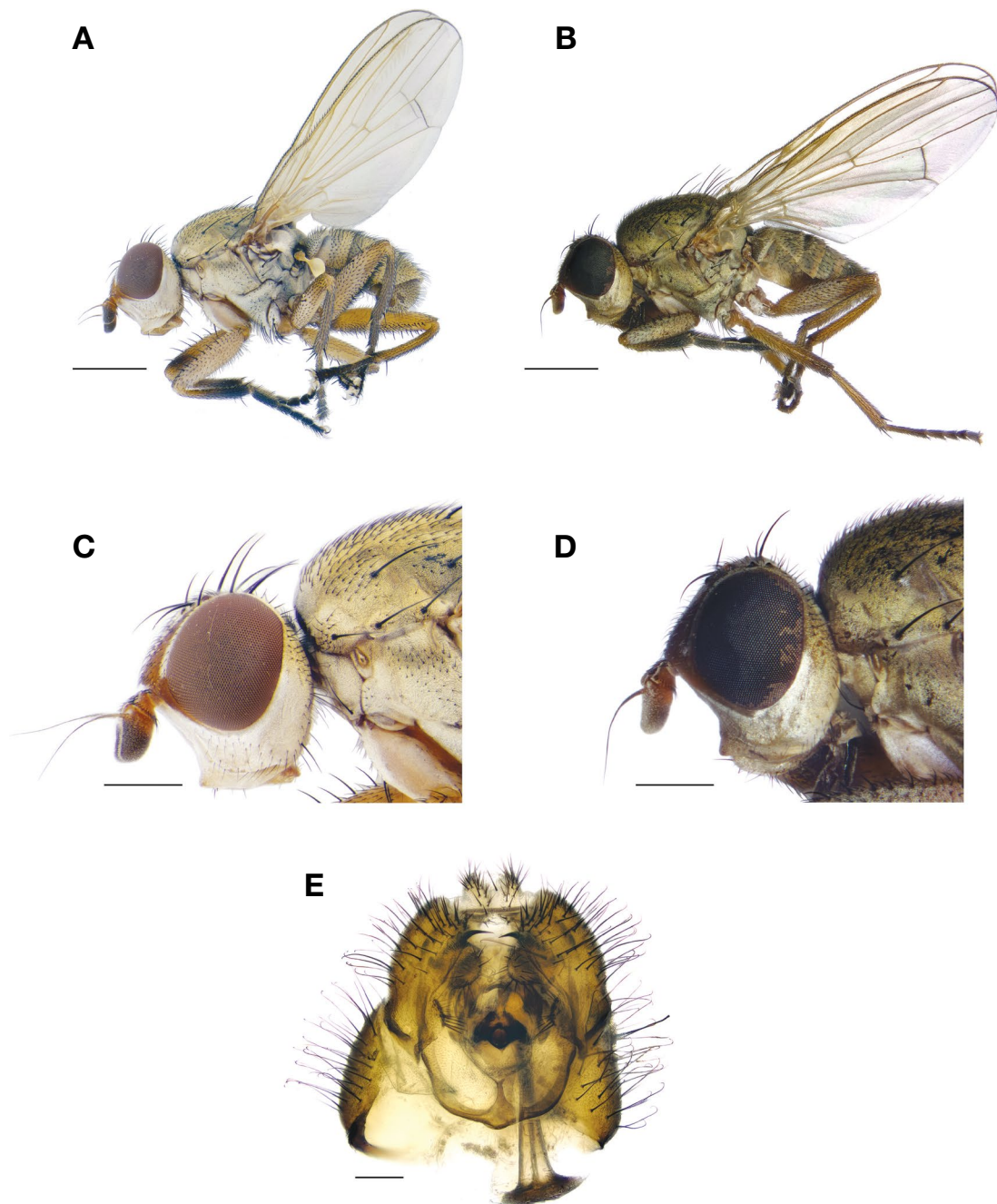


Fig. 1. *Ditaeniella griseascens*. A, Male, lateral view; B, Female, lateral view; C, Male head, lateral view; D, Female head, lateral view; E, Male gonostyli. Scale bars: A, B=1 mm, C, D=0.5 mm, E=0.01 mm.

SYSTEMATICS ACCOUNTS

Order Diptera Linnaeus, 1758
Family Sciomyzidae Fallen, 1820

¹*Genus *Ditaeniella* Sack, 1939

Ditaeniella Sack, 1939: 37. Type species: *Sciomyza griseascens* Meigen, 1830.

Diagnosis. Frons mainly matt; mid-frontal stripe elongated

Korean name: ¹*동글돌파리속 (신칭)

and tapered anteriorly; only one orbital seta present; propleural seta distinct; prosternum haired; mesopleuron covered with distinct hairs; inner posterior margin of hind coxa with several hairs; anal vein on wing reaching posterior wing margin (Sack, 1939).

¹Ditaeniella griseescens* (Meigen, 1830) (Fig. 1)**

Sciomyza griseescens Meigen, 1830: 20. Type-locality: Versailles in France.

Pherbellia griseescens: Rivosecchi and Santagata, 1979: 473.
Ditaeniella griseescens: Rozkošný, 1987: 19.

Diagnosis. Male: Head: curved in lateral view; cheeks broad; arista short-pubescent; 3rd antennal segment darkened in apical half; one orbital seta present (Fig. 1C). Thorax: mainly yellow to yellowish-grey and matt; mesonotum with darker stripes; one propleural seta; prosternum with a few haired; scutellum with two pairs of setae; 2 anepimeral setae. Legs: yellowish brown and grey; tarsus mainly dark; fore femur has dark stripes and one anterior seta; front femur 6 dorsal setae; fore tibia with one preapical seta; mid tibia several setae on edge; hind tibia one posterior seta (Fig. 1A). Wing: slightly infusate without pattern; R4 + 5 and M1 + 2 parallel; anal vein reaching posterior wing margin; posterior cross-veins cloudy and almost straight (Fig. 1A). Abdomen: yellowish-grey; gonostyli postgonites develop and have spines; 5th tergite asymmetry (Fig. 1E).

Female: Entirely similar to male, but more darkened; body mainly brown to brownish-grey (Fig. 1B, D).

Body Length: Male, 3.9–4.2 mm; female: 4.1–4.3 mm.

Wing Length: Male, 3.7–4.2 mm; female: 3.7–4.1 mm.

Specimen examined. Korea: 1♂, Gyeongsangbuk-do: Gunwi-gun, Hyoryeong-myeon, Hwagye-ri, 11 Jul 2017, Suh SJ; 2♂♂, Jeju-si: Yongdam-dong, Hancheon-gyo, 12 Jul 2018, Suh SJ; 1♂, 1♀, Gangwon-do: Samcheok-si, Osipcheon, 15 Sep 2018, Suh SJ; 3♀♀, Samcheok-si, Seongnam-dong, 25 Jun 2018, Suh SJ; 2♀♀, Yangyang-gun, Ganghyeon-myeon, 8 Jul 2016, Suh SJ; 1♂, 4♀♀, Jeollabuk-do: Gochang-gun, Heungdeok-myeon, 19 Oct 2018, Suh SJ.

Distribution. Korea (new record), Japan, China, Mongolia, Russia, Egypt, Turkey, Cyprus, Israel, Lebanon, Iran, Afghanistan, Europe.

Remarks. This species has asymmetry 5th tergite with the right side larger than the left. They have over half darkened third antennal segment and body color darker in female than

male. The genus *Ditaeniella* has been recorded only one species *D. griseescens* in Palaearctic region.

REFERENCES

- Elberg K, Rozkošný R, Knutson LV, 2009. A review of the Holarctic *Sepedon fuscipennis* and *S. spinipes* groups with description of a new species (Diptera: Sciomyzidae). *Zootaxa*, 2288:51-60.
- Knutson LV, 1977. Superfamily Sciomyzoidea. In: A catalog of the oriental region. Vol. 3, Suborder Cyclorrhapha (Eds., Delfinado MD, Hardy DE). Hawaii University Press, Honolulu, HI, pp. 168-172.
- Knutson LV, Vala JC, 2011. Biology of snail-killing Sciomyzidae flies. Cambridge University Press, Cambridge, pp. 1-502.
- Meigen JW, 1830. Systematische Beschreibung der bekannten europäischen Zweiflügeligen Insekten. Sechster Theil. Schulz, Hamm, pp. 1-401.
- Park H, 1967. Studies in flies in Korea 5. On the hitherto unreported fly species in Korea. *Korean Journal of Zoology*, 10:67-70.
- Rivosecchi L, Santagata V, 1979. Note ed osservazioni su qualche Sciomyzidae (Diptera Acalyptera) proveniente dall'Italia centrale. *Bollettino del Museo Civico di Storia Naturale di Verona*, 6:469-489.
- Rozkošný R, 1987. A review of the palaearctic Sciomyzidae (Diptera). *Univerzita J.E. Purkyně v Brně, Brně*, pp. 18-19.
- Rozkošný R, 1995. World distribution of Sciomyzidae based on the list of species (Diptera). *Studia Dipterologica*, 2:221-238.
- Rozkošný R, Knutson LV, Merz B, 2010. A review of the Korean Sciomyzidae (Diptera) with taxonomic and distributional notes. *Acta Zoologica Academiae Scientiarum Hungaricae*, 56:371-382.
- Rozkošný R, Kozánek M, 1989. *Pherbellia koreana* sp. n. and a list of the Korean Sciomyzidae (Diptera). *Biologia (Bratislava)*, 44:1020-1026.
- Sack P, 1939. Familie 37: Sciomyzidae. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart, pp. 1-37.
- Steyskal GC, 1951. A new species of *Tetanocera* from Korea. *The Wasmann Journal of Biology*, 9:79-80.
- Steyskal GC, 1956. New species and taxonomic notes in the family Sciomyzidae (Diptera, Acalypratae). *Papers of the Michigan Academy of Science, Arts & Letters*, 41:73-88.

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