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Undescribed Encyrtid Parasites of Homopterous Insects

(*Hymenoptera: Chalcidoidea*)

S. MASHHOOD ALAM

Section of Entomology
Department of Zoology, Muslim University
Aligarh, U. P., India

(With 17 figures)

Aphidencyrtus ASHMEAD

The genus *Aphidencyrtus* was first described by ASHMEAD in 1900. It can be separated from closely allied genus *Aphycoides* MERCET for having marginal vein two times longer than wide and almost as long as stigmal vein. Some new generic characters have been discovered, viz., subgenital plate semicircular with anterior margin straight and posterior

DOI: 10.21248/contrib.entomol.11.7-8.803-812

margin bilobed with a circular flask shaped notch in the middle; outer plates of genitalia narrow at base expanded at apex with oblique ridge starting from basal one third dorsal margin and extending upto threefourths length of the plate; first valvifers subtriangular with articular knobs little prominent; second valvifers long, slender with third valvulae lanceolate and movebly articulated at its apex. MERCET's (1921) key to species has been revised to include *A. qadrii* n. sp. [1])

Revised Key to the Species of *Aphidencyrtus* ASHMEAD

Based on females

1) Pedicel longer than the following three funicle segments united; club as long as the funicle; . . . . . ***A. qadrii*** n. sp.
— Pedicel less as long as the following three funicle segments united; club clearly shorter than the funicle. 2
2) Third and fourth funicle segments somewhat more long than broad; club as long as preceding four funicle segments united; stigmal vein slightly shorter than marginal vein. . . . *A. aphidivorus* (MAYR)
— Third and fourth funicle segments somewhat more broad than long; club as long as preceding five funicle segments united; stigmal vein a little more long than marginal vein. . . . . *A. citri* MERCET

Aphidencyrtus qadrii n. sp.

Female:

Head: Shagreen; uniformly coloured brown; eyes dark; margin of the occiput acute; head wider than long; frontovertex wide, twice as wide as long; eyes small, slightly longer than wide; ocelli in isoceles triangle, basal ocelli removed from eye rim and occipital margin by a distance equal

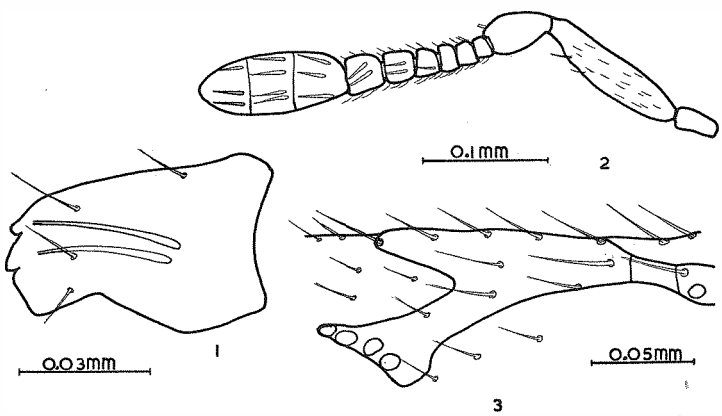


Fig. 1—3. *Aphidencyrtus qadrii* n. sp. — Fig. 1. Mandible. — Fig. 2. Antenna. — Fig. 3. Incomplete venation

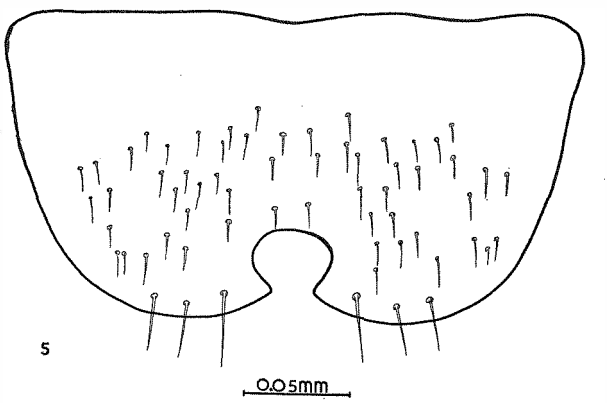
[1]) The author is greatly indebted to Professor O. W. RICHARDS for permission to collect the material from Silwood Park, London. Thanks are also due to my colleague Mr. MAN MOHAN for help in the preparation of this paper.

DOI: 10.21248/contrib.entomol.11.7-8.803-812

to its diameter; cheeks as long as length of eye; antennae inserted very close to oral rim and at a distance of ¾ of the diameter of antennal socket; mandibles (Fig. 1.) with two teeth and a small truncation; maxillary palps four segmented, ultimate segment the longest; labial palps three segmented, third segment the longest.

Antennae: (Fig. 2) Uniformly coloured reddish brown with scape darker; scape slender, about four times longer than wide, shorter than club; pedicel almost one and a half times longer than wide, slightly longer than the following three funicle segments united; funicle segments wider than long excepting the 5th. and 6th. segments which are as long as wide; club three segmented, two and a half times longer than wide, as long as the funicle; sixth funicle to third club segments with 2, 4, 5 and 6 sensoria respectively.

Thorax: Shagreen; uniformly coloured reddish brown, dorsum lightly metallic; scutum twice as wide as long; scutellum almost as wide as long, longer than scutum; axillae broadly contiguous at the apex; metanotum very narrow, band like; propodeum of uniform width; mesopostphragma broadly rounded at apex.



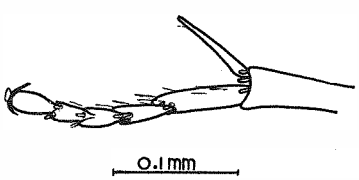


Fig. 4. *Aphidencyrtus qadrii* n. sp. Incomplete tibia and tarsi of middle leg

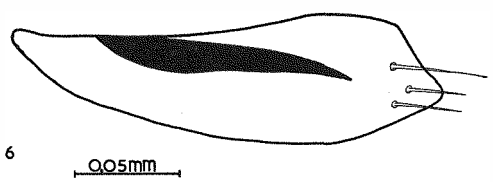


Fig. 5—6. *Aphidencyrtus qadrii* n. sp. — Fig. 5. Subgenital plate. — Fig. 6. Outer plate of genitalia

Forewings: Hyaline; more than two and a half times longer than wide; costal cell broad, disc uniformly ciliated; submarginal vein long with 14 bullae; marginal vein short, twice as long as wide; postmarginal vein slightly more than one half of marginal vein; stigmal vein almost equals marginal vein in length (Fig. 3); marginal fringes moderate, spaced by about one third length of a fringe.

Hind wings: Hyaline, costal cell absent, marginal fringes as long as one fourth of wing width, spaced by about one third length of a fringe.

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Fore legs: Coxae, trochanters, femora and tibiae excepting base reddish brown, apices of femora and bases and apices of tibiae whitish; tarsi dirty white; coxae with one long seta.

Middle legs: Coxae, trochanters, femora and tibiae reddish brown excepting apices of femora, bases and apices of tibiae, and 1—4 tar sal segments which are whitish; tibial spur (Fig. 4) as long as basitarsus; apex of tibiae with three pegs; basitarsus and tarsal segments 2—4 with 3, 2, 2 and 2 pegs respectively.

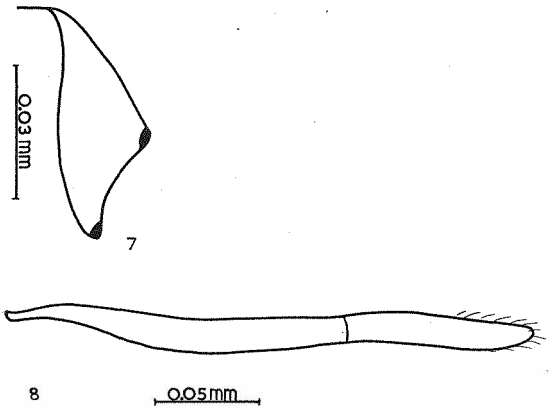

Fig. 7—8. *Aphidencyrtus qadrii* n. sp. — Fig. 7. First valvifer. — Fig. 8. Second valvifer with third valvulae

Hind legs: Coxae, trochanters, femora and tibiae except at base and apex reddish brown, bases and apices of tibiae whitish; coxae with two long setae at apex.

Abdomen: Sub-triangular, acute at apex, reddish brown, shorter than thorax; genitalia concealed; subgenital plate (Fig. 5) semicircular with anterior margin straight, posterior margin bilobed with a circular flask shaped notch in the middle; outer plate of genitalia (Fig. 6) narrow at base, expanded at apex with oblique ridge starting from basal one third dorsal margin and extending upto three fourths length of the plate; first valvifers (Fig. 7) subtriangular with articular knobs little prominent; second valvifers (Fig. 8) long, slender with third valvulae lanceolate and movably articulated at its apex.

Measurements:

Head length (width)	0.248 (0.268) mm
Frontovertex length (width)	0.053 (0.10) mm
Eye length (width)	0.101 (0.08) mm
Length of cheek	0.101 mm
Scape length (width)	0.110 (0.027) mm
Pedicel length (width)	0.051 (0.033) mm
First funicle segment length (width)	0.014 (0.019) mm
Second ,, ,, ,, ,,	0.016 (0.021) mm
Third ,, ,, ,, ,,	0.014 (0.021) mm
Fourth ,, ,, ,, ,,	0.02 (0.024) mm
Fifth ,, ,, ,, ,,	0.026 (0.026) mm
Sixth ,, ,, ,, ,,	0.030 (0.030) mm
Club length (width)	0.12 (0.047) mm

DOI: 10.21248/contrib.entomol.11.7-8.803-812

Fore wings length (width)	0.625 (0.277) mm
Submarginal vein length	0.241 mm
Marginal vein ,,	0.027 mm
Stigmal vein ,,	0,0248 mm
Postmarginal vein ,,	0.015 mm
Marginal fringes ,,	0.020 mm
Distance between marginal fringes	0.006 mm
Basitarsus of middle leg	0.073 mm
Tibial spur of middle leg	0.070 mm
Length of female	0.440 mm

Material: Holotype female reared on 16. 9. 1953. One female paratype bred on the same date. Endoparasite of the common aphid which is a pest of *Holcus mollis* L. at Silwood Park, Berks; England.

Blastothrix Mayr

The genus was first recorded by Mayr 1875. It can be separated from the allied genus *Metaphycus* Mercet for having the marginal vein longer than broad, as long as stigmal vein, and funicle segments elongated excepting distal ones which are subsquare. Some new generic characters have been recorded, viz., pronotum of uniform width with anterior margin concave and acutely notched in the middle, posterior margin distinctly convex; subgential plate with anterior margin straight, posterior margin in curvature with a notch in its centre, notch ends into a median longitudinal groove; outer plates of genitalia almost of uniform width, apical half comparatively broader with truncated apex and with dorsal margin inflexed upto three—fourths length of the plate; first valvifers subtriangular with articular knobs little prominent; second valvifers elongated with both dorsal and ventral margins clearly thickened.

Mercet's (1921) key to species of *Blastothrix* Mayr has been expanded to include species described by Ishii (1928) from Japan and the present new species.

Revised Key to Species of *Blastothrix* Mayr

Based on females

1. Scape strongly laminated. 2
— Scape moderately laminated. 5
2. Fifth and sixth funicle segments whitish, rest of antennae brownish black. 3
— Entire funicle uniformly brownish black. 4
3. Frontovertex as broad as long, or scarcely more long than broad; base of ocellar triangle more than its side; pleura bluish or greenish; fore and hind legs blackish blue with knees whitish; hind tarsi whitish. . . . . *B. ilicicola* Mercet
— Frontovertex more long than broad; base of ocellar triangle equal to its side; pleura reddish; legs coppery with some brownish patches. . . . . *B. erythostethus* (Walker)
4. Head, pro- and mesonotum dark blue; middle legs whitish; frontovertex one third of head width; basal ocelli placed from eye rim equal to one half ocellar diameter and from occipital margin equal to twice the diameter; pedicel twice as long as wide. . . *B. kermivora* Ishii

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— Head, pro- and mesonotum greenish; middle legs yellowish brown; frontovertex a little more than one third width of head; basal ocelli placed from eye rim equal to ocellar diameter and from occipital margin equal to one and one half times the diameter; pedicel slightly longer than wide. . . . . *B. ozukiensis* Ishii

5. Antennae brownish black with fifth and sixth funicle segments yellowish; scape equal to first four funicle segments united; pedicel a little longer than first funicle segment; club equal to preceding two segments united; postmarginal and stigmal veins of almost equal lengths; each longer than marginal vein. . . . . *B. sericea* (Dalman)

— Antennae uniformly coloured coppery; scape shorter than first four funicle segments united; pedicel a little shorter than first funicle segment; club longer than preceding two segments united; postmarginal vein distinctly longer than stigmal vein; stigmal vein almost as long as marginal vein. . . . . ***B. coryli*** n. sp.

Blastothrix coryli n. sp.

Female:

Head: Coppery, metallic, reticulate, wider than long; post-occiput black; frontovertex wide, about three times wider than long; margin of occiput acute; eyes slightly longer than wide; ocelli in isoceles triangle, basal ocelli removed from occipital margin by about four times its distance from eye rim; antennal sockets on lower one third of face; distance of antennal socket from oral margin equals its longitudinal diameter; interscrobal ridge present; mandibles (Fig. 9) with a small rounded tooth and a truncation; maxillary palps four segmented, fourth segment the longest; labial palps three segmented, first segment the longest.

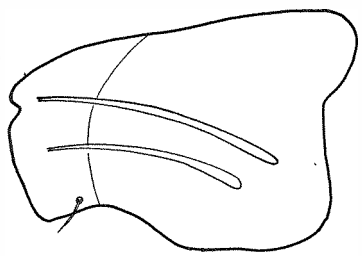

Fig. 9. *Blastothrix coryli* n. sp. Mandible

Antennae: (Fig. 10 A) Uniformly coloured coppery with slightly dark scape; scape laminated in apical half, three times longer than wide; pedicel a little less than twice as long as wide, a little shorter than first funicle segment; first funicle segment more than two times longer than wide; second segment twice as long as wide; segments 3—6 gradually increase in width and decrease in length with sixth segment as wide as long; club three segmented, longer than preceding two segments united; first funicle to third club segment with 1, 1, 5, 5, 8, 8, 11, 11 and 7 sensoria respectively.

Thorax: Uniformly coloured dark coppery; pronotum (Fig. 11) reticulate and of almost uniform width, anterior margin concave and acutely

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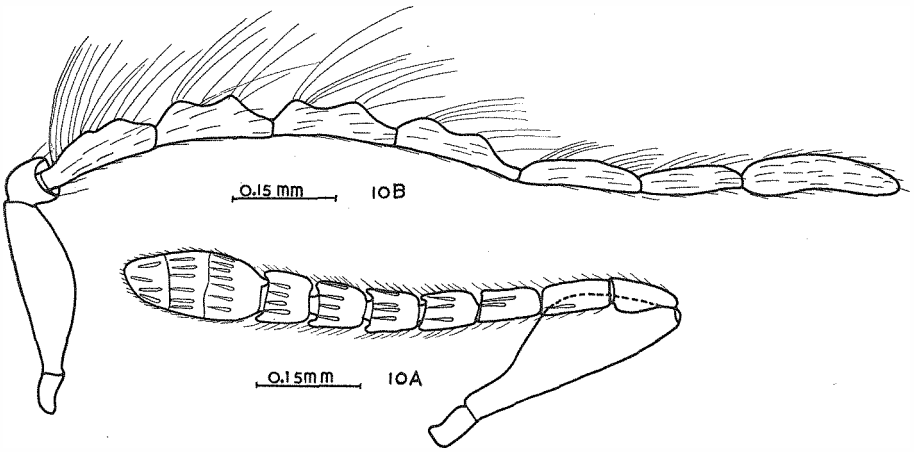

Fig. 10. *Blastothrix coryli* n. sp. A. Antenna female. — B. Antenna male

notched in the middle, posterior margin distinctly convex; mesoscutum punctate, shagreen, twice as wide as long; axillae broadly contiguous in middle; scutellum longer than wide, acute at apex; propodeum narrow in the middle with slightly expanded sides; mesopostphragma broadly rounded at apex.

Fore wings: Hyaline, more than two times longer than wide; costal cell broad; submarginal vein very long with 18 setae; marginal vein (Fig. 12)

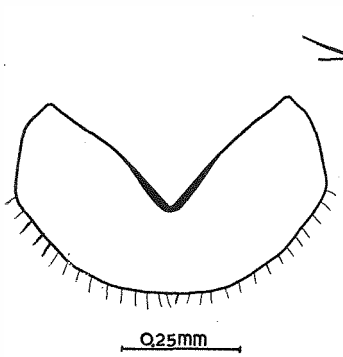

Fig. 11. *Blastothrix coryli* n. sp. Pronotum

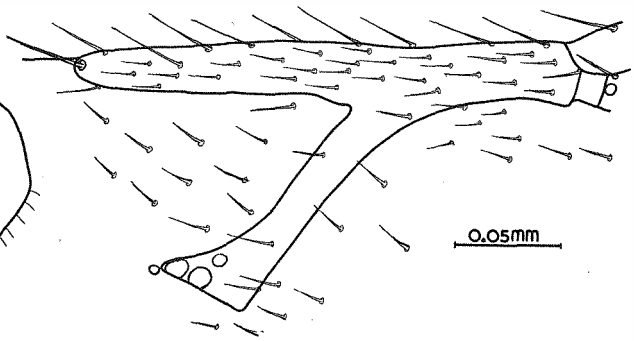

Fig. 12. *Blastothrix coryli* n. sp. Incomplete venation of fore wing

short, three times longer than wide; postmarginal vein distinctly longer than stigmal vein; stigmal vein almost as long as marginal vein; marginal fringes short and spaced by a distance equal to one-third length of a fringe.

Hind wings: Hyaline, costal cell broad; marginal fringes short, spaced by a distance equal to one-third length of a fringe.

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Fore legs: Coxae, basal three fourth of trochanters, femora excepting apex, tibiae leaving their bases and tarsi coppery; apical one fourth of trochanters, apices of femora and bases of tibiae whitish.

Middle legs: Coxae dark brown; trochanters, femora and tibiae coppery; apices of femora and bases of tibiae light brown; tibial spur much shorter than basitarsus (Fig. 13); apex of tibiae and following four tarsal segments with 11, 20, 10, 11 and 11 pegs respectively.

Hind legs: Coxae, trochanters, femora dark coppery, tibiae and tarsi coppery; apices of femora and bases of tibiae whitish; tibial apex with a single spur.

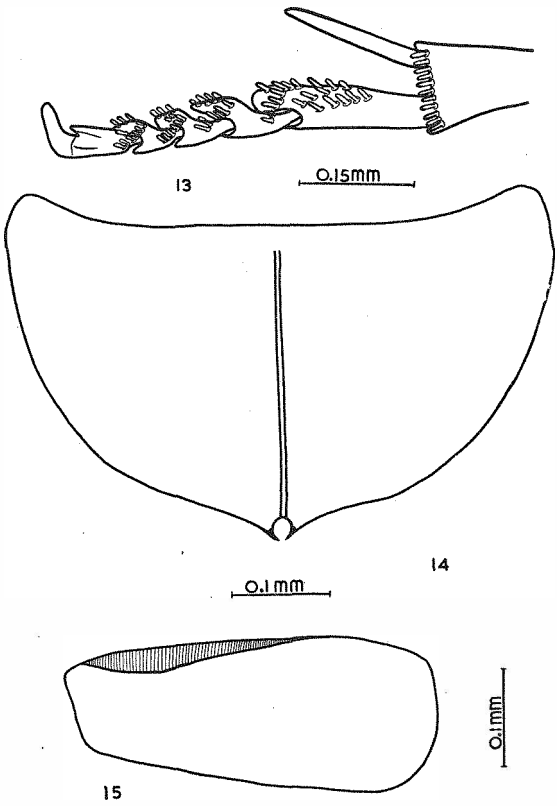

Fig. 13—15. *Blastothrix coryli* n. sp. — Fig. 13. Incomplete middle leg. — Fig. 14. Subgenital plate. — Fig. 15. Outer plate of genitalia

Abdomen: Sub-triangular; slightly shorter than thorax; genitalia concealed; subgenital plate with anterior margin straight, posterior margin (Fig. 14) in curvature with a notch in the middle, two knobs on either side of the notch present, notch ends into a median groove which extends upto the anterior margin; outer plates (Fig. 15) of genitalia almost of uniform width, apical half comparatively broader with truncated apex and with dorsal margin inflexed upto three fourths length of the plate; first valvifers (Fig. 16) sub-triangular with articular knobs little prominent; second valvifers (Fig. 17) long, slender, with both dorsal and ventral margins thickened; third valvulae short and movably articulated with second valvifers.

Male: Resembles the female except for its antennae.

Antennae: Long, filiform; scape cylindrical, little compressed, three times longer than wide; pedicel small, slightly longer than wide; all funicle segments elongated, much longer than wide with long fringes; fringes longer

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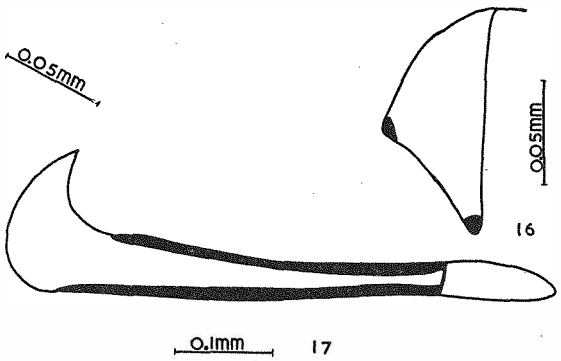

Fig. 16—17. *Blastothrix coryli* n. sp. — Fig. 16. First valvifer. — Fig. 17. Second valvifer with third valvula

than the segments bearing them; club unsegmented, about four times longer than wide, shorter than the preceding two segments united (Fig. 10B).

Measurements:

Female:

Head	length (width)	0.60 (0.70) mm
Frontovertex	,, ,,	0.091 (0.28) mm
Scape	,, ,,	0.297 (0.099) mm
Pedicel	,, ,,	0.091 (0.052) mm
First funicle segment	,, ,,	0.097 (0.043) mm
Second ,, ,,	,, ,,	0.087 (0.044) mm
Third ,, ,,	,, ,,	0.082 (0.051) mm
Fourth ,, ,,	,, ,,	0.080 (0.059) mm
Fifth ,, ,,	,, ,,	0.073 (0.066) mm
Sixth ,, ,,	,, ,,	0.069 (0.070) mm
Club	,, ,,	0.190 (0.096) mm
Submarginal vein of fore wings		Length 0.840 mm
Marginal vein	,, ,,	,, 0.117 mm
Postmarginal vein	,, ,,	,, 0.125 mm
Stigmal vein	,, ,,	,, 0.114 mm
Marginal fringe	,, ,,	,, 0.027 mm
Distance between fringes		,, 0.009 mm
Length of female		2.098 mm

Male:

Scape	length (width)	0.251 (0.080) mm
Pedicel	,, ,,	0.062 (0.057) mm
Club	,, ,,	0.226 (0.051) mm
Length of male		1.889 mm

DOI: 10.21248/contrib.entomol.11.7-8.803-812

Material: Holotype female reared on 28. 5. 1954. Five paratype females bred on the same date. Allotype male and eight paratype males bred on 25. 4. 1954. Endoparasite of *Lecanium coryli* L. on *Fagus silvatica* L. at Silwood Park, Berks, England.

Summary

There are described as new *Aphidencyrtus qadrii* and *Blastothrix coryli*, encyrtid parasites of *Homoptera*. Revised keys to species of *Aphidencyrtus* and *Blastothrix* females are *included*.

Zusammenfassung

Zwei neue in Homopteren parasitierende Encyrtiden werden beschrieben: *Aphidencyrtus qadrii* und *Blastothrix coryli*. Bestimmungsschlüssel für die Weibchen der Gattungen *Aphidencyrtus* und *Blastothrix* werden beigegeben.

Резюме

Описываются два новые *Encyrtidae*, паразитирующие в *Homoptera*: *Aphidencyrtus qadrii* и *Blastothrix coryli*. Прилагаются ключи-олределители для самок из родов *Aphidencyrtus* и *Blastotrix*.

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Studies on Allophanurus indicus n. sp., an Egg Parasite of Bagrada cruciferarum Kirkaldy

(*Hymenoptera*: *Scelionidae*)

B. R. Subba Rao & M. J. Chacko

Division of Entomology
Indian Agricultural Research Institute
New Delhi

(With 2 plates and 1 figure)

Bagrada cruciferarum Kirkaldy is a very serious pest of cruciferous crops in India. Samuel (1942) recorded 2 species of Scelionids, *Liophanurus samueli* Mani and *Tiphodytes* sp., parasitising the eggs of this pest. Recently Narayanan et al. (1959) recorded *Hadrophanurus* sp. on this pest at Karnal, The Punjab. During the months of May and

DOI: 10.21248/contrib.entomol.11.7-8.803-812