A new species of the genus *Adelencyrtus* from Malaysia (Hymenoptera: Encyrtidae)

V.A. Trjapitzin & S.N. Myartseva

Trjapitzin, V.A. & Myartseva, S.N. 2001. A new species of the genus *Adelencyrtus* from Malaysia (Hymenoptera: Encyrtidae). *Zoosystematica Rossica*, **10**(1): 163-165.

Adelencyrtus sarawaki sp. n. reared from the California Red Scale *Aonidiella aurantii* (Maskell) (Homoptera: Diaspididae) on *Citrus* in Sarawak (Malaysia) is described. It is compared with *A. quadriguttus* (Girault) parasitizing the same host species in India.

V.A. Trjapitzin, Zoological Institute, Russian Academy of Sciences, Universitetskaya nab. 1, St.Petersburg 199034, Russia.

S.N. Myartseva, National Institute of Deserts, Flora and Fauna, Ministry of Natural Protection of Turkmenistan, ul. Azady 59, Ashgabat 744000, Turkmenistan.

In 1977, the senior author visited the University of California at Riverside, USA and received for identification from Prof. R.F. Luck a series of specimens of an encyrtid belonging to the genus *Adelencyrtus*. The parasitoid has been reared by him in Sarawak (Malaysia) from the California Red Scale *Aonidiella aurantii* (Maskell) (Homoptera: Diaspididae), an important pest of cultivated citrus plants. Previously, only one species of *Adelencyrtus* was known to parasitize this armoured scale: *A. quadriguttus* (Girault) in India (Girault, 1932, as *Epitetracnemus*; Noyes & Hayat, 1984).

Identification of species of the genus *Adelencyrtus* represents some difficulties, because this genus, comprising 22 species in the world fauna, is not revised. Only three keys to species of *Adelencyrtus* have been published: by Compere & Annecke (1961) for the world fauna, now outdated, by Trjapitzin (1989) for Palaearctic, and by Fatima & Shafee (1994) for India. In addition to these keys and original descriptions of all known species of *Adelencyrtus*, we examined material from some important collections.

The discovery in Malaysia of *Adelencyrtus sarawaki* sp. n., which we describe here, is important, because this parasitoid might be a candidate for introduction into other citrus growing countries, where *Aonidiella aurantii* is a serious pest. This coccid is called usually "California Red Scale", but only conventionally: its native area is generally regarded to be SE Asia. Finding of parasitoids and predators of *A. aurantii* seems most likely in SE Asia.

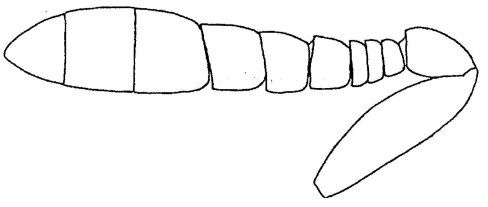
Holotype and paratypes of *A. sarawaki* sp. n. are preserved in the UCR Entomological Collection, Department of Entomology, University of California, Riverside, USA.

Adelencyrtus sarawaki sp. n.

Holotype. ♀, **Sarawak**, Jemukan, Samarahan Div., 2nd stop, *Citrus*, 20.IV.1996 (R.F. Luck).

Paratypes. 3 ♀, same data as holotype. Antenna and forewing of one paratype in microscope slide No. 1999 (1). The specimens were reared from *Aonidiella aurantii* (Maskell) (R.F. Luck, pers. comm.).

Description. Female. Head subtriangular (in side view), somewhat broader than high (5 : 4) and twice as high as long; its breadth less than maximum width of thorax (5 : 6). Inner orbits of eyes (in dorsal view) parallel. Frontovertex less than 1/3 head width (7: 24-26), somewhat convex and 1.7-2 times as long as broad; ocelli forming an angle less than 90°; posterior ocelli almost touching eye margins; distance between posterior ocelli a little more than distance between posterior and anterior ocellus (3 : 2.5) or less (1.5 : 2); distance between posterior ocelli and occipital margin equal to or sometimes greater (2 : 1.5) than distance between these ocelli. Temples absent: eyes touching occipital margin, which is straight. Facial cavity large, formed by scrobes meeting dorsally; interscrobal elevation sometimes keel-like; upper edge of facial cavity on the level of about 1/5-2/5 head height (from its apex). Malar space subequal to eye height (11 : 12). Mouth margin strongly concave. Upper margin of antennal



Antenna of *Adelencyrtus sarawaki* sp. n., ♀ (paratype).

torulus somewhat below the lowest margin of eye; distance between toruli equal to distance from a torulus to eye margin. Antennal scape (see figure) slightly flattened and broadened, about 3-4 times as long as broad; pedicel approximately 1.5 times as long as broad and as long as 1st-3rd and a half of the 4th funicle segments combined; 1st-3rd funicle segments anelliform, 3rd-6th large but still transverse; clava large, broader than funicle, about 2.6 times as long as its greater width and as long as funicle and pedicel combined; 4-6th funicle segments each with 2 linear sensilla; segments of clava with 4, 4 and 3 such sensilla, respectively. Pronotum short, transverse, its hind margin strongly concave. Mesoscutum flat, 1.3 times to almost twice as broad as long. Axillae rather narrow and somewhat convex. Scutellum flat, shorter than mesoscutum and distinctly broader than long. Forewing 4-5 times as long as broad; costal cell 7-10 times as long as broad; marginal vein 4-5 times as long as broad; stigmal vein shorter than marginal (3-4 : 5); postmarginal vein shorter than (3 : 4) or as long as stigmal. Midtibial spur slightly longer than basal midtarsal segment (9 : 8). Propodeum very short, practically reduced in the middle, but with rather long lateral parts, which are broadly incised on each side. Gaster (metasoma without petiole) subtriangular, as long as mesosoma (thorax + propodeum) or a little shorter or longer; 1st visible (III true) tergite occupies 1/4-1/3 the length of gaster; pygostyli at the level of about 1/3 the length of gaster from its base. Protruding part of ovipositor sheaths 1/6-1/3 the length of gaster.

Body dark. Frontovertex golden-green, with violet-blue lustre anteriorly; facial cavity golden-greenish-bronze; malar spaces greenish bronze. Antennae black, with 6th funicle segment whitish yellow. Mesoscutum green. Tegulae black. Scutellum dark green, with strong green lustre on lateral and apical borders. Forewing may have a rather large infuscation below the marginal vein. Legs black; middle femora whitish yellow with fuscous upper side of apical half; middle tibiae (including the spur) whitish yellow, but fuscous in basal part; fore and hind tibiae with whitish yellow apices; tarsi yellowish white with infuscated last segment. 1st visible (III true) segment of gaster golden-green. Ovipositor sheaths black.

Frontovertex with minute cellulate sculpture. Mesoscutum reticulate; scutellum with well pronounced cellulate sculpture, formed by larger elements than on frontovertex; lateral and apical borders of scutellum almost smooth, brilliant.

Mesoscutum covered with sparse black hairs. Basal 1/3 of forewing almost not pubescent; linea calva opened below.

Length (without protruding parts of ovipositor sheaths): 0.8-0.9 mm.

Male unknown.

Comments. The new species does not fit to any couplet of the keys to species of *Adelencyrtus* published by Compere & Annecke (1961) and Trjapitzin (1989). In the key by Fatima & Shafee (1994), it goes to *A. magniclavatus* Fatima & Shafee described from India, but, as was shown by Hayat (1999), *A. magniclavatus* does not belong to the genus *Adelencyrtus* and is a synonym of *Tassonia aphidivora* (Shafee, Alam & Agarwal). So, we can compare *A. sarawaki* sp. n. only with *A. quadriguttus* (Girault), also reared in India from *Aonidiella aurantii* (Maskell). The characters distinguishing the females of these two species are listed below. *A. quadriguttus* (Girault, 1932). All funicle segments of antenna quadrate; 4-6th funicle segments white; clava as long as 3/4 of funicle. Forewings fuscous with 4 round clear spots. Body blue. *A. sarawaki* sp. n. 1st-3rd funicle segments of antenna anelliform, 3rd-6th large but still transverse; 6th funicle segment white; clava as long as funicle and pedicel combined. Forewings more or less hyaline or with a rather large infuscation below the marginal vein. Body black, with predominantly green lustre.

In *A. oceanica* (Doutt), parasitizing the Red Coconut Scale *Furcaspis oceanica* Lindinger (Homoptera: Diaspididae) in the Caroline Islands (Doutt, 1950), 1st-4th funicle segments of antenna are anelliform and forewings have a large fuscous area interspersed with hyaline spots.

Acknowledgements

The senior author is indebted to Drs. John Heraty and Serguei V. Triapitsyn for facilities to work in the Department of Entomology, University of California, Riverside, USA and for loan of comparative material of *Adelencyrtus* species.

References

Compere, H. & Annecke, D.P. 1961. Descriptions of parasitic Hymenoptera and comments (Hymenopt.: Aphelinidae, Encyrtidae, Eulophidae). *J. Entomol. Soc. S. Afr.*, **24**(1): 17-71.

Doutt, R.L. 1950. The parasite complex of *Furcaspis oceanica* Lindinger. *Ann. Entomol. Soc. Amer.*, **43**(4): 501-507.

Fatima, A. & Shafee, S.A. 1994 (1993). Studies on the taxonomy of the Indian encyrtids (Hymenoptera: Encyrtidae). *Aligarh Muslim Univ. Publ., Zool. Ser., on Indian Ins. Types*, **15**: 1-141.

Girault, A.A. 1932. *New lower Hymenoptera from Australia and India.* 6 p. Brisbane, priv. publ.

Hayat, M. 1999. Taxonomic notes on Indian Encyrtidae (Hymenoptera: Chalcidoidea) – V. *Oriental Insects*, **33**: 349-407.

Noyes, J.S. & Hayat, M. 1984. A review of the genera of Indo-Pacific Encyrtidae (Hymenoptera: Chalcidoidea). *Bull. Br. Mus. Nat. Hist. (Ent. ser.)*, **48**(3): 131-395.

Trjapitzin, V.A. 1989. *Parasitic Hymenoptera of the family Encyrtidae of Palaearctics.* 480 p. Leningrad, Nauka. 488 pp. (In Russian with English summary).

Received 11 July 2000