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ON TWO APHIDIID PARASITES OF  
THE GRAIN APHIS,  
*MACROSIPHUM GRANARIUM* (KIRBY)  
(TAXONOMIC NOTES ON APHIDIIDAE OF JAPAN, VI<sup>1</sup>)

By

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(With one Textfigure)

As the Grain Aphis, *Macrosiphum granarium* (KIRBY)<sup>2</sup>, is a familiar pest of wheat, barley and oats, occurring in Europe, Japan, North America and other places, many observations on the natural enemies have been made by entomologists. So far as the writer is aware, the following species belonging to the family *Aphidiidae* have been recognized as parasites of this aphid in Europe and North America:—

In Europe:

- Aphidius avenae* HALIDAY (after MARSHALL<sup>3</sup>).
- Aphidius granarius* MARSHALL (after MARSHALL<sup>3</sup>).
- Aphidius beltrani* QUILIS (after QUILIS<sup>4</sup>).
- Aphidius macropterus* QUILIS (after QUILIS<sup>4</sup>).
- Ephedrus plagiator* NEES (after MARSHALL<sup>3</sup>).

In North America:

- Aphidius nigripes* ASHMEAD (after GAHAN<sup>5</sup> and PHILLIPS<sup>6</sup>).
- Aphidius avenaphis* FITCH (after ASHMEAD<sup>7</sup> and GAHAN<sup>5</sup>).

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- 1) IV: Ins. Mats., XV, pp. 136-140 (1941).
  - 2) *Amphorophora avenae* (FABRICIUS) is adopted by certain authors instead of *Macrosiphum granarium* (KIRBY).
  - 3) MARSHALL, A. T.: Monograph of British Braconidae, VIII (Trans. Ent. Soc. London, pp. 1-79, 1899).
  - 4) QUILIS PÉREZ, M.: Especies nuevas de Aphidiidae espanoles (Eos, VII, pp. 25-84, 1931).
  - 5) GAHAN, A. B.: Aphidiinae of North America (Agr. Exp. Sta. Maryland, Bul. No. 152, pp. 147-200, 1911).
  - 6) PHILLIPS, W. J.: *Macrosiphum granarium*, the English Grain Aphis (Jour. Agr. Res., VII, pp. 463-480, 1916).
  - 7) ASHMEAD, W. H.: Descriptions of new Braconidae in the Collection of U. S. National Museum (Proc. U. S. Nat. Mus., XI, pp. 611-671, 1888).

syn. *Aphidius granaphis* COOK (after RILEY<sup>8)</sup>).

*Praon americanus* (ASHMEAD) (after ASHMEAD<sup>7)</sup> and GAHAN<sup>5)</sup>).

*Lysiphlebus testaceips* CRESSON (after GAHAN<sup>5)</sup>).

In Japan no parasites of the Grain Aphis have been recorded up to date, but in the course of the writer's studies two Aphidiids, which will be described below, are found to be parasitic on this aphid.

Here the writer acknowledges his deep indebtedness to the Foundation for the Promotion of Science and Industrial Research of Japan (Nippon Gakujutsu Shinkôkai) for their financial assistance.

### ***Aphidius granarius* MARSHALL**

*Aphidius granarius* MARSHALL, Spec. Hymén. Europe, V, p. 580, ♀ ♂ (1895); DALLA TORRE, Cat. Hymen., IV, p. 8 (1898); MARSHALL, Trans. Ent. Soc. London, p. 50, ♀ ♂ (1899); SZÉPLIGETI, Gen. Insect., 22-24, p. 186 (1904).

On account of the following aspects the present specimens may be identified with this species:—

♀. Colour, particularly of the thorax and abdomen, somewhat variable. Head dark brown to black above; face, clypeus, mandibles except the tips and

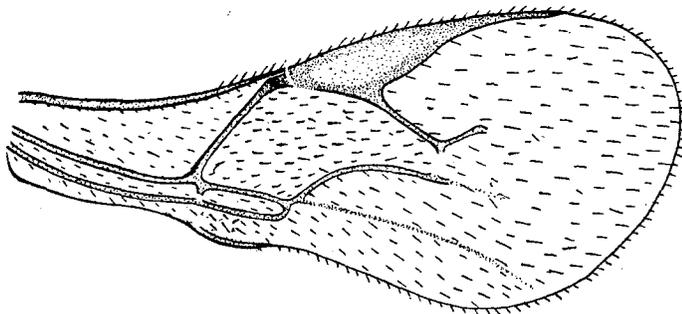


Fig. 1.

Fore Wing of *Aphidius granarius* MARSHALL (♀)

palpi testaceous; antennae dark brown, the scapus yellowish. Thorax dark brown above; prothorax and meso- and metapleura testaceous; in some specimens the thorax wholly testaceous with three black spots on the mesonotum; propodeum dark brown, often testaceous. Wings hyaline; stigma and veins pale brown; tegulae testaceous. Legs fusco-testaceous; coxae, femora and

8) RILEY, C. V.: Report of the Entomologist (U. S. Dept. Agr., Ann. Rpt., pp. 331-361, 1890).

tibiae of the middle and hind legs and all the tarsi more or less infuscated. First abdominal segment fusco-testaceous, sometimes dark brown; 2nd to 4th segments dark brown, with the sutures pale; 5th and following segments fusco-testaceous; ovipositor sheath black.

Head transverse, smooth and shining, with white pubescence; antennae a little longer than the head and thorax united, 16-jointed, rarely 17-jointed (in the original description 17-jointed). Thorax smooth and shining; parapsidal furrows slightly impressed anteriorly. Propodeum almost smooth, with a median transverse carina and a median longitudinal carina, the latter dividing at the intersection with the former, and enclosing a small, pentagonal areola. Stigma 3 times as long as broad; metacarpus  $\frac{3}{4}$  the length of the stigma; 1st abscissa of the radius 1.5 times as long as the stub of the 2nd, which is a little longer than the decoloured intercubitus; nervulus just postfurcal; nervus parallelus interstitial with the medial nervure. Abdomen lanceolate, longer than the head and thorax united; 1st tergite weakly rugulose, deeply excavated basally, the lateral sides gradually widened towards the apex, 2.5 times as long as broad at the apex, with fine tubercles situated before the middle; 2nd and following tergites smooth and shining; ovipositor sheath compressed, short, and straight.

Length; 2.5-3 mm.

♂. Differs from the female, apart from the usual sexual differences, as follows:—

Darker than the female in colour; antennae wholly dark brown; thorax dark brown to black, only the prothorax testaceous; propodeum dark brown. Legs darker than those of the female. Abdomen dark brown to black, the first two sutures pale; 1st tergite sometimes fusco-testaceous. Antennae a little longer than the body, 19- or 20-jointed, rarely 18- or 21-jointed (in the original description 19-jointed); pentagonal areola of the propodeum somewhat variable in form, not so definite as in the female.

Length, 2.5-3 mm.

Described from 16 females and 16 males.

Host: *Macrosiphum granarium* (KIRBY).

The present specimens were reared from *Macrosiphum granarium* collected at the same wheat field in 1938 and 1939.

Habitat: Hokkaido (Sapporo, 2 ♀ ♀, 2 ♂ ♂, 4. VII, 1 ♀, 1 ♂, 6. VII, 3 ♂ ♂, 20. VII, 1938 and 5 ♀ ♀, 5 ♂ ♂, 7. VII, 8 ♀ ♀, 5 ♂ ♂, 15. VII, 1939, C. WATANABE leg.).

General Distribution: Europe; Japan.

Remarks: Considering the agreement of this species with the description of *Aphidius avenaphis* (FITCH) (1865), which is a parasite of the same aphid in

North America, and in view of the fact that some species such as *Aphidius rosae* HALIDAY, *Aphidius ribis* HALIDAY and *Diaeretus rapae* (CURTIS) occur both in Europe and North America, parasitising upon cosmopolitan aphids, it is not improbable that *A. granarius* is really a synonym of *A. avenae*. Furthermore, judging from the original description of *Aphidius macropterus* QUILIS, which is a parasite of the same host in Europe, it may be also placed as a synonym. The writer is, however, inclined to the opinion that these species should be kept as distinct species until they are more fully characterized.

***Ephedrus japonicus* ASHMEAD**

*Ephedrus japonicus* ASHMEAD, Proc. U. S. Nat. Mus., XXX, p. 187, ♀ ♂ (1906); WATANABE, Ins. Mats., XV, p. 136, ♀ ♂ (1941).

The present specimens reared from the Grain Aphis, *Macrosiphum granarium* (KIRBY), perfectly agree with the writer's redescription of this species, the number of the antennal joints being 11 in both sexes. This species closely resembles *Ephedrus plagiator* NEES, a parasite of the Grain Aphis in Europe, but they are kept as distinct species as the writer discussed in a previous paper.

Host: *Macrosiphum granarium* (KIRBY).

The present specimens were reared from the Grain Aphis, *Macrosiphum granarium*, by the writer at Sapporo. The aphids attacked by this parasite are frequently found on the ears of wheat mixed with those parasitized by the preceding species, *Aphidius granarius* MARSHALL, and yet the empty skin of the latter victim is brown, while that of the former victim is black.

Habitat: Hokkaido (Sapporo, 2 ♂ ♂, 7. VII, 2 ♂ ♂, 10. VII, 2 ♀ ♀, 1 ♂, 23. VII, 1 ♂, 28. VII, 1938, C. WATANABE leg.).

Gen. Distr.: Japan; Formosa.

摘 要

本邦産アブラバチ科の分類學的研究の第5報としてムギヒゲナガアブラ [*Macrosiphum granarium* (KIRBY)] に寄生する2種のアブラバチを報告する。

*Aphidius granarius* MARSHALL

ムギヒゲナガアブラバチ (新稱)

*Ephedrus japonicus* ASHMEAD

クロアブラバチ

終りに研究費の一部を援助せられたる日本學術振興會に謝意を表する次第である。