

## Notes on the genus *Astichus* Först. and description of new species (Hym., Chalcidoidea, Eulophidae, Euderinae)

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The European *Euderinae* have been revised by BOUČEK (1963). Our knowledge of this subfamily is poor and lots of species are undescribed, which the author hope to deal with in another paper. To the genus *Astichus* Först. belong species that seem to be parasites of *Cisiidae* in tree fungi (Polyporaceae). In the following a key is given for *Astichus* Först. (s.str.); about the subgenus *Linastichus* Bouč. see BOUČEK (1963).

### Key to the species of the genus *Astichus* Först.

♀

1. Antennae with uniform dark colour. Fore wing with few and small maculae .. 2
- Antennae dark with 3rd and 4th funicle joints yellowish white. Fore wing with large extended maculae ..... 3
2. Fore wing with 2 maculae (fig. 2 C); one below stigmal knob and second at the middle of the wing ..... *A. tauricus* Bouč.
- Fore wing with 4 maculae; one at the middle of the marginal vein, another enclosing the stigmal vein, two are on the hind margin, each being directly opposite those first mentioned ..... *A. quadrimaculatus* (Ashm.)
3. Antennae with two funicle joints (3rd and 4th) yellowish white ..... 4
- Antennae with one funicle joint (3rd) yellowish white ..... 7
4. Propodeum with two divergent carinae ..... 5
- Propodeum without median carina (fig. 4 E). Fore wing see fig. 2 B ..... *A. maculipennis* (Walk.)
5. Fore wing (fig. 1 A) and propodeum (fig. 4 A) ..... *A. arithmeticus* (Först.)
- Fore wing (figs. 1 B, C) ..... 6
6. Fore wing (fig. 1 B) and propodeum (fig. 4 B) ..... *A. intermedius* sp. n.
- Fore wing (fig. 1 C) ..... *A. solutus* Först.
7. Fore wing (fig. 3 B) and propodeum (fig. 4 D) ..... *A. maculatus* sp. n.
- Fore wing (fig. 2 A) and propodeum (fig. 4 C) ..... *A. polyporicola* sp. n.

♂

1. The club solid ..... *A. tauricus* Bouč.
- First segment of clava separated ..... 2
2. First segment of clava not separated by short petiole from the rest. Fore wing (fig. 1 C) ..... *A. solutus* Först.
- First segment of clava separated by short petiole from the rest ..... 3
3. Fore wing (fig. 2 A) ..... *A. polyporicola* sp. n.
- Fore wing (fig. 3 D) ..... *A. maculatus* sp. n.

*Astichus tauricus* Bouč.

Bouček, Beiträge zur Entomologie. 13, pp. 278–279, 1963.

Distribution USSR, the Crimea.

Host: unknown.

*Astichus quadrimaculatus* (Ashm.)

Ashmead, Linn. Soc. Journ. Lond. 25, p. 173, 1894.

Described as *Derostenus quadrimaculatus*

Distribution: Lesser Antilles, St. Vincent.

Host: unknown.

*Astichus maculipennis* (Walk.)

Walker, Notes on Chalcididae. Part VII, p. 126, 1872.

Described as *Eulophus maculipennis*

Distribution: Madeira and Canary Is. Tenerife (Puerto de la Cruz, III, 1964, leg. T. Palm.)

Host: Ex. *Euphorbia regia-jubao* infested by *Ipidae* and *Cossonini* (Curculionidae)

*Astichus arithmeticus* (Först.)

Förster, Verh. naturh. Ver. preuss. Rheinl. 8, p. 18, 1851.

Described as *Euderus arithmeticus*

Distribution: Austria, Britain, Bulgaria, Czechoslovakia, France, Germany, Hungary, Italy, Sweden, Switzerland.

Host: See BOUČEK & ASKEW, in Index of Entomophagous Insects, Palearctic *Eulophidae*, Paris 1968.

*Astichus intermedius* sp. n.

♀. Dark brown with metallic tint of blue and green mixed on head (above antennal sockets), thorax, propodeum and dorsally on gaster. Head below antennal sockets, a transverse stripe in front of median ocellus, ventral part of prothorax and fore legs yellowish white. Antennae dark brown with base of scapus and 3rd and 4th funicle joints yellowish white. Mid and hind legs with coxae, femora and base of tibiae more or less dark brown, the rest of the mentioned legs yellowish white. The colour varying with tint of blue, green and violet. Fore wing with maculae (fig. 1 B).

♂. Unknown.

Length: ♀. 2.0—2.6 mm.

Holotype: In coll. mea, Sweden, Uppland, Vallentuna, 20.IV.1961, leg. K.-J. Hedqvist.

Paratypes:

8 ♀, 1 ♀ Sweden, Jämtland, Fors, 15.V, 1946, leg. T. Palm, in coll. mea.

1 ♀, Sweden, Uppland, Fiby, Vänge, 21.VI, 1945, leg. O. Lundblad, in coll. Swed. Mus. Nat. Hist.

1 ♀, Sweden, Jämtland, Fors, 15.VI, 1946, leg. T. Palm, in coll. Swed. Mus. Nat. Mus.

2 ♀, Canada, Ont. Bells Corners, 26.VIII, 1954, leg. E. C. Becker, in Canad. Nat. Coll., Ottawa, and in coll. mea.

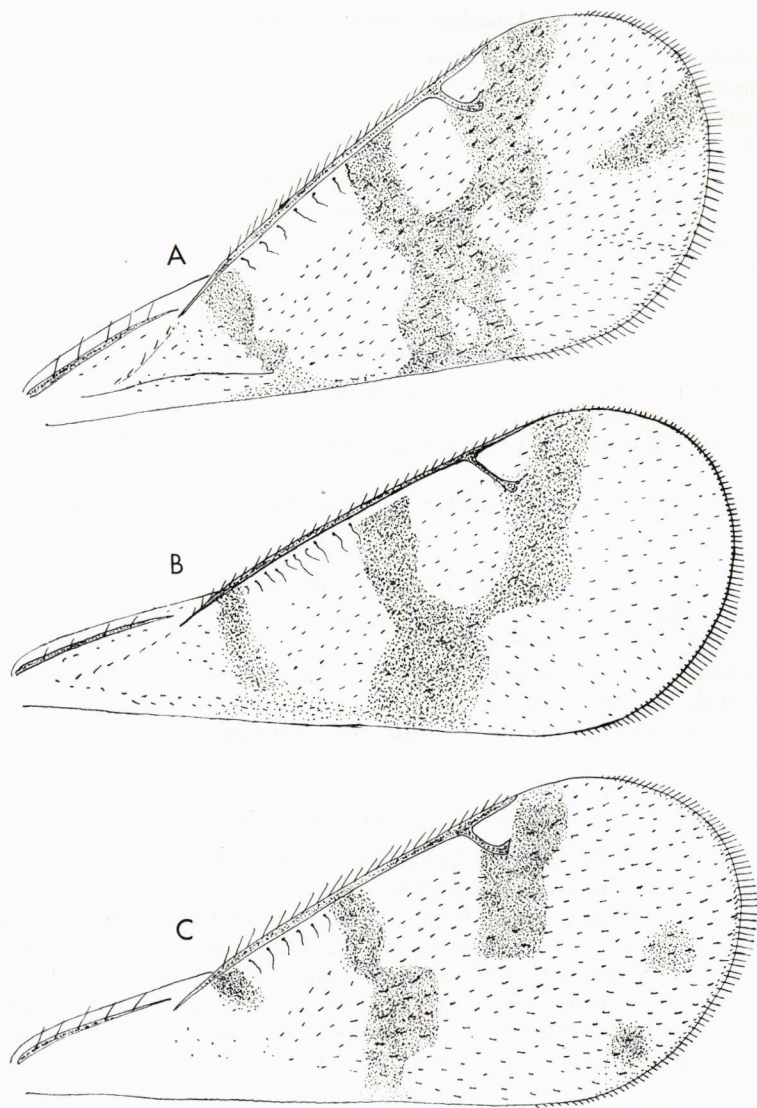


Fig. 1. A. *Astichus arithmeticus* (Först.), fore wing. — B. *Astichus intermedius* sp. n., fore wing. — C. *Astichus solutus* Först., fore wing.

1 ♀, Canada, Ont. Bells Corners, 22.VIII, 1954, leg. E. C. Becker, in Canad. Nat. Coll., Ottawa.

1 ♀, Canada, Ont., Ottawa, 20.IX, 1954, leg. O. Peck, in Canad. Nat. Coll. Ottawa.

1 ♀, Canada, Carp., Ont. 24.V, 1954, leg. E. C. Becker, in Canad. Nat. Coll., Ottawa.

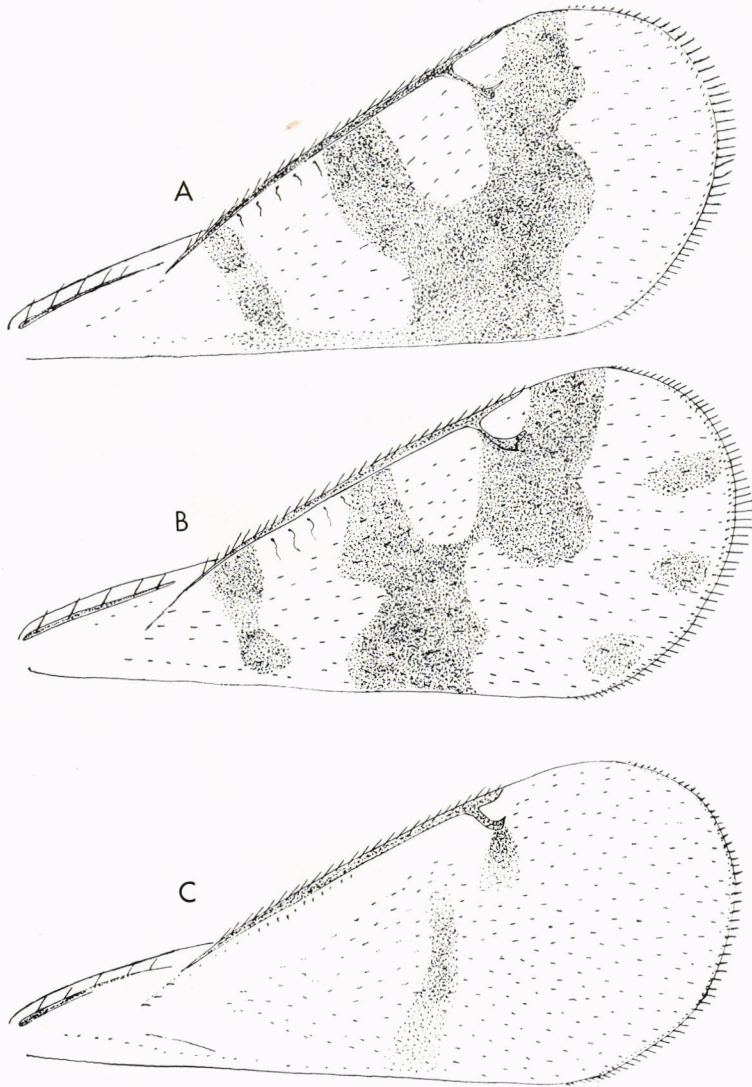


Fig. 2. A. *Astichus polyporicola* sp. n., fore wing. — B. *Astichus maculipennis* (Walk.), fore wing. — C. *Astichus tauricus* Bouč., fore wing.

Similar to *A. polyporicola* sp. n. but has a different propodeum (fig. 4 B) and the fore wing is also different (fig. 1 B), see the key.

Host: Ex *Ganoderma applanatum*.

*Astichus solutus* Först.

Förster, Hym. Studien. 2, p. 80, 1856

Distribution: Britain, Germany and Italy.

Host: *Cis* sp.

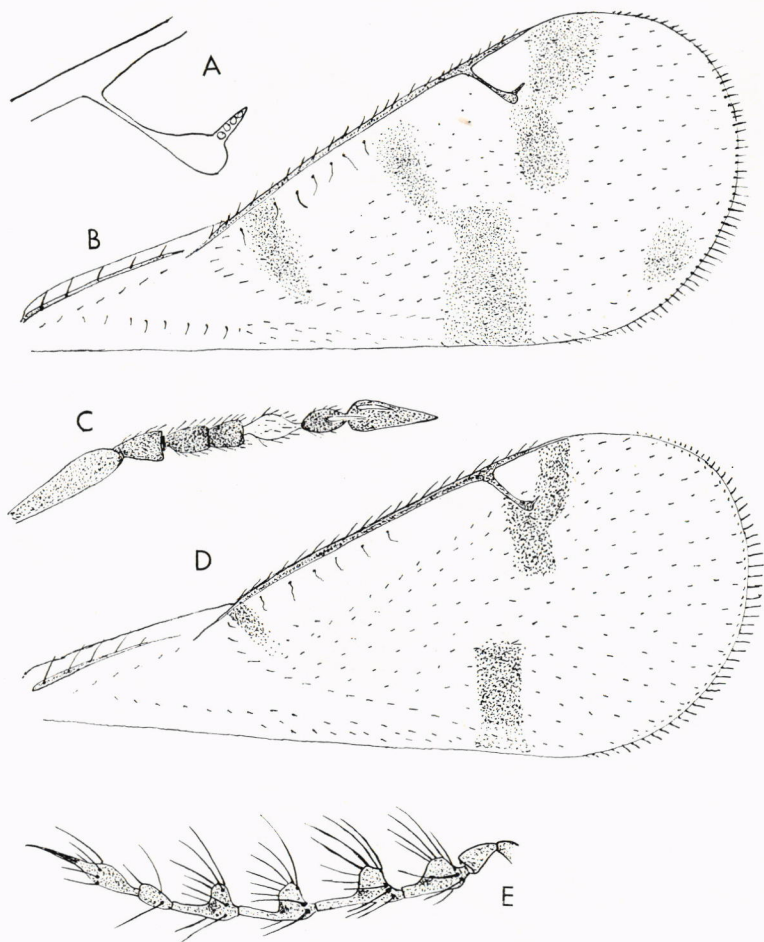


Fig. 3. A. *Astichus maculatus* sp. n. ♀ stigmatal vein. — B. Fore wing and C. Antenna. — D. *Astichus maculatus* sp. n. ♂ fore wing and E. Antenna.

*Astichus maculatus* sp. n.

♀. Head greenish blue, metallic. Antennae black with tint of blue. Base of scapus, 3rd funicle joint, head below antennal sockets and a transverse stripe in front of median ocellus yellowish white. Thorax black with tint of green; scapulae with tint of violet, ventral part of prothorax yellowish white. Gaster black with tint of brassy and bronzy. Legs: coxae black; trochanters distal part of tibiae and tarsal joints except claw-joints pale yellowish brown; femora, basal part of tibiae and claw-joints dark brown—black. Wings hyaline with veins pale brown; fore wing with maculae (fig. 3 B).

Head a little wider than thorax; eyes large, semicircular. Malar space nearly  $\frac{3}{4}$  of the breadth of an eye. Antennae (fig. 3 C) inserted just at a

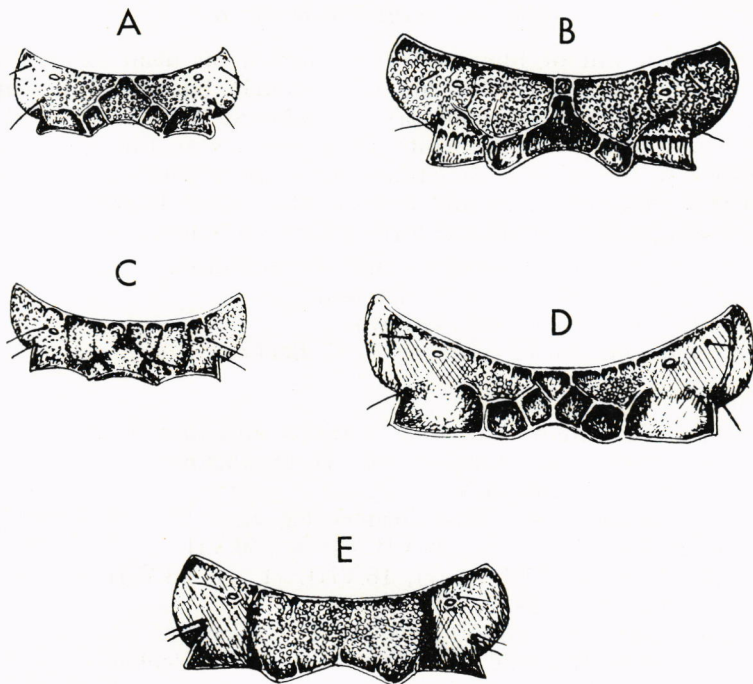


Fig. 4. A. *Astichus arithmeticus* (Först.) propodeum. — B. *Astichus intermedius* sp. n. propodeum. — C. *Astichus polyporicola* sp. n. propodeum. — D. *Astichus maculatus* sp. n. propodeum. — E. *Astichus maculipennis* (Walk.) propodeum.

level with anterior margin of eyes. Clypeus stright. Antennal furrows distinct and smooth, just above antennal sockets a rounded lump with very fine reticulation; the rest of head reticulated. Thorax with fine reticulation on scutellum very fine. Propodeum (fig. 4 D) areolated and with fine reticulation. Gaster with very fine (engraved) reticulation. Wings with thin hairs, about fore wing see fig. 3 A, B.

♂. Similar to female in colour but antennae uniformly coloured (dark brown) and fore wing with few maculae (fig. 3 D). Antenna (fig. 3 E).

Length: ♀. 1.5—1.6 mm; ♂. 1.4 mm.

Holotype: in coll. mea. Sweden, Blekinge, Gö. 2.IX.1963, leg. K.-J. Hedqvist.

Paratypes: 1 ♀ and 1 ♂. Sweden, Gotska Sandön, 11.VIII, 1963 leg. Arne Sundholm.

Host: 2 specimens (Gotska Sandön) were taken on fungus (*Polyporus* sp.) on birch.

*A. maculatus* sp. n. together with *A. polyporicola* sp. n. from Canada have only 3rd funicle joint yellowish white. The difference between those both species is the maculation on fore wing and some details on propodeum.

*Astichus polyporicola* sp. n.

♀. Brown with tint of blue and green mixed on head (above antennal sockets) and thorax. Head below antennal sockets, basal part of scapus, 3rd funicle joint, ventral part of prothorax, a transverse stripe in front of median ocellus and fore legs yellowish white. Propodeum with tint of violet. Gaster darker brown in the middle, sometimes with tint of blue or violet. Mid and hind legs with coxae, femora and base of tibiae dark brown; the rest (trochanters, distal parts of tibiae and tarsi) yellowish white. Fore wing (fig. 2 A).

♂. Similar to female but antennae uniform coloured.

Length: ♀. 1.4—1.8 mm; ♂. 1.2—1.4 mm.

Holotype: In Canad. Nat. Coll., Ottawa.

Canada, Carp. Ont., 20.V. 1954, leg. E. C. Becker.

## Paratypes:

23 ♀ and 10 ♂. In Canad. Nat. Coll., Ottawa and in coll. mea.

11 ♀, Gatinau Park, Que., Canada, leg. D. P. Pielou, 30.IX. (1 ♀), 25.IX. (2 ♀), 7.X. (4 ♀) and 14.X. (4 ♀).

9 ♀ and 9 ♂, Canada, Ont., Bells Corners, leg. E. C. Becker, 7—23.VII. (4 ♀ 1 ♂), 26.VII. (1 ♀ 2 ♂), 28.VII. (1 ♂), 30.VII. (1 ♂), 2.VIII. (1 ♂), 4.VIII. (1 ♂), 13.VIII. (1 ♀), 16.VIII. (1 ♂), 18.VIII. (1 ♀), 24.VIII. (1 ♂), 3.IX. (1 ♀), 28.IX. (1 ♀).

1 ♀, Canada, Ont. Carp., 20.V. 1954, leg. E. C. Becker.

1 ♀, ,, Ont. Merivale, 1.XI., 1953, leg. E. C. Becker.

1 ♀, ,, Ont. Hagsback, Ottawa, 12.VII., 1952, leg. E. C. Becker.

## Host:

Ex *Dolichocis manitoba* Dury (specimens from Gatinau Park see above).

Ex *Ganoderma applanatum* (all specimens from Bells Corners and Carp. Ont. see above).

Ex Elm fungus with *Xestocis levetti*, *Ceracis* sp.? *sallei* and few *Boletotherus cornutus* (Panz.) (Merivale see above).

*A. polyporicola* sp. n. is similar to *A. maculatus* sp. n. from Sweden but differs in maculation of fore wing and some details of propodeum.

Following species are described as belonging to *Astichus* Först.:

*Astichus arizonensis* Ashm.

Ashmead, Canad. Ent. 20, p. 101, 1888.

I could not find the type in Washington, perhaps lost.

*Astichus auratus* Ashm.

Ashmead, Amer. Ent. Soc. Trans. 14, p. 200, 1887.

Belongs to *Chrysocharis*, *C. auratus* (Ashm.) comb. nov.

*Astichus minutus* How.

Howard, U.S. Dept. Agr. Ann. Rpt. for 1880, p. 369.

Belongs to *Tetrastichus* (see Muesebeck et al. 1951).

*Astichus ciliatus* How.

Howard, Journ. Linn. Soc. Lond. 26, p. 167, 1897.

I have seen the type in British Museum (Nat. Hist.). It is a male but not belonging to *Astichus* Först.

About *A. longivittatus* Masi and *A. pulchripennis* Gah. see BOUČEK (1963).

**References**

- BOUCEK, Z.: Studien über europäische *Eulophidae*, III: *Euderinae*. — Beiträge zur Entomologie. 13, pp. 257—281, 1963.
- BOUCEK, Z. & ASKEW, R. R.: Palearctic *Eulophidae* (excl. Tetrastichinae) (Hym. Chalcidoidea) in Index of Entomophagous Insects. Paris 1968.
- MUESEBECK, C. F. W. et al.: Hymenoptera of America North of Mexico. Synoptic Catalog. — U.S. Dept. of Agriculture. Agric. Monogr. No. 2, 1951.