

Review of the Holarctic Species of Genus *Polylepta* WINNERTZ (Insecta, Diptera: Mycetophilidae)

With 6 Figures

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Up to this moment to genus *Polylepta* WINNERTZ in the Holarctic region there were included Palearctic species *P. borealis*, *P. guttiventris*, *P. splendida* and *P. zonata* (HUTSON et al., 1980) and Nearctic *P. nigella*, *P. obediens* and *P. modesta* (LAFFOON, 1965). The discovery of a new species in South Bulgaria pressed to investigate materials from different parts of the Holarctic region. This study led to specifying of diagnostic characters of the genus and systematic status of some species. New data about geographic distribution of the species belonging to *Polylepta*, were found.

Abbreviations

Abbreviations of museums in which materials is deposited are as follows: AMNH – American Museum of Natural History, New York; CAS – California Academy of Sciences, San Francisco; CNC – Canadian National Collection, Ottawa; IAEME – Institute of Animal Evolutionary Morphology and Ecology, Moscow; MZEL – Museum of Zoology and Entomology, Lund; SMF – Senckenberg Museum, Frankfurt a. M.; USNM – United States National Museum, Washington; ZMH – Zoological Museum, Helsinki.

Polylepta WINNERTZ

Polylepta WINNERTZ, 1863: 745. Type-species: *Polylepta undulata* WINNERTZ, 1863 = *Sciophila guttiventris* ZETTERSTEDT, 1852 (des. JOHANNSEN, 1909).

Diagnostic characters: Ocelli three, situated nearly in one line, lateral separated from eye margin by about two times their own diameter. Laterotergite and mediotergite with strong hairs. The males have the base of the mid tibia swollen and the outer surface covered in fine pale setae. Wing membrane with macrotrichia, and in some species also with microtrichia. C extending slightly beyond apex of R_5 . Sc ending in C. Sc_2 situated beyond the middle of Sc. R_4 usually present. R_5 curved. Point of furcation of Cu before point of furcation of M. Abdominal sternites 2 to 4 or more, with two widely separated similar folds.

Key to Holarctic species of *Polylepta* 1)

- 1 Wing membrane with macrotrichia. Microtrichia present only immediate near veins.
Hypopygium: Figs. 1–2. ***P. guttiventris*** (ZETTERSTEDT)
- All wing membrane with macrotrichia and microtrichia. 2
- 2 Stem of M very fine. Point of furcation of Cu just immediately the tip of Sc.
P. zonata (ZETTERSTEDT)
- Stem of M not very fine. Point of furcation of Cu before or almost below the tip of Sc. 3
- 3 Abdominal tergites usually entirely dark. Hypopygium: Figs. 3–4.
P. borealis LUNDSTRÖM
- Abdominal tergites 2–5 with yellow markings. Hypopygium: Figs. 5–6.
P. meridionalis n. sp.

1) For other species included up to now in genus *Polylepta*, see at the end of article.

***Polylepta borealis* LUNDSTRÖM, 1912**

Polylepta borealis LUNDSTRÖM, 1912: 13, Figs. 13–14.

Head. Black brown, with brown clypeus and brownish mouthparts. Palpi yellowish. Antennae dark brown, scape brownish, pedicel and base of 1st flagellomere yellow.

Thorax. Pronotum dark brown. Mesoscutum black brown, with pale setae. Scutellum brown, with long pale setae. Pleurae and mediotergite dark brown.

Legs. Coxae, femora and tibiae yellow, tarsi brown. Leg ratios: $bt_1 : t_1 = 1,13$; $bt_2 : t_2 = 0,69$; $bt_3 : t_3 = 0,51$.

Wing. Length 3,9–4,3 mm. Membrane with macrotrichia and microtrichia. Sc_2 ending in R_1 near middle of small cell, opposite R_4 or beyond R_4 . Small cell trapezium-shaped, but frequently R_4 absent. Point of furcation of Cu before the tip of Sc. Halteres yellow.

Abdomen. All tergites entirely dark, with pale bristles. Hypopygium: Figs. 3–4.

Female. Similar to male. Frequently with yellow lateral markings in anteral part of tergites 3 to 6. Wing length 4,3–4,8 mm.

Material examined. Finland: 6 males, Kuusamo, Iivaara, 10. 7. 1965, R. TUOMIKOSKI (ZMH); 1 male and 1 female, Vihtijani, 27. 7. 1960, R. TUOMIKOSKI (ZMH); 1 male, Sotkamo, Aarreniemi, 7. 7. 1965, R. TUOMIKOSKI (ZMH); 17 males and 3 females, Kesälahti, 29. 6. 1963, W. HACKMAN (ZMH); 8 males, Uukuniemi, 25. 6. 1965, W. HACKMAN (ZMH). – Norway: 3 males, Leirbotn, Lakselv, 23. 7. 1965, R. TUOMIKOSKI (ZMH). – USSR: 2 males and 2 females, Rybinskoe vodohranilishite, 26. 5. 1984, A. ZAITZEV (IAEME); 2 males, from same locality, 1. 6. 1984, A. ZAITZEV (IAEME). – Sweden: 2 males and 1 female, Albisco, Lpl., 31. 7. 1951, J. R. VOCKEROTH (CNC). – Canada: 1 male, Cartwright Lab., 11. 7. 1955, E. E. STERNS (CNC). – USA: 1 male, Isabel Pass, Alaska, Mi. 206 Richardson Hwy., 2900', 13. 7. 1962, R. E. LEECH (CNC).

Distribution. Holarctic: Northern, Central and Eastern Europe, Siberia, Canada, Alaska.

***Polylepta guttiventris* (ZETTERSTEDT, 1852)**

Sciophila guttiventris ZETTERSTEDT, 1852: 4363.

Polylepta undulata WINNERTZ, 1863: 746; LUNDSTRÖM, 1912: 14, Figs. 15–16.

Polylepta flava GRZEGORZEK, 1885: 204; LANDROCK, 1927: 58.

Polylepta undulata var. *major* LANDROCK, 1923: 168; LANDROCK, 1927: 58.

Polylepta guttiventris (ZETTERSTEDT, 1852): EDWARDS, 1925: 162; HUTSON et al., 1980: 48, Fig. 194.

Polylepta obediens JOHANNSEN, 1910: 147, Figs. 88 and 118, **syn. nov.**

Head. Black brown, with bronish clypeus. Mouthparts yellowish, palpi yellow. Antennae black brown, with yellow scape, pedicel and base of 1st flagellomere.

Thorax. Pronotum brownish. Mesoscutum brown to black, without distinct markings, with pale setae. Scutellum brown to black brown, with long setae. Pleurae and mediotergite brown to black brown.

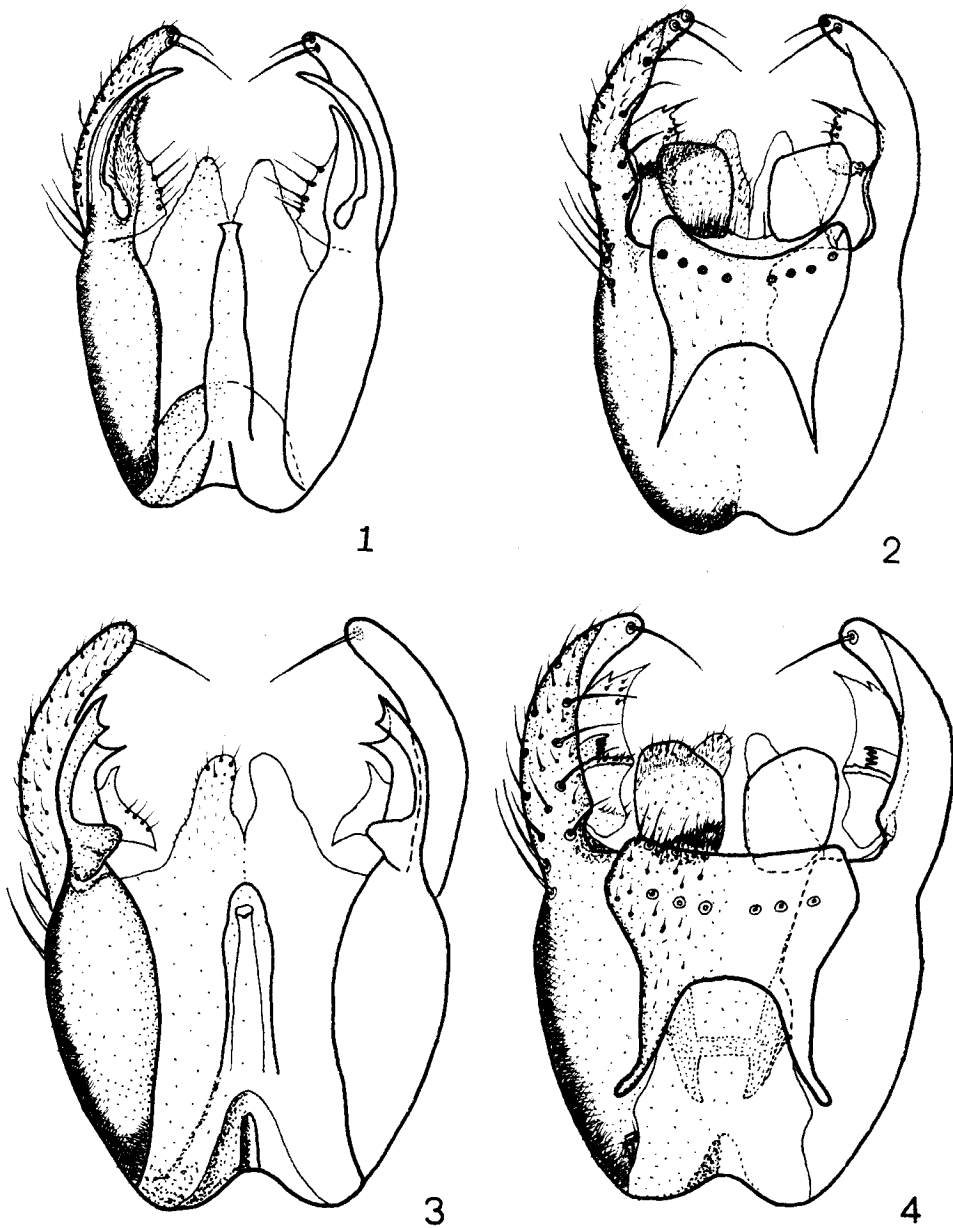
Legs. Coxae, femora and tibiae yellow, tarsi brown to black brown. Leg ratios: $bt_1 : t_1 = 1,12$; $bt_2 : t_2 = 0,62$; $bt_3 : t_3 = 0,56$.

Wing. Length 3,6–4,0 mm. Membrane hyaline, with macrotrichia, microtrichia present only near veins. Sc_2 ending in R_1 near middle of small cell or opposite R_4 . Small cell trapezium-shaped or triangular. Point of furcation of Cu before or almost below the tip of Sc. Halteres yellowish.

Abdomen. Tergites 2–5 brown to black brown, with yellow lateral markings in anteral parts, rest entirely brown to black brown. Hypopygium: Figs. 1–2.

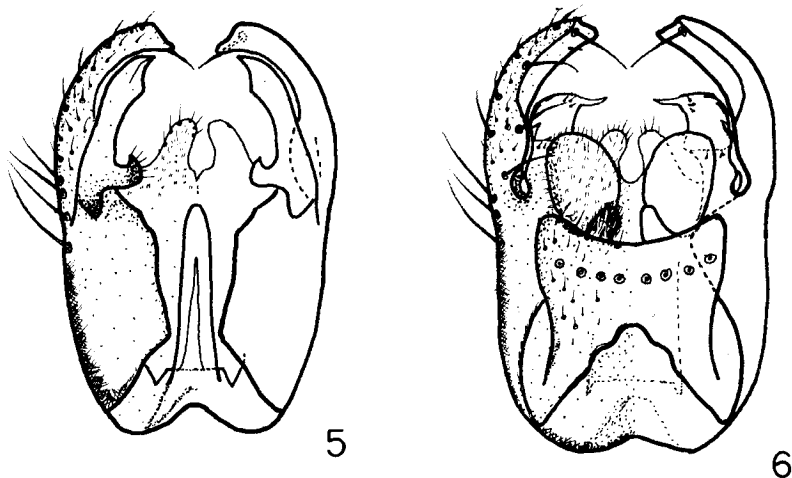
Female. Very similar in all external characters. Wing length 4,8–5,6 mm.

Material examined. Finland: 1 male, Kuusamo, Juuma jäkälävuoma, 28. 7. 1966, R. TUOMIKOSKI (ZMH); 1 male, Sotkamo, Aarreniemi, 7. 7. 1965, R. TUOMIKOSKI (ZMH); 1 male and 18 females, Pielisjärvi, Koli, 24. 7. 1966, R. TUOMIKOSKI (ZMH); 4 males, Kesälahti, 26. 6. 1963, W. HACKMAN (ZMH); 5 males, Uukuniemi, 25. 6. 1965, W. HACKMAN



Figs. 1-4: *Polylepta*, male genitalia. *P. guttibentris*: 1 - ventral view; 2 - dorsal view. *P. borealis*: 3 - ventral view; 4 - dorsal view.

(ZMH). - Norway: 1 male, Leirboth, Lakselv, 23. 7. 1965, W. HACKMAN (ZMH). - Sweden: 1 male, Albisko, Lpl. 4. 7. 1951, J. R. VOCKEROTH (CNC); 1 female, from same locality, 4. 7. 1951, J. R. VOCKEROTH (CNC). - Bulgaria: 1 male, West Balkan Range, Bjalata voda, 26. 6. 1982, D. BECHEV; 1 female, from same locality, 10. 7. 1982, D. BECHEV. - USSR: 1 male, Rybinskoe vodohranilishte, 26. 5. 1984, A. ZAITZEV (IAEME); 2 males, Isl. Sahalin, Nevelskii rajon, 3. 9. 1986, A. ZAITZEV (IAEME). - USA: 1 male, Cotype *Polylepta obediens* JOH., No. 20536, New Bedford, Mass., W. M. WHEELER Collection (AMNH); 1 male, Mt.



Figs. 5–6: *P. meridionalis* n. sp., male genitalia: 5 – ventral view; 6 – dorsal view.

Rainier, Wn, Longmire Spr., 14. 8. 1917, A. L. MELANDER („*Polylepta obediens* Joh.“, det. F. G. FISHER) (USNM); 1 male, W. VA. Ansted, Hawks Nest St. Pk., 20. 5. 1970, STEYSKAL (USNM); 1 male and 1 female, New Hampshire, White Mountains, Pinkham Notch, 22. 7. 1977, R. J. GAGNE (USNM); 1 male, Alaska, Sitka, 0–100 m, 7. 1970, N. L. H. KRAUSE (USNM). – Canada: 1 male, Indian Housa L., Que., 22. 7. 1954, R. COYLES (CNC); 1 male, Klenza Creek, 14 mi. E. Terrace, B. C., 13. 7. 1960, J. G. CHILLCOTT (CNC); 27 males and 12 females from Quebec, Ontario and British Columbia, leg. VOCKEROTH, McALPINE and WOOD (CNC).

Distribution. Holarctic: Europe, Siberia, Isl. Sahalin, Alaska, Canada, USA.

***Polylepta meridionalis* n. sp.**

Head. Black, with dark brown clypeus and yellowish mouthparts. Palpi yellow. Antennae black brown, scape pedicel and base of 1st flagellomere yellowish.

Thorax. Pronotum dark brown. Mesoscutum black brown, with yellow setae. Scutellum dark brown, with long setae. Pleurae and mediotergite black brown.

Legs. Cx₁ and Cx₂ yellow, Cx₃ darkened. Femora and tibiae yellowish, tarsi brownish. Leg ratios: bt₁ : t₁ = 1,00; bt₂ : t₂ = 0,68; bt₃ : t₃ = 0,52.

Wing. Length 4,2 mm. Membrane hyaline, with macrotrichia and microtrichia. Sc₂ ending in R₁ near R₄. Point of furcation of Cu before the tip of Sc. Halteres yellow.

Abdomen. Tergites 2–5 black brown, with yellow lateral markings in anterolateral parts, rest entirely black brown. Hypopygium: Figs. 5–6.

Female. Very similar to male, with brownish mesoscutum. Wing length 3,8–4,5 mm.

Remarks. Form of small cell is variable: triangular, square or trapezium-shaped.

Holotype: Male, Bulgaria, Strandzha Mt., Silkosia res., 29. 5. 1987, D. BECHEV (in author's collection). – **Paratypes:** 1 male, Bulgaria, Slavjanka Mt., v. Goleshovo, 7. 6. 1988, D. BECHEV; 1 female, from same locality and date; 1 female, Bulgaria, Slavjanka Mt., Hambar dere, 4. 6. 1988, D. BECHEV (all in author's collection).

Distribution. South Bulgaria.

***Polylepta zonata* (ZETTERSTEDT, 1852)**

Sciophila zonata ZETTERSTEDT, 1852: 4136.

Polylepta zonata (ZETTERSTEDT, 1852): EDWARDS, 1925: 162.

Head. Black brown, with brownish clypeus. Mouthparts and palpi yellowish. Antennae dark. Scape, pedicel and base of 1st flagellomere yellowish.

Thorax. Pronotum brownish. Mesoscutum, scutellum, mediotergite and pleurae brown to dark brown.

Legs. Cx₁ and Cx₂ yellowish, Cx₃ brownish.

Wing. Length 3.5 mm. Membrane with macrotrichia and microtrichia. Point of furcation of Cu just immediately the tip of Sc. Stem of M very fine.

Remarks. This species is known only by the specimen which lacks abdomen.

Material examined. Holotype (male), Sweden, Westö in paroccia Hall.

Distribution. Sweden.

Other species included up to now in *Polylepta*

***Polylepta splendida* WINNERTZ, 1863**

Polylepta splendida WINNERTZ, 1863: 747; PLASSMANN, 1970: 92, Fig. 4.

The study of lectotype of WINNERTZ's collection and 3 other identical specimens from Senckenberg Museum identified as *P. splendida*, showed that wing membrane is without macrotrichia, and mediotergite bare, which is characteristic of Gnoristinae (sensu VÄISÄNEN, 1986). Considering the many features and namely the structure of male genital apparatus (see PLASSMANN, 1970: Fig. 4 and HUTSON et al., 1980: Fig. 238) *P. splendida* appears synonymous to *Grzegorzekia collaris* (MEIGEN, 1818).

Material examined. FRG: 1 male, lectotype, Frankf. Heid. (SMF 549); 1 male, Taufstein, Vogelsberg, 23. 5. 1966, PLASSMANN (SMF 651). — Sweden: 2 males, Messaure, Kaltisjokk (SMF 4406; 4797).

***Polylepta modesta* VAN DUZEE, 1928**

Polylepta modesta VAN DUZEE, 1928: 43.

This species is described only basing one female specimen. Type has two ocelli, C ending at apex of R₅, Sc ending in R₁, fine tibial setae placed in distinct regular longitudinal rows. These characters show that the specimen belongs to genus *Mycomya*.

Material examined. Holotype (female), USA, Carmel Cal., Monterey Co., 24. 3. 1915, E. P. VAN DUZEE (CAS).

***Polylepta nigellus* JOHANNSEN, 1910**

Polylepta nigellus JOHANNSEN, 1910: 148, Figs. 89 and 121.

Two male specimens were studied, identified by FISHER as *Speolepta nigellus* (JOHANNSEN) and entirely corresponding in structure of genital apparatus and wing venation to the drawings in the original description. The absence of macrotrichia on wing membrane, situation of Sc₂ near apex of Sc, bare mediotergite and laterotergite and the other type of genital apparatus imposed the exclusion of this species from genus *Polylepta*.

Material examined. 2 males, USA, Mt. Rainier, White River, 20. and 23. 7. 1924, A. L. MELANDER (USNM).

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Summary

The discovery of a new species in South Bulgaria pressed to investigate comparatively materials of genus *Polylepta* WINN. from several parts of Holarctic region. Besides the diagnostic characteristics of the genus, the systematic status of the species *P. guttiventris* (ZETT.), *P. zonata* (ZETT.), *P. borealis* LUNDSTR. and *P. meridionalis* n. sp. (including a key for determination) is defined. The species *P. splendida* WINN., *P. modesta* V. DUZ. and *P. nigellus* JOH. hitherto belonging to *Polylepta*, have to be placed into other genera.

Zusammenfassung

ÜBERSICHT ÜBER DIE HOLARKTISCHEN ARTEN DER GATTUNG *POLYLEPTA* WINNERTZ (INSECTA, DIPTERA: MYCETOPHILIDAE)

Die Entdeckung einer neuen Art in Südbulgarien führte zu der Notwendigkeit, Material der Gattung *Polylepta* WINN. aus verschiedenen Teilen der Holarktis vergleichend zu untersuchen. Neben den diagnostischen Merkmalen der Gattung wird der systematische Status der Arten *P. guttiventris* (ZETT.), *P. zonata* (ZETT.), *P. borealis* LUNDSTR. und *P. meridionalis* n. sp. (einschließlich eines Bestimmungsschlüssels) definiert. Die bisher zu *Polylepta* gehörenden Arten *P. splendida* WINN., *P. modesta* V. DUZ. und *P. nigellus* JOH. müssen anderen Gattungen zugeordnet werden.

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