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Comments on the authorship, generic position, and synonymy of *Diaeretiella rapae* (M'INTOSH)

(*Hymenoptera: Aphidiidae*)

The parasite *Diaeretiella rapae* (M'INTOSH) [= *Aphidius rapae* M'INTOSH] is one of the economically more important representatives of the family Aphidiidae. It is probably world wide in distribution and is largely responsible for the natural control of its main host, the cabbage aphid [*Brevicoryne brassicae* (L.)]. Recently, some argument has developed about the generic position and the authorship of *rapae*.

1. The authorship of *Aphidius rapae*

The parasite was described first under the name of *Aphidius rapae* in "The Book of the Garden", vol. 2, p. 194, published by CHARLES M'INTOSH in 1855. A few years later, JOHN CURTIS (1860) described the same species as *Aphidius* (*Trionyx*) *rapae* in a book entitled "Farm Insects". Until 1951, most authors assumed CURTIS to be the scientific author of *rapae* both as described in "The Book of the Garden" and as described in "Farm Insects". MUESEBECK & WALKLEY (1951) were the first who definitely stated M'INTOSH to be the author of *rapae*. This combination was accepted subsequently by other North American authors and by STARÝ (1960, 1961) and NARAYANAN et al. (1962). STARÝ (1961), when revising the genus *Diaeretiella*, dealt also with *rapae* and published an extensive list of synonyms. He cited the critical first description appearing in "The Book of the Garden" both as "*Aphidius rapae* M'Intosh, 1855" and, a few lines later, as "*Aphidius rapae* Curtis, 1855, in M'Intosh's Book of the Garden". As all authors dealing with this parasite up to 1900, with only one exception, and also a large majority after 1900, named CURTIS as scientific author of *rapae*, I believe that STARÝ's (1961) somewhat cryptic statement that "According to the rules of zoological nomenclature M'Intosh must be kept as original author!" is not sufficient reason to accept such a change. Examination of the original descriptions and of the earlier citations may provide some evidence relating to this question.

The descriptions by CURTIS/M'INTOSH (1855) and CURTIS (1860) are as follows (the italics are mine):

CURTIS/M'INTOSH: —

„*Aphidius rapae*, fig. 70. — Very similar in appearance and habits to the last [*Aphidius avenae* HAL.]; the horns, however, are shorter, and only fourteen-jointed; the underside of the base and the mouth ochreous; stigma of upper wings smoky ochre; legs bright ochreous, variegated with dark brown, and rusty.“

CURTIS: —

„7. *Aphidius (Trionyx) rapae*, Curtis. — Antennae shorter than the body, composed of fourteen joints, basal joint beneath, as well as the mouth, ochreous; head and thorax shining black; abdomen spindle-shaped and pitchy in colour, attached to the trunk by a narrow ochreous petiole; wings four, iridescent; superior, with a narrow fuscous stigma, from which issues beneath a short curved nervure, and there is a large elongate-trigonal cell at the base; legs, six, slender and bright ochreous, variegated with dark brown; length $1\frac{1}{4}$ line; expanse of wings, $2\frac{1}{3}$.“

There is no doubt as to the interpretation of the two descriptions. But *Aphidius (Trionyx) rapae* CURTIS, 1860, must be rejected for strictly nomenclatorial reasons, being a junior primary homonym of *Aphidius rapae* CURTIS/M'INTOSH, 1855 (I.C.Z.N., Arts. 57 and 59). As both descriptions evidently refer to the same species, *Aphidius (Trionyx) rapae* CURTIS, 1860, needs not to be replaced by an available synonym or a new name.

No evidence is available as to whether M'INTOSH regarded *Aphidius rapae* as a new species, and if so, whether he himself assumed responsibility for its description or attributed the authorship to somebody else. Therefore, the question of authorship posed by Arts. 50, 51, and Recommendation 51 A (I.C.Z.N.) can be answered only in the light of secondary information.

The following is a comparison of some data that would indicate whether CHARLES M'INTOSH or JOHN CURTIS was the author originally responsible for the name *rapae* and for the conditions that made the name available. Five main reasons support the authorship of M'INTOSH: —

1. M'INTOSH, as sole author of "The Book of the Garden", must be assumed to be responsible for all contents of the publication unless there is evidence to the contrary.

2. After quoting BONNET and REAUMER (sic!) on the reproductive capacity of aphids and on predators and parasites of aphids, M'INTOSH continues (p. 194): "and to these we may add, as valuable to man —

"The *Aphis*-lion, fig. 69, . . .

"And amongst parasitic insects which aid in the reduction of the aphides, may be instanced the

"*Aphidius avenae*. — . . .

"*Aphidius rapae*, fig. 70. — . . ."

3. Although CURTIS' name was frequently cited by M'INTOSH (sometimes in the form of CURTIS' pen name RURICOLA), CURTIS' name did not appear in connection with *rapae*.

4. It seems that whenever M'INTOSH used another author's description, i. e. a published description, he placed these passages between quotation marks.

5. The description is very brief and possibly that of a person unfamiliar with the morphological peculiarities of the group.

The following facts can be used as evidence for the authorship of JOHN CURTIS:

1. M'INTOSH wrote in the introduction to his book (Advertisement, p. IV): "Full descriptions have been given of these [i. e. 'diseases, insects, and other enemies, to the attacks of which

the various products of the garden are liable'] from the best authorities, supplemented by actual observations, . . ."

2. CURTIS, whom M'INTOSH called (p. 42) "one of our highest entomological authorities", was familiar with the cabbage aphid and its natural control agents. He knew *Aphidius rapae* at least as early as August 1848 (Farm Insects, p. 74, Footnote).

3. The two descriptions correspond largely in their sequence and in the expressions used to describe the different parts of the insect (cf. the italicized parts of the descriptions given above).

4. Most of the earlier authors who mentioned *Aphidius rapae* in their papers either disregarded the description of 1855 and referred to CURTIS' description of 1860 (BUCKTON 1879, MARSHALL 1872, 1896) or assumed CURTIS to be the scientific author of *rapae* as described in 1855 (SZÉPLIGETI 1904), or of both descriptions (MARSHALL 1896, 1899, DALLA TORRE 1898). DALLA TORRE (1898), on p. 3, named M'INTOSH's as original author of *Aphidius rapae*, but on p. 10 attributed the authorship to CURTIS, in M'INTOSH's "Book of the Garden".

5. MARSHALL, who was the first to attempt clarification of *rapae*, stated on p. 615 (MARSHALL 1896): "Publié par Curtis (Farm Insects, p. 73) sous le nom de *Trionyx* (i. e. *Toxares*) *rapae*; plus tard, il reconnut son erreur et rapporta l'insect au genre *Aphidius* (V. Curtis dans le "Book of the garden" par Mac Intosh, ii. p. 194, où la figure représente assez clairement un *Aphidius*.)" Though MARSHALL erroneously supposed that "The Book of the Garden" was published later than CURTIS' "Farm Insects", he stated clearly that CURTIS was the one responsible for the generic "re-arrangement" of *rapae* in M'INTOSH's textbook.

6. CURTIS did not refer to "The Book of the Garden" though that publication appeared five years earlier than "Farm Insects" and he quoted other contemporary books. As we know that CURTIS spent a number of years in preparing his manuscript, this possibly indicates that the chapters dealing with the insects affecting the turnip crop were written before M'INTOSH's book was printed.

In weighing the evidence presented I feel that the qualifications imposed by Art. 50 (I.C.Z.N.) cannot be fulfilled in this case. There is not sufficient evidence "from the contents of the publication that . . . some other person (. . .) is alone responsible both for the name and the conditions that make it available". The original authorship of *rapae* must be attributed to CHARLES M'INTOSH in spite of evidence pointing to CURTIS as author, and in particular in spite of the similarity in sequence and wording of the two descriptions. The homonymous use of the specific name *rapae* in both publications possibly caused subsequent authors to assume one and the same person to be responsible, and as CURTIS' (1860) description was the more widely known, to attribute the authorship of *Aphidius rapae* to him.

In strict application of the Rules, the original name of the parasite is *Aphidius rapae* M'INTOSH, 1855, of which species *Aphidius* (*Trionyx*) *rapae* CURTIS, 1860, is a junior primary homonym and not available. Since the latter species is, in addition, a junior subjective synonym of *Aphidius rapae* M'INTOSH, 1855, a replacement name is not needed for *Aphidius rapae* CURTIS, 1860.

2. The generic position of *Aphidius rapae*

GAHAN (1910) transferred *Aphidius rapae* M'INTOSH, 1855, to genus *Diaeretus* FOERSTER, 1862, simultaneously suppressing *Trioxys piceus* CRESSON, 1880, and *Aphidius brassicae* MARSHALL, 1896, as junior subjective synonyms of *rapae*. This combination was largely accepted by subsequent authors until STARÝ (1960) revised the genus *Diaeretus* sensu auctt. He left only the type species, *Aphidius*

leucopterus HALIDAY, in *Diaeretus* FOERSTER, distributing the remaining species to other genera of the family Aphidiidae. At the same time, he described two new genera, *Diaeretiella* and *Diaeretellus*, to contain species formerly assigned to *Diaeretus* sensu auctt. *Aphidius rapae* M'INTOSH was designated as type species of *Diaeretiella* STARÝ.

The genus *Diaeretiella* was assumed by STARÝ (1961) to be closely related to *Diaeretellus* STARÝ and *Lysiphlebus* FOERSTER. MACKAUER (1961a) opposed that classification because of its typological basis. The reduction of the discocubital vein of the fore wings which appears in *Diaeretus*, *Diaeretiella*, *Diaeretellus*, in some species of *Lysiphlebus* (but, in addition, also in *Monoctonus* HALIDAY and in other genera), and which was given as evidence for this relationship, has evolved polyphyletically and is not specific to any of the above named taxa. As an alternative, MACKAUER (1961b) placed *Diaeretiella* into the subtribe Aphidiina. He supposed these genera (e. g. *Tanytrichophorus* MACKAUER, *Euaphidius* MACKAUER, *Aphidius* NEES, *Diaeretiella* STARÝ, *Diaeretellus* STARÝ) to have derived from common ancestors with the *Lysiphlebus* group but, at present, to form a distinct group which is closely related with the Protaphidiina.

The question of the systematic position of *Diaeretiella* [*Aphidius*] *rapae* is largely a question of personal opinion. Yet, to attribute a generically distinctive rank to *Aphidius rapae* should be done only on the understanding that the two genera *Diaeretiella* and *Aphidius* are two closely related ones, and that *Aphidius* sensu auctt. is a very large genus comprising a number of rather heterogenous groups of species of which some show a degree of distinctness that is comparable to that between, e. g., *Diaeretiella rapae* and *Aphidius avenae* HALIDAY.

3. Some synonymical remarks

The synonymy of *Diaeretiella rapae* (M'INTOSH) was discussed by STARÝ (1961). The following names are to be added to the list of synonyms given in that paper:

a) *Lysiphlebus crawfordi* ROHWER, 1909, Trans. ent. Soc. Amer., 35, 135—136, ♀♂ [Lectotype: ♀; Phoenix, Ariz.; "*Myzus persicae*"; U.S.N.M., No. 66797.]. **New synonymy.**

Examination of the type specimens of *Lysiphlebus crawfordi* ROHWER revealed that the species is a compound one comprising both specimens of *Diaeretiella rapae* (M'INTOSH, 1855) and of *Lysiphlebus testaceipes* (CRESSON, 1880). As all specimens were described originally, each of the syntypes is eligible to be selected as lectotype. MACKAUER (in preparation) defined as lectotype a female specimen belonging to *Diaeretiella rapae*. Therefore, *Lysiphlebus crawfordi* ROHWER, 1909, has to be released as a subjective synonym of *Lysiphlebus testaceipes* (CRESSON, 1880) and becomes a junior subjective synonym of *Diaeretiella rapae* (M'INTOSH, 1855).

(b) *Diaeretus aphidae* MUKERJI & CHATTERJEE, 1949, Proc. Indian Sci. Congr. Assoc., 36 (3), 193, [♀♂]. **New synonymy.**

The paper by MUKERJI & CHATTERJEE (1949) includes some general notes on the family Aphidiidae as well as an enumeration of a number of characters in which *Diaeretus aphidae* differs from *D. oregmae* GAHAN. It is an abstract (and

marked as such) of a subsequent paper by the same authors which is said to contain figures and a description of the new species. Though this is not stated expressly, the abstract definitely refers to MUKERJI & CHATTERJEE's (1950) description of *Diaeretus aphidum*.

For nomenclatorial reasons the name of *Diaeretus aphidae* MUKERJI & CHATTERJEE, 1949, is not available because the original „description” satisfies neither the provisions of Arts. 12/16, nor any of the conditions of Art. 13a (I.C.Z.N.). As *Diaeretus aphidae* MUKERJI & CHATTERJEE is an objective synonym of *Diaeretus aphidum* MUKERJI & CHATTERJEE (being based on the same type specimens), the specific name of *Diaeretus aphidae* ultimately becomes a junior subjective synonym of *Diaeretiella rapae* (M'INTOSH, 1855) (cf. STARÝ, 1961).

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Summary

The paper discusses authorship, generic position, and synonymy of *Diaeretiella rapae* (M'INTOSH, 1855) (Hymenoptera: Aphidiidae). Evidence is presented for the authorship of CHARLES M'INTOSH. Genus *Diaeretiella* STARÝ is shown to be closely related to genus *Aphidius* NEES.

In addition, two new synonyms of *Diaeretiella rapae* (M'INTOSH) are published: *Lysiphlebus crawfordi* ROHWER, 1909, and *Diaeretus aphidae* MUKERJI & CHATTERJEE, 1949, the latter being an objective synonym of *Diaeretus aphidum* MUKERJI & CHATTERJEE, 1950.

Zusammenfassung

Die Arbeit behandelt Autorschaft, systematische Stellung und Synonymie von *Diaeretiella rapae* (M'INTOSH, 1855) (Hymenoptera: Aphidiidae). CHARLES M'INTOSH wird als wahrscheinlicher Autor von *Aphidius rapae* nachgewiesen; die Autorschaft von JOHN CURTIS muß dagegen mangels ausreichender Beweise abgelehnt werden. Die enge Verwandtschaft der Gattungen *Diaeretiella* STARÝ und *Aphidius* NEES wird diskutiert.

Die beiden Arten *Lysiphlebus crawfordi* ROHWER, 1909, und *Diaeretus aphidae* MUKERJI & CHATTERJEE, 1949, werden als weitere subjektive Synonyme zu *Diaeretiella rapae* (M'INTOSH) gestellt.

Резюме

Работа занимается авторством, положением в систематике и синонимией *Diaeretiella rapae* (M'INTOSH, 1855) (Hymenoptera: Aphidiidae). CHARLES M'INTOSH считают вероятным автором *Aphidius rapae*; от признания JOHN CURTIS автором приходится отказываться за недостатком доказательств. Обсуждается близость родства между родами *Diaeretiella* STARÝ и *Aphidius* NEES.

Дальнейшими суб'ективными синонимами *Diaeretiella rapae* (M'INTOSH) выступают оба вида *Lysiphlebus crawfordi* ROHWER, 1909, и *Diaeretus aphidae* MUKERJI и CHATTERJEE, 1949.

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