

A NEW SUBSPECIES OF *AGROMYZA NIGRESCENS* HENDEL (DIPTERA, AGROMYZIDAE)

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**A NEW SUBSPECIES OF AGROMYZA
NIGRESCENS HENDEL
(DIPTERA, AGROMYZIDAE)***

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The Dipterous leaf-miner from *Geranium*, *Agromyza nigrescens* Hendel, is very widely distributed being known from the entire parts of Europe. The present paper deals with a description of a new subspecies of *Agromyza nigrescens* from *Geranium* and a brief note of its biology. The anatomical terms are taken from the studies of S. W. Frost (1936).

I wish to express my sincere gratitude to Prof. M. Tokunaga for his kind guidance given on this study. I am very much indebted to Prof. S. W. Frost of the Department of Zoology and Entomology of the Pennsylvania State College and Prof. E. M. Hering of the Berlin Zoological Museum for their valuable informations about *A. nigrescens*. I wish to thank to Prof. T. Esaki and Prof. K. Yasumatsu of the Kyushu University and Mr. K. Takeuchi of the Takeuchi Entomological Laboratory for the loan of the valuable literature.

Agromyza nigrescens japonica subsp. nov.

Male. - Length, about 2.5 mm. Frontalia reddish dark brown; parafrontals, face and cheeks greyish black and slightly shiny. In the dorsal view front including orbits about twice as wide as either eye, its sides slightly converging ventrad; width of frontalia about 2.5 times of either parafrontal; ocellar triangle slightly shiny, with a few minute setae between ocellar bristles; occiput also black, contiguous to black ocellar triangle; frontal lunule whitish grey, rather large and deeply depressed; cheeks in profile narrow, its height at middle part about $\frac{1}{4}$ of eye height; upper fronto-orbital bristles 2 pairs, lower fronto-orbitals 3 pairs, of which upper two are equal in size and rather widely separated from each other but lower pair is smaller and more closely approximated to the upper pair; orbital hairs minute, sparse and erect dorsad, arranged in a single row along the whole length of fronto-orbitals; occiput setigerous, with a distinct anterior row of minute setae which are grown downwards (in some individuals upper setae of this row grown upwards); this row of setae extending along posterior margin of eye between the position just behind outer vertical bristle and lower margin of cheeks; behind this

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row of setae there are several irregular rows which also extend to lower margin of cheeks, upper setae of these rows grown upwards and lower downwards; a pair of oral vibrissae distinctly larger than accompanying setae along lower edge of cheeks, grown mesad, 1 or 2 paired setae below vibrissae rather strong; antennae and arista brown, 2nd antennal segment setigerous with small numerous black setae and a distinct subapical dorsal bristle, 3rd segment slightly longer than broad and with pale brown distinct piles, arista 2.5 times the length of 3rd segment and longer than the length of 3 segments taken together; palpi blackish brown, with a pair of distinct apical setae, proboscis brownish orange, with hairs pale brown.

Mesonotum and scutellum subshiny dark grey; dorso-central bristles 4 pairs, 1st pair before line between paired presuturals, 3rd pair behind line between paired supra-alars; rows of acrostichals extending backwards ending before line between very strong paired praescutellars, number of this rows 6 to 8 between dorso-centrals and 1 on each dorso-central; 4 to 6 rows of short bristles outside of dorso-centrals reaching the line between paired intra-alars or praescutellars; humeral 1; notopleurals and post-alars 2 respectively. Pleura dark grey, base of wing brown; propleural 1 and strong; mesopleural 1, strong, accompanying with 2 rather long setae and many smaller hairs; sternopleural 1, strong, accompanying with 2 smaller setae on lower edge and many minute hairs.

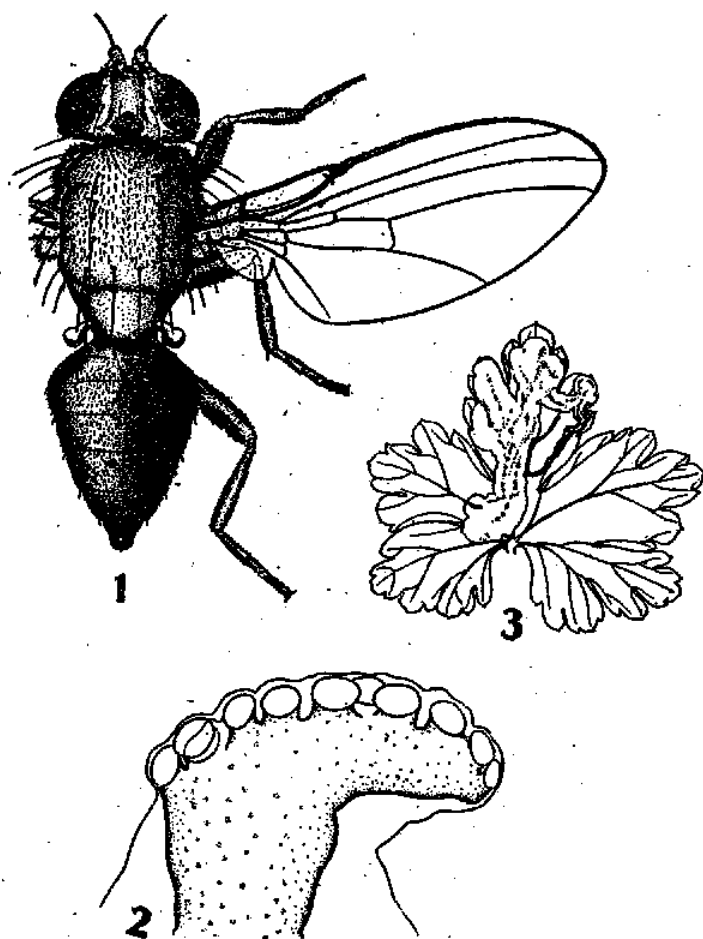
Abdomen subshiny black or blackish grey, oval; all segments with numerous small setae; marginal setae somewhat larger; 6th segment very short; hypopygium shiny black, with minute black or brown setae.

Legs subshiny black, but knee brown, with setae black; middle tibia with a distinct posterior bristle.

Wing faintly dark, with basal part slightly brown, squamae and marginal setae pale brown, veins brown but costa dark brown; costa ending at M_{1+2} , subcosta terminating on subapical end of R_1 , costa thickened at terminal point of R_1 ; sections 2, 3 and 4 of costa about 4.5:1:0.9; R_{2+3} almost straight, R_{2+3} and R_{4+5} diverging apically; R_{4+5} and M_{1+2} slightly curving, parallel to each other, but cell R_5 very slightly trumpet-shape at margin; r-m distinctly beyond middle of discal cell; m-cu about 3.5 times of r-m; 2 sections of $M_{3+4}+Cu_1$ 1:1.05; halteres whitish yellow; calypteres and fringes pale brown.

Female. - Length, about 3 mm. Similar to male but abdominal setae longer than those of male, ovipositor shiny blackish brown, in extension longer than 1.5 times of length of last abdominal segment.

Egg. - Oval, length 0.102 mm., width 0.059 mm., milky-white, smooth; egg is deposited within the spongy layer from the under side of the leaf.



1. *Agromyza nigrescens japonica* subsp. nov.
2. Anterior spiracle of larva, lateral aspect.
3. Mining on leaf, upper side.

Larva. - Length 0.5-0.7 mm. in 1st instar, 2-2.7 mm. in 2nd, 3.5-5 mm. in 3rd. 1st and 2nd instars milky white but 3rd orangish yellow. In full grown state, anterior spiracles prominent, closely approximated to each other at base, foot-shaped, usually 11 (9-12) spiracular openings; mouth hooks with 2 dentes; each body segment with rows of spines along both anterior and posterior margins; posterior end truncate, but somewhat round on dorsal side in lateral aspect; in caudal aspect there are 3 pairs of protuberances, of which dorsal pair is spiracles, each with 3 respiratory slits.

Puparium. - Suboval, narrowing anteriorly, intersegmental constriction deep;

length 3.8-4.7 mm.; dorsal side brown, ventral blackish brown; anterior and posterior Spiracles distinct.

Habitat: Honshu, Japan.

Holotype: 1 ♂; October 17, 1950, Minoo, Osaka Pref. Allotopotype: 1 ♀; April 23, 1951. Paratopotypes: 1 ♂ 6 ♀♀; October 12 - November 14, 1950. Type - specimens: M. Tsujita leg., dry, deposited in the Entomological Laboratory of Saikyo University.

This subspecies is very closely allied to the type species, but may be distinguished by the following characters: (1) The arista is distinctly longer than the length of 3 antennal segments taken together, while in type the arista is about as long as the length of 3 antennal segments. (2) The middle tibia with a posterior bristle, while in the type this is completely absent. (3) The 2nd section of costa is more than 4 times as long as 3rd section, while in the type this is just 4 times.

Biological Notes

The important points of the biological observations may be itemized as follows:

Host-plant. - Leaves of *Geranium nepalense* Sweet.

Mine. - Linear-blotch; coloration brownish green, due to brown dead tissue of mesophyll. Larva at first mines along vein and towards base of leaf making a narrow linear mine, length about 10.9 (10-17) mm.; mine gradually widening with growth of larva; after 1st moult extending towards margin of leaf contrary to the above, length about 17.2 (10-30) mm.; after 2nd moult mine changing to blotch type and extending towards base of leaf and upper epidermis somewhat swollen being blister-like. Feeding area of a female larva about 7.73 cm². and of a male about 5.06 cm². Mine of 1st and 2nd instars upper surface type; that of 3rd instar full depth type.

Frass.-Linear type, frass being arranged in paired lines at lateral side of larva but in blotch mine state often scattered.

Tenancy. - A single larva occupying a single mine throughout entire larval stage. Usually 1 egg found on a single leaf (68.5 %), sometimes 2 to 7 eggs being found.

Pupation. - Larvae cutting a slit of epidermis at end of mine and escaping from under side of leaf; pupation taken place in ground and twice a year in May and November.

Development. - Two generations in a year; adults emerging first during the period from latter part of April to beginning of May and secondly from middle

of October to beginning of November. Hibernation in pupal stage.

Parasite. - A *Dacnusa* sp. (Braconidae) obtained from pupae on May 2-4, 1951, determined by Dr. Keizô Yasumatsu.

L i t e r a t u r e

Frost, S. W. 1936. New Central American Agromyzidae. Ann. Ent. Soc. America, Vol. 24, No. 2: 298-318.

Hendel, 1931. 'Die Fliegen der Palaearktischen Region', Vol. 56, Agromyzidae 59: 135 to 136.

Needham, J. G., Frost, S. W. & Tothill, B. H. 1926. Leaf-mining Insects. London.

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