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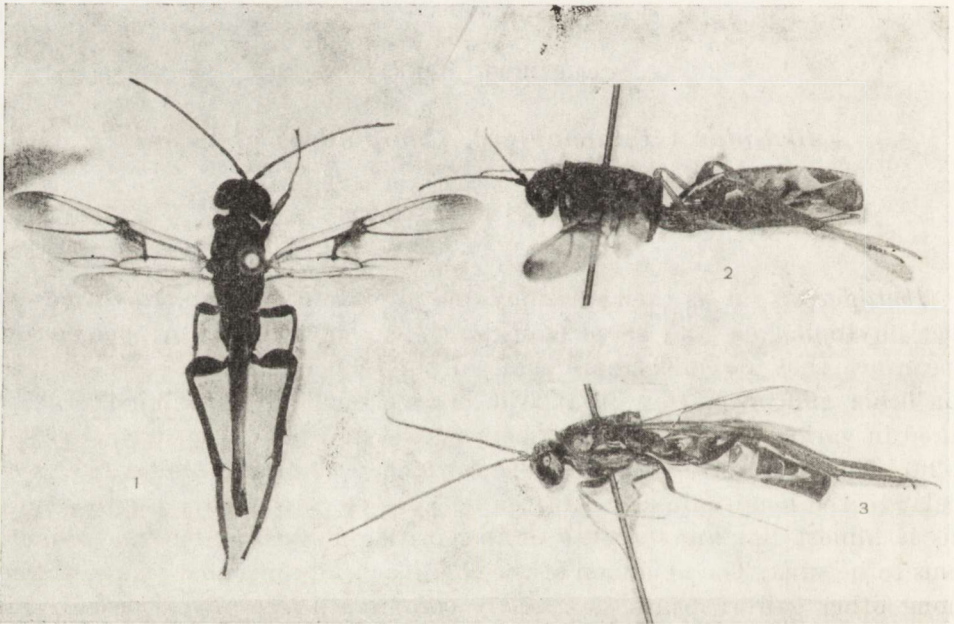
Ibaliidae (Hymenoptera, Cynipoidea) of Poland

[With 24 text - figures]

Ibaliidae, as far as their anatomy and size are concerned, stay apart from other phytophagous and zoophagous gall-wasps of Poland. In their external appearance they resemble more some of the ichneumon-flies (*Ichneumonidae*) than other gall-wasps (figs. 1-3). The body elongated, head and thorax sculptured in various kinds of ribs, striae, wrinkles and punctures (figs. 4-7, 11-15, 19-20). The posterior edge of pronotum which is elongated and nearly perpendicular to the longitudinal axis of the body, is elevated above the mesonotum. This is almost flat and because of its position in relation to the pronotum, seems to be sunk. The abdomen of the *Ibaliidae* is of a peculiar shape, unknown among other gall-wasps. It is strongly compressed laterally, especially in females more or less knife-like, with dorsal and ventral surfaces very narrow (figs. 1-2). Abdominal tergites II-V of equal length; tergite VI the largest one. The venation of the fore and hind wings is as in other *Cynipoidea*, differences appear only in details. The venation is distinct, particular veins are well differentiated (figs. 16-18). The first abscissa of radius very short and straight, the second abscissa very long and may, or may not, reach the anterior margin of the wing. Radial cell very long and closed, or open only partially at the posterior end. Cubitalis (*Rs + M*) well marked along its whole length; it begins at basalis about the upper or medial abscissa and nearly reaches the margin of the wing. The first and second „cubital cells” completely closed, the third one open. The second radio-medial cross-vein (*2r-m*) is very short and is a direct prolongation of the first radial abscissa. Hairs on the wings short and sparse.

The body length of the species of the family *Ibaliidae* is about 7–16 mm, whereas the length of the largest gall-wasps belonging to other family in Poland is not exceeding 6 mm.

The family *Ibaliidae* comprises the smallest number of species among *Cynipoidea*. There are 15 species in this family (DALLA TORRE and KIEFFER, 1910, WELD, 1952, BISCHOFF, 1953, YOSHIMOTO, 1970) excluding the synonyms and the fossils. The species occur in the Palearctic and the Nearctic regions. Two species, *Ibalia leucospoides* (HOCHENW.) and *I. drewseni* BORR. have been introduced to Australia (CHRYSTAL, 1930, SPRADBERRY, 1970). All actually known species belong to one subfamily and to the only genus *Ibalia* LATR. (WELD, 1952). The species occur throughout the forest region of Europe, Palearctic Asia, and North America. In Central Europe only three species are



Figs. 1–3 (phot. T. Płodowski). 1–2, *I. (T.) jakowlewi* JACOBS., ♀, 3 — *I. (I.) leucospoides* (HOCHENW.), ♂.

known: *I. leucospoides* (HOCHENW.), *I. drewseni* BORR. and *I. jakowlewi* JACOBS. (after having *I. schirmeri* KIEFF. and *I. arcuata* DALLA TORRE et KIEFFER been synonymized). The three above mentioned species occur also in Poland but there are very few data in the pertinent literature referring to their distribution. *I. leucospoides* (HOCHENW.) was mentioned by HEDICKE (1928) and BELIZIN (1951) as found in Poland. NOSKIEWICZ (1957) devoted his whole paper to the distribution of *I. jakowlewi* JACOBS. in Wrocław, Poland. But unfortunately no data referring to the distribution of *I. drewseni* BORR. could be found

in the accessible records. Though NOSKIEWICZ (1957) compared the specimens of *I. leucospoides* (HOCHENW.) and *I. drewseni* BORR. with the specimens of *I. jakowlewi* JACOBS. but the origin of the specimens had not been stated. It may be concluded, basing on the material supplied by Drs. Z. CAPECKI and S. KINELSKI for determination and from the material in collection of the Institute of Zoology of the Polish Academy of Sciences, Warszawa, that *I. leucospoides* (HOCHENW.) and *I. drewseni* BORR. are not infrequent in Poland¹. It is also likely that the distribution of *I. jakowlewi* JACOBS. is not limited to one locality only.

Recently the species from the family *Ibaliidae* have attracted much attention because of their important role as a limiting factor of the number of *Siricidae* (CHRYSTAL, 1930, GUR'JANOVA, 1969, SPRADBERY, 1970). It seems therefore logical to discuss the species occurring in Poland, especially as there are two subgenera in the genus *Ibalia* LATR. The characteristic features of *I. leucospoides* (HOCHENW.) and *I. drewseni* BORR. are clearly distinguishing them from *I. jakowlewi* JACOBS. The division into two subgenera is also noticeable among the American species. Thus, *I. maculipennis* HALD. has some common features with *I. jakowlewi* JACOBS. and *I. anceps* SAY may be included together with two Polish species, *I. leucospoides* (HOCHENW.) and *I. drewseni* BORR., into the same subgenus².

Genus *Ibalia* LATREILLE, 1802,

Subgenus *Ibalia* s. str.

Antennae long, reach beyond hind coxae; in male with 15 segments, in female with 13 segments. Third segment of male with sinuate depression beginning at the base of segment. Eyes short, malar spaces long; ratio of the length of eye to length of malar space about 2:1 (figs. 4, 6). Pronotum with two distinct slit-like depressions (fig. 10). Scutellum anteriorly with indistinct processes (figs. 12–13). Propleurae arched, without protuberances, external surface of the fore coxa strongly convex (fig. 23). Hind coxae dorso-medially strongly depressed, dorso-laterally very strongly carinated, and vertically raised into a triangular projection (fig. 21). Cubitalis arising from basalis above its mid-length (figs. 16–17).

Type-species: *Ibalia leucospoides* (HOCHENW.).

¹ Material collected by Dr. Z. CAPECKI and Dr. KINELSKI will be described by them in a separate paper.

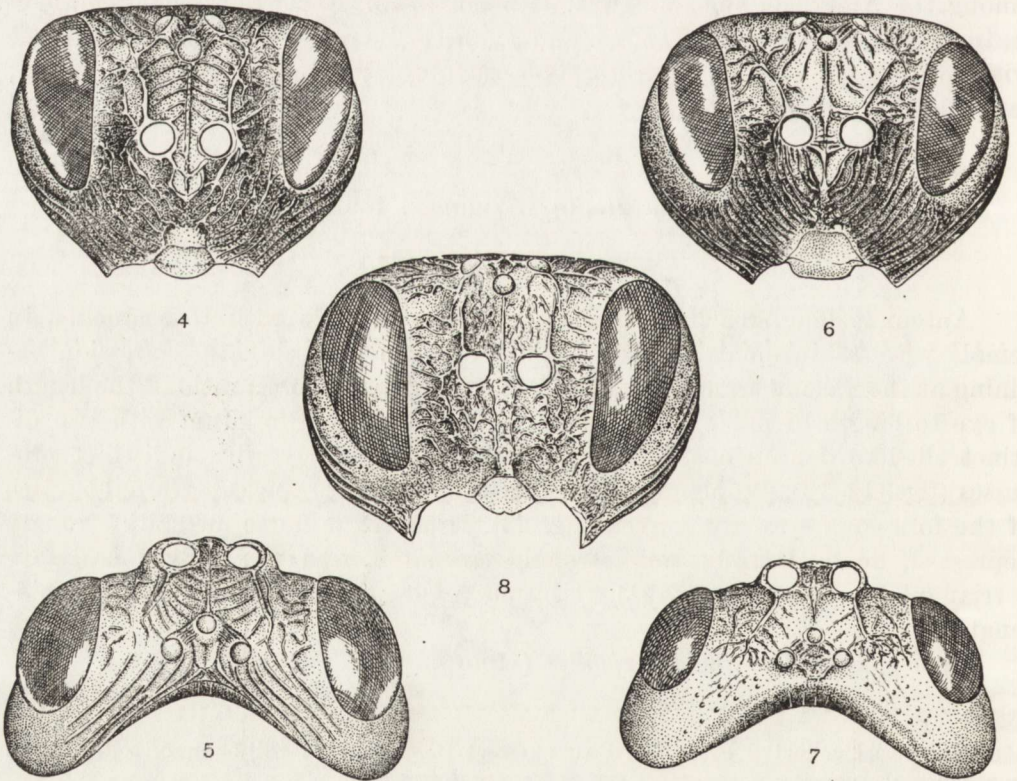
² The conclusion referring to the American species is based on examination of specimens kindly sent me by G. H. HEINRICH: a female *I. anceps* SAY labelled "U.S.A., Maine, Weld, Mt. Blue, 21 IX 1968" and one male *I. maculipennis* HALD. labelled "Dryden, Maine, U.S.A., 14 VI 62".

Ibalia (Ibalia) leucospoides (HOCHENWARTH, 1785)

Ibalia a cuata DALLA TORRE et KIEFFER, 1910.

For synonyms to 1910, see DALLA TORRE and KIEFFER, 1910.

Third segment of antennae shorter than fourth, 13th segment of female about 1.8 times longer than 12th one. Eyes in the upper part extending beyond the temples. Malar spaces long; ratio of the length of eye to length of malar space 1.8–2.3:1. Face regularly wrinkled. Lateral carinae of the antennal scrobes above the antennal sockets distinctly marked, considerably raised above the surface of the frons. The antennal scrobes separated by an elevated carina into two parts which are obliquely ribbed (figs. 4–5). Vertex obliquely, occiput and genae strongly longitudinally striated. The area along the lateral orbit alutaceous with rather sparse but very coarse punctures. The posterior submarginal ridge of pronotum incised in the middle. Lateral surface of pronotum in upper part transversely striated, in lower part weakly wrinkled and punctate. Scutum strongly, transversely carinated (fig. 13). Notaulices and median scu-



Figs. 4–8. 4–5, *I. (I.) leucospoides* (HOCHENW.): 4 – head in anterior view, 5 – head in dorsal view. 6–7, *I. (I.) drewseni* BORR.: 6 – head in anterior view, 7 – head in dorsal view. 8 – *I. (T.) jakowlewi* JACOBS., head in anterior view.

tal furrow complete and broad; notaulices straight, slightly convergending posteriorly. Lateral lines distinct. Scutellum almost square, strongly, irregularly wrinkled. Foveae of scutellum (fig. 13) deep with shape as figured. Foliaceous posterior lobes of scutellum prominent, their upper edge markedly erected and posterior surface nearly smooth (fig. 15). Propodeum with long and narrow 2 horn-like tubercles above the coxae. Carinae of propodeum strong; lateral carinae straight or weakly bowed (fig. 19). Hind femur laterally sparsely punctated. Apical appendix of the 2nd tarsomere of hind leg extending slightly beyond the apex of the 3rd tarsomere. Cubitalis arising from a point above the middle of basalis (fig. 16). Lower abscissa of basalis slightly curved. Second abscissa of radius considerably shorter than cubitalis, reaching to anterior margin of wing. Radial cell entirely closed.

Coloration. Head, thorax, segments of antennae I–VIII excluding their terminal parts, femora and hind coxae, black. Mouthparts, terminal parts of segments I–VIII and remaining segments of antennae, legs of female excluding hind coxae, and femora dark red. Fore and mid coxae of male red, femora brownish-yellow. Fore tibiae, tarsi of fore and mid legs, dark yellow. Abdomen red with some black tint.

Body length: 7–13 mm.

Biology. Internal parasite of *Sirex juvenicus* larvae. GUR'JANOVA (1969) found it in *S. dux* and *Urocerus argonautarum*. CHRYSTAL (1930) noticed it in *S. cyaneus*. Adult form from July to November.

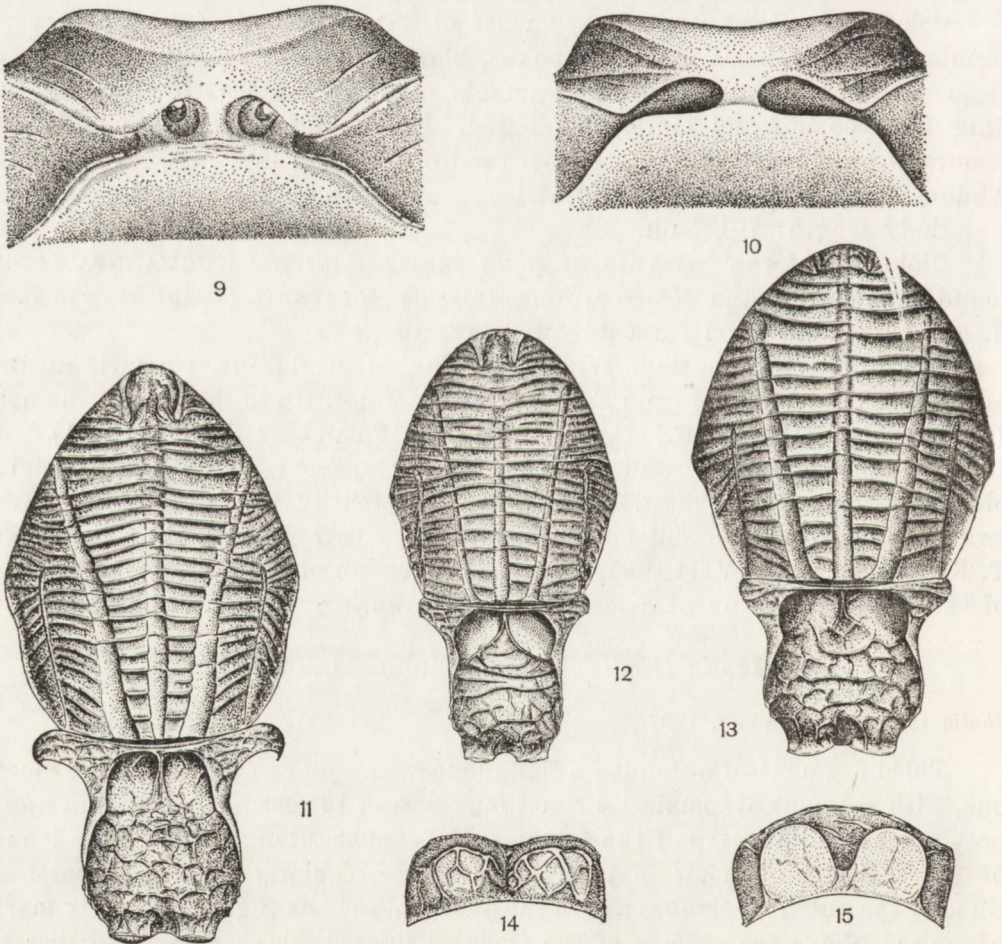
Geographic distribution. Widely distributed in Europe, from Great Britain to the Ural Mts. and from Finland to Asia Minor. Up to the present moment *I. leucospoides* (HOCHENW.) was recorded from Poland by BELIZIN (1951) from Bodzentyn, distr. Kielce and by HEDICKE (1928) from Silesia. One specimen of female from Rytro, distr. Nowy Sącz, collected by E. NIEZABITOWSKI and two specimens, a male and female, from Białe, distr. Limanowa, collected by T. KAŹMIERCZAK, 15 VIII 1965, are in the collection of the Institute of Zoology of the Polish Academy of Sciences in Warszawa.

Ibalia (Ibalia) drewseni BORRIES, 1891

Ibalia schirmeri KIEFFER, 1897.

Third segment of antennae a little longer or equal to the length of fourth one, 13th segment of female 1.5 times longer than 12th segment. Eyes in upper part not extending beyond the temples. Malar spaces long; ratio of the length of eye to length of malar space 1.7–1.8:1. Face regularly striated. Lateral carinae of the antennal scrobes above the antennal sockets (fig. 6) distinctly marked, raised above the surface of the frons as figured. The antennal scrobes separated by weakly marked carina into two parts which are irregularly ribbed. Occiput and genae strongly longitudinally striated, vertex without striae, almost smooth, with sparse punctation. The area along the lateral orbit alutaceous

with rather sparse but very coarse punctures. The posterior submarginal ridge of pronotum incised in the middle. Lateral surface of pronotum in upper part striated, in lower part smooth, punctate or finely wrinkled. Scutum (fig. 12) carinated as figured. Notaulices complete, narrow, nearly straight, slightly convergent posteriorly. Median scutal furrow broad. Scutellum elongate; ratio of its length to the width 3:2 or so. Foveae of scutellum (fig. 12) deep, their shape as figured. Foliaceous posterior lobes of scutellum weakly marked, their upper edge slightly erected and posterior surface strongly wrinkled (fig. 14). Propodeum (fig. 20) with short and broad 2 tubercles above the coxae. Carinae of propodeum strong; lateral carinae slightly diverging posteriorly, and bowed sharply posteriorly of middle. Hind femur laterally sparsely punctated. Apical



Figs. 9–15. 9–10, depression of pronotum: 9 – *I. (T.) jakowlewi* JACOBS., 10 – *I. (I.) leucospoides* (HOCHENW.). 11–13, mesonotum in dorsal view: 11 – *I. (T.) jakowlewi* JACOBS., 12 – *I. (I.) drewseni* BORR., 13 – *I. (I.) leucospoides* (HOCHENW.), 14–15, lobes of scutellum: 14 – *I. (I.) drewseni* BORR., 15 – *I. (I.) leucospoides* (HOCHENW.).

appendix of the second tarsomere of hind leg not extending beyond the apex of 3rd tarsomere. Cubitalis arising from a point above the middle of basalis (fig. 17). Lower abscissa of basalis straight. Second abscissa of radius about equal to cubitalis, reaching to anterior margin of wing. Radial cell entirely closed.

Coloration. Head, antennae and thorax black. Mouthparts, legs, excluding coxae and trochanters, yellowish-brown, hind femora reddish. Hind tibiae and tarsi dark brown. Coxae and trochanters dark red. Abdomen dorsally and apically brownish-black, ventrally reddish-brown, medially yellowish-brown, with some white markings.

Body length: 8–12,5 mm.

Biology. Internal parasite of *Siricidae* larvae. SPRADBERY (1970) bred this species from following trees: *Abies alba*, *A. cilicica*, *Picea abies*, *P. orientalis*, *Pinus silvestris*, *P. brutia* and *Larix decidua*. *I. drewseni* BORR. is associated with the following *Siricidae*: *Sirex noctilio*, *S. cyaneus*, *Urocercus gigas*, *U. augur augur* and *Xeris spectrum*. Adult form from May to June.

Geographic distribution. Scotland, England, Norway, Sweden, Denmark, Belgium, France, Italy, F.R.G. G.D.R., Hungary, Czechoslovakia, Yugoslavia, Turkey, European part of the U.S.S.R. and Sakhalin. From Poland not recorded till now. Three specimens of *I. drewseni* BORR., determined by G. ENDERLEIN as *I. leucospoides* (HOCHENW.), one from Löcknitz, G.D.R. and two from Szczecin, and one specimen from Brwinów near Warszawa, collected by A. RIEDEL, 19 V 1953, are in the collection of the Polish Academy of Sciences in Warszawa.

Tremibalia subgen. nov.

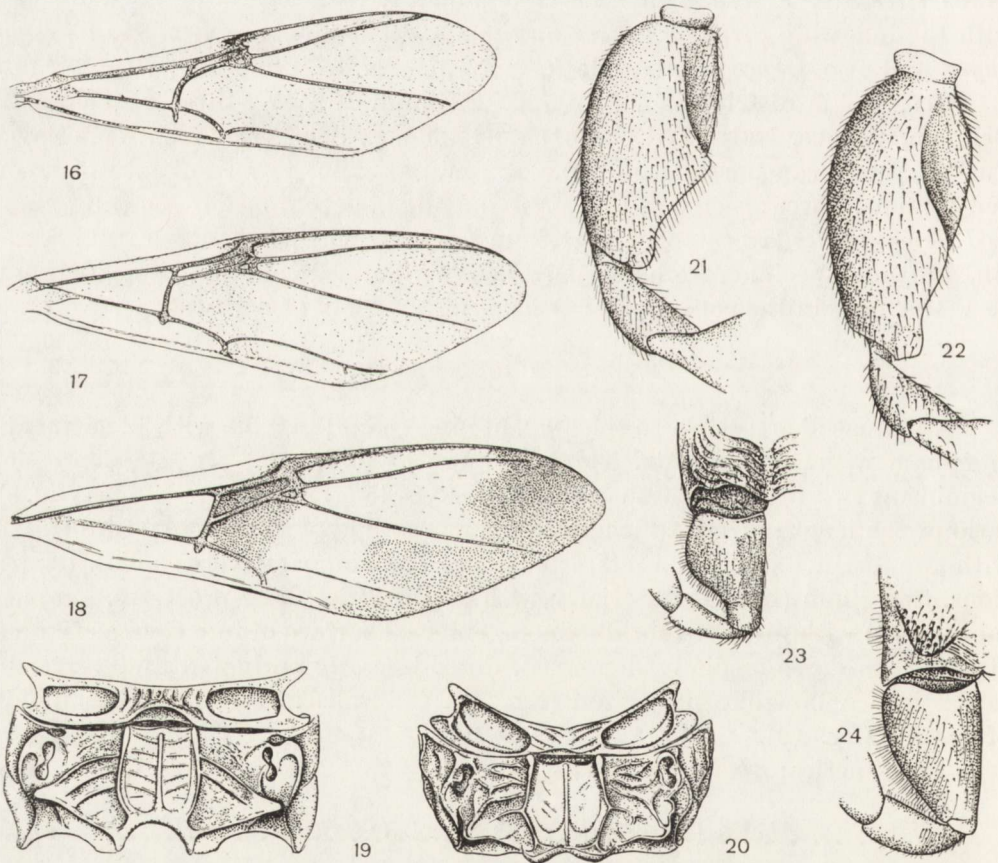
Antennae short, reach to the apex of hind coxae; in male with 14 segments, in female with 13 segments. Third segment of male with sinuate depression beginning at two-fifths of length of segment. Eyes long, malar spaces short (fig. 8); ratio of the length of eye to length of malar space about 4:1. Pronotum (fig. 9) with two distinct submedial pits, from which run comparatively shallow depressions. Scutellum (fig. 11) anteriorly with two distinct, long processes. Propleurae (fig. 24) with distinct protuberances, external surface of fore coxa as figured. Hind coxae dorso-medially depressed, dorso-laterally carinated and vertically raised into a bow-like projection (fig. 22). Cubitalis arising from the middle of basalis (fig. 18).

Type-species: *Ibalia jakowlewi* JACOBS.

Ibalia (Tremibalia) jakowlewi JACOBSON, 1899

Third segment of antennae longer than fourth, 13th segment of female about 1.5 times longer than 12th one. Eyes in upper part not extending beyond the temples. Malar spaces short; ratio of the length of eye to length of malar space 3.9–4.1:1. Face and frons irregularly wrinkled (fig. 8). Lateral carinae of the antennal scrobes above the antennal sockets indistinctly marked. Vertex obli-

quely, occiput and genae strongly longitudinally striated. The area along the lateral orbit alutaceous with sparse punctures. The posterior submarginal ridge of pronotum very weakly incised in the middle. Pronotum laterally rugose. Scutum (fig. 11) strongly transversely carinated. Notaulices and median scutal furrow complete and broad; notaulices bowed inwards the middle and diverging anteriorly. Lateral lines distinct. Scutellum elongate, irregularly wrinkled. Foveae of scutellum deep, elongate. Foliaceous posterior lobes of scutellum prominent, their upper edge markedly erected and posterior surface weakly rugose. Propodeum with long and narrow 2 horn-like tubercles above the coxae. Carinae of propodeum strong; lateral carinae anteriorly slightly broader and diverging. Hind femur laterally thickly punctated. Apical appendix of 2nd tarsomere of hind leg long, extending beyond the apex of 3rd tarsomere. Cubitalis



Figs. 16-24. 16-18, fore wings: 16 - *I. (I.) leucospoides* (HOCHENW.), 17 - *I. (I.) drewseni* BORR., 18 - *I. (T.) jakowlewi* JACOBS. 19-20, propodeum: 19 - *I. (I.) leucospoides* (HOCHENW.), 20 - *I. (I.) drewseni* BORR. 21-22, hind coxae: 21 - *I. (I.) leucospoides* (HOCHENW.) 22 - *I. (T.) jakowlewi* JACOBS. 23-24, propleurae and fore coxae: 23 - *I. (I.) leucospoides* (HOCHENW.), 24 - *I. (T.) jakowlewi* JACOBS.

(fig. 18) arising from basalis near its mid-length; basalis stright. Second abscissa of radius shorter than cubitalis, not reaching to anterior margin of wing. Radial cell open.

Coloration. Head, thorax, coxae, basal parts of segments I–III, XIII of female and XIV of male, black; distal parts of segments I–III, XIII, segments of antennae IV–XII, palpi, tibiae, fore and mid tarsi, yellowish-brown. Tegulae, femora and hind tibiae reddish-brown. Wings yellow, with two dark markings (fig. 18). Abdomen brown-yellow with, especially in male, brownish-black stains.

Body length: 11.5–16 mm.

Biology. Internal parasite of *Tremex fuscicornis*. Adult form from May to June.

Geographic distribution. Widely distributed in the Palearctic Region, from German Democratic Republic to Maritime Territory and from Bashkir A.S.S.R. to Georgian S.S.R. From Poland recorded by NOSKIEWICZ (1957) from Wrocław

Key to species

1. Malar spaces long (figs. 4, 6); ratio of the length of eye to length of malar space 2:1. Pronotum (fig. 10) with two distinct slit-like depressions, as figured. Scutellum (figs. 12–13) anteriorly with indistinct processes. Hind coxae (fig. 21) dorso-laterally very strongly carinated and vertically raised into a triangular projection. Cubitalis arising from basalis above its mid-length (figs. 16–17). Antennae of male with 15 segments, third segment with sinuate depression beginning at the base of segment. Wing without yellow coloration 2
- . Malar space short (fig. 8); ratio of the length of eye to length of malar space about 4:1. Pronotum (fig. 9) with two distinct submedial pits, from which run comparatively shallow depressions. Scutellum (fig. 11) anteriorly with two distinct, long processes. Hind coxae (fig. 22) dorso-laterally carinated and vertically raised into a bow-like projection. Cubitalis arising from the middle of basalis (fig. 18). Antennae of male with 14 segments, third segment with sinuate depression beginning at two-fifths of length of segment. Wings yellow, with two dark markings (fig. 18)
. *Ibalia (Tremibalia) jakowlewi* JACOBS.
2. Vertex obliquely striated (fig. 5). Scutellum (fig. 13) almost square. Foliaceous posterior lobes of scutellum (fig. 15) prominent, their upper edge markedly erected and posterior surface nearly flat. Propodeum with long and narrow 2 horn-like tubercles above the coxae (fig. 19). Second abscissa of radius considerably shorter than cubitalis (fig. 16). Hind femora black.
. *Ibalia (Ibalia) leucospoides* (HOCHENW.)
- . Vertex without striae, almost smooth, with sparse punctation (fig. 7). Scutellum elongate (fig. 12). Foliaceous posterior lobes of scutellum (fig. 14) as figured. Propodeum with short and broad 2 tubercles above the coxae (fig. 20). Second abscissa of radius about equal to cubitalis (fig. 17). Hind femora yellowish-brown with some red.
. *Ibalia (Ibalia) drewseni* BORR.

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STRESZCZENIE

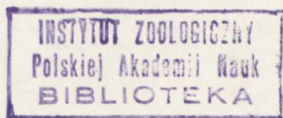
[Tytuł: *Ibaliidae* (*Hymenoptera, Cynipoidea*) Polski]

Praca zawiera redskrypcje i klucz do trzech gatunków z rodzaju *Ibalia* LATR. występujących w Polsce, a mianowicie: *I. leucospoides* (HOCHENW.), *I. drewseni* BORR. i *I. jakowlewi* JACOBS., oraz opis nowego podrodzaju — *Tremibalia* subgen. n.

РЕЗЮМЕ

[Заглавие: *Ibaliidae* (Hymenoptera, Cynipoidea) Польши]

Работа содержит переописание и определитель трех видов рода *Ibalia* LATR. из Польши: *I. leucospoides* (HOCHENW.), *I. drewseni* BORR. и *I. jakowlewi* JACOBS., а также описание нового подрода *Tremibalia* subgen. n.



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