

Mexican species of the genus *Allophrys* Förster, 1869 (Hymenoptera: Ichneumonidae: Tersilochinae)

Мексиканские виды рода *Allophrys* Förster, 1869 (Hymenoptera: Ichneumonidae: Tersilochinae)

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Ключевые слова: Дарвиновские наездники, таксономия, новые виды, ключ, Мексика, Коста-Рика, Неотропики.

Abstract. Four species of the genus *Allophrys* Förster, 1869 are found to occur in Mexico. Three species are described as new to science: *A. arkadia* sp.n., *A. nataliae* sp.n. and *A. phradiformis* sp.n. *Allophrys nataliae* sp.n. is also recorded from Guatemala and Costa Rica. Considerable variability of the fourth Mexican species, *A. divaricata* Horstmann, 2010, distributed from southern USA to Argentina, is discussed. An identification key to the species of *Allophrys* occurring in Mexico is given.

Резюме. Установлено, что в Мексике обитают четыре вида рода *Allophrys* Förster, 1869. Три вида описаны как новые для науки: *A. arkadia* sp.n., *A. nataliae* sp.n. и *A. phradiformis* sp.n. *Allophrys nataliae* sp.n. также отмечен из Гватемалы и Коста-Рики. Обсуждается значительная изменчивость четвертого мексиканского вида, *A. divaricata* Horstmann, 2010, распространенного от юга США до Аргентины. Дан определительный ключ обитающих в Мексике видов *Allophrys*.

Introduction

Allophrys is a predominantly tropical genus comprising 35 species [Yu et al., 2016; Khalaim 2017, 2018, 2026; Khalaim, Villemant, 2019]. In the Americas, one species, *A. oculatus* (Ashmead, 1895), is known only from southern Caribbean islands; one species, *A. divaricata* Horstmann, 2010, occurs from southern USA to Argentina; and six species were described from Costa Rica [Khalaim, Broad, 2012] and recently three of them were recorded from Ecuador and Peru [Khalaim, 2026]; and one species is known only from Ecuador [Khalaim, 2026]. Only one species, *A. divaricata*, was recorded from Mexico hitherto [Horstmann, 2010].

Very little is known about the biology of any species of *Allophrys*. The only host record belongs to *A. divari-*

cata which was reared from an unidentified sap beetle larvae (Coleoptera: Nitidulidae) in fallen guava fruits in Trinidad and Tobago [Horstmann, 2010].

The aim of this work is to review Mexican species of the genus *Allophrys*, describe new species and provide an identification key to the species occurring in Mexico.

Material and methods

Following abbreviations of the insect collections are used in this study:

INBio — Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, Costa Rica;

MUCR — Universidad de Costa Rica, Ciudad Universitaria, Costa Rica;

TAMU — Texas A&M University, College Station, Texas, USA;

UCRC — Entomology Research Museum, Department of Entomology, University of California, Riverside, California, USA;

ZISP — Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia;

ZMUT — Zoological Museum, University of Turku, Finland.

Morphological terminology generally follows that of Khalaim [2011] and Broad et al. [2018]. Colour photographs were taken in ZISP with an Olympus OM-D E-M1 digital camera attached to an Olympus SZX10 stereomicroscope, and partially focused images were combined using Helicon Focus Pro (ver. 7.6.6) software.

The present work is registered in ZooBank (www.zoobank.org) under urn:lsid:zoobank.org:pub:B96D8309-96BA-4EE5-AD93-EA9DC45E30AC

Results and taxonomy

Ichneumonidae Latreille, 1802

Tersilochinae

Allophrys Förster, 1869

KEY TO SPECIES OF *ALLOPHRYS* OCCURRING IN MEXICO (FEMALES)

1. Occipital carina dorsally absent (Fig. 38). Flagellum robust, with 14 flagellomeres, apically black (Figs 37, 38) *A. phradiformis* **sp.n.**
- Occipital carina dorsally present (Figs 2, 32). Flagellum robust or slender, with 15 flagellomeres, sometimes with apical or subapical flagellomeres white (Figs 4, 20, 21) ... 2
2. Malar space 1.4–1.8 times as long as basal mandibular width (Fig. 33). Second tergite very slender, about 4.5 times as long as anteriorly broad. Metacarpus (RA) ending far short apex of fore wing (Fig. 27). Propodeum with apical area long and narrow, pointed or narrowly rounded anteriorly (Fig. 29). Ovipositor strongly upcurved at apex (Fig. 30). Antennal flagellum uniformly dark brown or black (Fig. 31); head (except lower part of clypeus) and mesosoma (except prothorax) uniformly dark reddish brown (Figs 32–34) ... *A. nataliae* **sp.n.**
- Malar space 0.8–1.1 times as long as basal mandibular width. Second tergite 2.0–2.5 times as long as anteriorly broad. Metacarpus (RA) almost reaching apex of fore wing (Figs 5, 13). Propodeum with apical area broader, usually widely rounded anteriorly (Figs 8, 23). Ovipositor weakly and evenly upcurved over its entire length (Figs 1, 13). Antennal flagellum usually with apical or subapical white band (Figs 4, 20, 21); head and mesosoma extensively marked with orange or reddish brown (Figs 1, 2, 13, 15) 3
3. Fore wing with vein 2m-cu interstitial or weakly postfurcal, vein 2rs-m relatively long (Fig. 5). Flagellum basally very slender, second and third flagellomeres about 3.0 times as long as broad (Fig. 4). Flagellum with subapical white band AND three apical flagellomeres black (Fig. 4). Body length about 5.5 mm *A. arkadia* **sp.n.**
- Fore wing with vein 2m-cu distinctly postfurcal, vein 2rs-m short. Flagellum basally less slender, second and third flagellomeres at most twice as long as broad (Figs 19–21). Flagellum black or with apical white band (Figs 19–21). Body length about 3.5 mm *A. divaricata* Horstmann

Allophrys arkadia Khalaim, **sp.n.**

Figs 1–12.

<https://zoobank.org/NomenclaturalActs/C5A86C85-D8D3-4D17-878C-6B5D10CA17B6>

Material. Mexico, **Veracruz:** Holotype female, SW of Xalapa, forest near Institute of Ecology, 19°30'78"N, 96°56'349"W, 1260 m, 12–14.IV.2014, coll. A.I. Khalaim (ZISP).

Paratypes: Mexico, **Veracruz:** 2 males (ZISP), same data as holotype; 2 females (UNAM), Xalapa, USBI, 19°30'N, 96°55'W, 1279 m, Malaise trap, 10–21.III and 7–20.VIII.2015, coll. M. López-Ortega; 1 female (UNAM), Municipality Teocelo, Tejería, 19°21'N, 96°54'W, Malaise trap, 19.IX–1.X.2015, coll. M. López-Ortega.

Description. *Female.* Body length 5.3 mm. Fore wing length 3.7 mm.

Head, in dorsal view, roundly constricted posterior to eyes; gena about half as long as eye width (Fig. 2). Inner eye orbits,

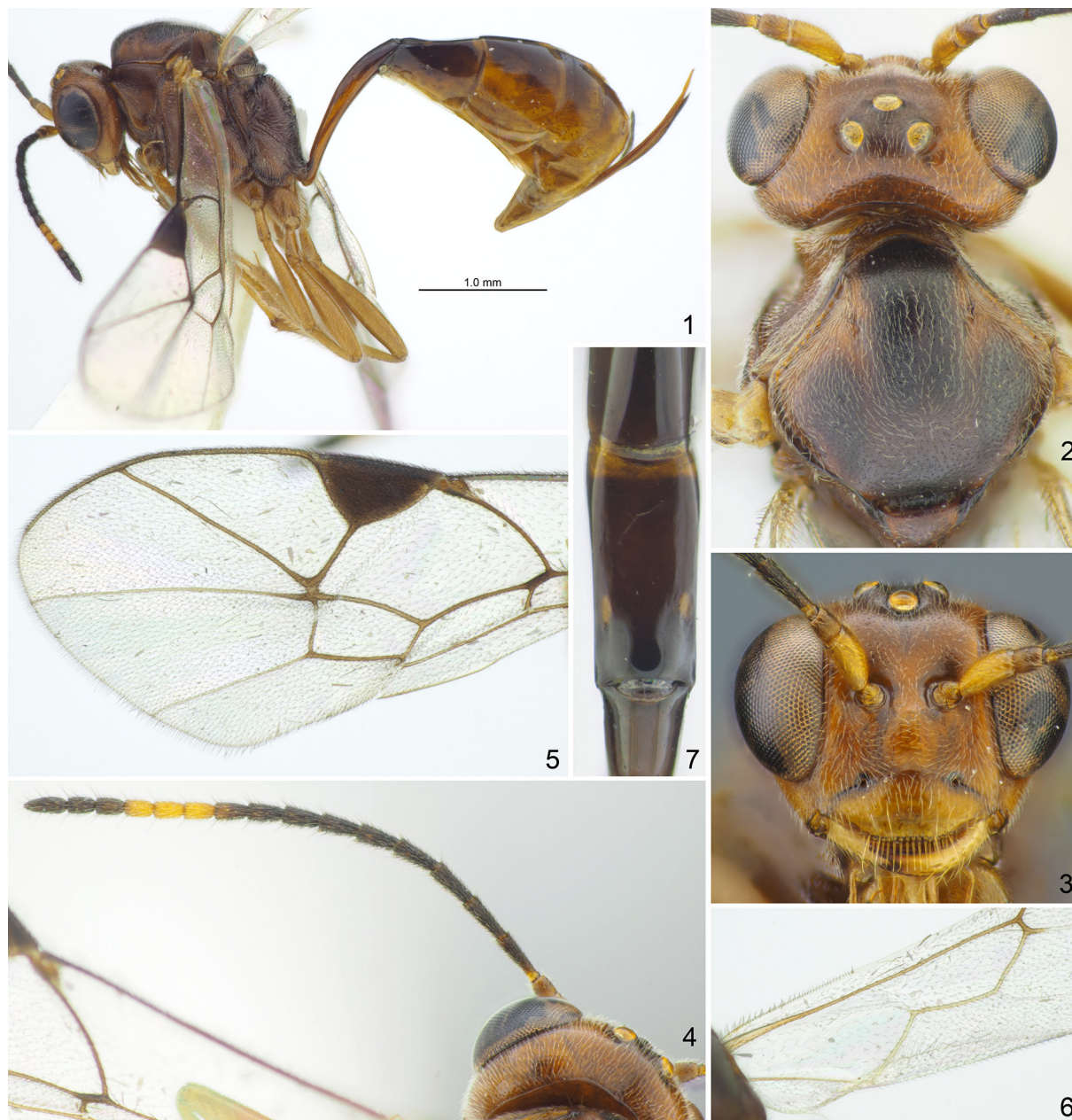
in front view, weakly divergent ventrad (Fig. 3). Clypeus 2.5 times as broad as long, in front view lenticular with lower margin slightly truncated, with very shallow (sometimes indistinct) transverse ridge in lower 0.6, separated from face by distinct furrow; clypeus smooth, with fine and sparse punctures in upper 0.6 (Fig. 3). Mandible moderately slender, weakly tapered basally, with upper tooth much longer than the lower. Malar space somewhat shorter than basal mandibular width. Antennal flagellum slender, filiform, with 15 flagellomeres; subbasal flagellomere about 3.0 times and subapical flagellomeres 1.8 times as long as broad (Fig. 4). Face with weak median prominence. Face and frons very finely granulate, dull, with very fine (sometimes indistinct) and dense punctures. Vertex and gena nearly smooth, weakly shining, with fine, shallow and dense punctures. Occipital carina complete (Fig. 2). Hypostomal carina complete, strong.

Mesosoma almost entirely finely and shallowly granulate, weakly shining to dull; mesopleuron centrally nearly smooth; mesoscutum and mesopleuron above foveate groove with dense and very fine punctures, dorsolateral area of propodeum with very fine and less dense punctures; remaining mesosoma impunctate or with indistinct punctures. Notaulus weak, with short wrinkle or crest distant from anterolateral margin of mesoscutum and impression behind this wrinkle (Figs 1, 2). Scutellum with lateral longitudinal carinae present at its anterior 0.4. Epicnemial carina with upper end reaching front margin of mesopleuron. Foveate groove of mesopleuron deep, long, moderately broad, curved anteriorly, extending in centre of mesopleuron, reaching neither front nor posterior margin of mesopleuron, with strong transverse wrinkles (as in Fig. 12). Propodeal spiracle separated from pleural carina by 2.5–4.0 times diameter of spiracle. Propodeum mediodorsally with basal furrow delimited laterally by weak (sometimes indistinct) lateral carinae (Fig. 8); basal part of propodeum almost 0.6 times as long as apical area; apical area flat or slightly impressed, widely rounded anteriorly; apical longitudinal carinae complete, strong.

Fore wing (Fig. 5) with vein 2m-cu interstitial or slightly postfurcal, weakly pigmented in anterior 0.4. Vein 2rs-m relatively long. First abscissa of radius (2r&RS) straight, about as long as width of pterostigma. First and second abscissae of radius (2r&RS and RS) meeting at right angle. Metacarpus (RA) almost reaching apex of fore wing. Hind wing with nervellus strongly reclivous. Legs slender; tarsal claws slender, not pectinate.

First tergite very slender, 5.2 times as long as posteriorly broad, in cross-section centrally round (Fig. 8), upper margin in lateral view almost straight in anterior half and weakly arcuate in posterior half (Fig. 1); postpetiole very weakly widened in dorsal view, almost not separated from petiole. Glymma absent. Second tergite 2.3 times as long as anteriorly broad (Fig. 7). Thyridial depression very long, shallow, with posterior end rounded (Fig. 7). Ovipositor slender, very weakly and evenly bent upwards (Fig. 1), with weak dorsal subapical depression (Fig. 1); sheath slightly shorter than first tergite (Fig. 1).

Head predominantly brownish orange, interocellar area infusate (Fig. 2); clypeus predominantly yellow, in upper part brownish (Fig. 3). Mandible yellow, teeth dark red. Mouthparts yellow. Antenna (Fig. 4) with scape and pedicel yellow, dorsally brownish; flagellum brownish black, flagellomeres from 9–10 to 12 yellow. Mesosoma predominantly orange-brown or dark reddish brown, usually with dark brown markings on mesoscutum and propodeum. Tegula yellow. Pterostigma dark brown (Fig. 5). Legs brownish yellow. First metasomal tergite predominantly brown, brownish black in posterior 0.3–0.4



Figs 1–7. *Allophrys arkadia* sp.n., female, holotype. 1 — habitus, lateral view; 2 — head and mesoscutum, dorsal view; 3 — head, front view; 4 — antenna, posterior view; 5 — apex of fore wing; 6 — base of hind wing, 7 — second tergite, dorsal view.

Рис. 1–7. *Allophrys arkadia* sp.n., самка, голотип. 1 — рабитуc, вид cбоку; 2 — голова и мезоcкyтум, вид cверху; 3 — голова, вид cпереди; 4 — антeнна, вид cзади; 5 — вершина переднего крыла; 6 — основание заднего крыла, 7 — второй тергит, вид cверху.

(Fig. 8); metasoma posterior to first tergite dark brown dorsally and laterally, yellow-brown ventrally (Fig. 1).

Male. Eyes weakly enlarged (Figs 10, 11); lateral ocellus separated from eye margin by 0.7 times its own maximum diameter (Fig. 10). Flagellum with 15 flagellomeres, very slender, entirely black. Malar space 0.7–0.8 times as long as basal mandibular width. Head extensively marked with dark brown (Figs 10, 11). Mesosoma with prothorax and mesopleuron brownish orange, remainder dark reddish brown (Fig. 12). Otherwise similar to female.

Comparison. Relatively large species with remarkable orange and reddish brown color pattern of the body (Figs 1,

9). Female of *A. arkadia* sp.n. differs from its Mexican and Central American congeners by the combination of slender flagellum with conspicuous subapical white band (Fig. 4). Male of *A. arkadia* sp.n. is readily distinguished by its weakly enlarged eyes (Figs 10, 11).

Etymology. The species is named in honor of the Russian entomologist, Arkady S. Lelej (Vladivostok, Russia), in recognition of his contribution to the study of the World Hymenoptera, and his 80th anniversary.

Distribution. Mexico (Veracruz).



Figs 8–12. *Allophrys arkadia* sp.n., female holotype (8) and male paratype (9–12). 8 — propodeum, dorso-postero-lateral view; 9 — habitus (without wings), lateral view; 10 — head, dorsal view; 11 — head, front view; 12 — mesosoma, lateral view.

Рис. 8–12. *Allophrys arkadia* sp.n., самка, голотип (8) и самец, паратип (9–12). 8 — пропodeум, вид сверху, сзади и сбоку; 9 — габитус (без крыльев), вид сбоку; 10 — голова, вид сверху; 11 — голова, вид спереди; 12 — мезосома, вид сбоку.

Allophrys divaricata Horstmann, 2010

Figs 13–25.

Material. **USA, Florida:** Gainesville, *Quercus* and pine forest, 29–31.V.1988, coll. D.R. Kasparyan, 8 females, 1 male (ZISP); Jefferson Co., Monticella, University of Florida, Malaise trap, “5–19.1 & 5.X–30.XI.2001”, coll. R. Mitzel, 3 females (ZISP); same data, but 16–30.III.2002, 2 females (ZISP). **Mexico, Nuevo León:** SE of Monterrey, Guadalupe, Rincón de la Sierra, 11.VII.1983, coll. A. González H., 1 female (UCRC); S of Monterrey, canyon Caballo, Yellow pan trap, 12.XI.2003, coll. A. Owen, 1 female (ZISP). **Tamaulipas:** 15 km SSW of Cd. Victoria, El Madroño, 1400–1450 m, oak-forest, 2.V.2008, coll.

A.I. Khalaim, 1 male (ZISP); Cd. Victoria, flood lands, 20.XII.2003, coll. V. Fursov, 1 female (ZISP); SW of Cd. Victoria, mountain slope, Yellow pan trap, 3–29.II.2008, coll. A.I. Khalaim, 2 female (ZISP); NW of Cd. Victoria, Los Troncones (park and canyon), 27.III.2008, coll. A.I. Khalaim, 1 female (ZISP); same data, but 30.III.2008, 1 male (ZISP); same data, but 7.X.2012, 1 female (ZISP); SE of Cd. Victoria, Rancho Santa Elena, 23°37.362'N, 99°12.746'W, 970 m, Malaise trap, 25.IX–13.X.2010, coll. E. Ruiz-Cancino, 1 female (ZISP); Gómez Farías, Los Cedros, 340 m, Malaise trap, 22.VII.2002, coll. S. Triapitsyn, 1 female (ZISP); same data, but 19.I.2003, 11 females (ZISP); same locality, 24.I.1999, coll. D.R. Kasparyan, 1 female (ZISP); same locality, 23.XII.2003, coll. D.R. Kasparyan, 6 females, 6 males (ZISP); Reserva

El Cielo, Estación El Canindo, 23°03'N, 99°14'W, 1400 m, Malaise trap, 28–30.VII.1993, coll. J.B. Woolley, 1 female (TAMU). **Veracruz:** NE of San Andrés Tuxtla, Biological Station Los Tuxlas, 4–8.X.2014, coll. S.A. Belokobylskij, 1 female (ZISP); SW of Xalapa, forest near Institute of Ecology, 19°30.768'N, 96°56.349'W, 1260 m, 17–18.II.2009, coll. A.I. Khalaim, 1 male (ZISP); same data, but 12–14.IV.2014, 2 males (ZISP); Xalapa, USBI, 19°30'N, 96°55'W, 1279 m, Malaise trap, 10–21. III and 20.X–2.XI.2015, coll. M. López-Ortega, 3 females (1 in ZISP, 2 in UNAM).

Remarks on morphology. Female. Color pattern of body varies from extensively pale orange with scarce brownish markings to almost entirely brownish black, but in all examined specimens upper part of mesosoma tend to be darker

(Figs 13, 15). Flagellum filiform or weakly tapered towards apex, with 15 flagellomeres; subapical flagellomeres 1.1–1.4 times as long as broad (Figs 19–21). Flagellum from entirely black (Fig. 19) to black with 1–4 apical flagellomeres white (Figs 15, 20, 21); when white band occupy three or four apical flagellomeres then the apical flagellomere sometimes blackish distally (Fig. 21).

Head, in dorsal view, with gena posterior to eye rounded; gena about half as long as eye width; vertex, in lateral view, flattened (Fig. 15, arrow). Malar space 0.8–1.1 times as long as basal mandibular width. Basal area of propodeum usually indistinct; propodeum mediodorsally usually with weak fur-



Figs 13–18. *Allobryas divaricata*, female (13–15) and male (16–18). 13, 16 — habitus, lateral view; 14 — hypostomal carina; 15 — head with antennae and mesosoma, lateral view; 17 — head and mesoscutum, dorsal view; 18 — head and mesosoma, lateral view.

Рис. 13–18. *Allobryas divaricata*, самка (13–15) и самец (16–18). 13, 16 — габитус, вид сбоку; 14 — гипостомальный киль; 15 — голова с антеннами и мезосома, вид сбоку; 17 — голова и мезоскутум, вид сверху; 18 — голова и мезосома, вид сбоку.



Figs 19–25. *Allophrys divaricata*, female (19–23) and male (24, 25). 19–21, 24 — antennae, lateral view; 22, 25 — head, front view; 23 — propodeum, dorso-postero-lateral view.

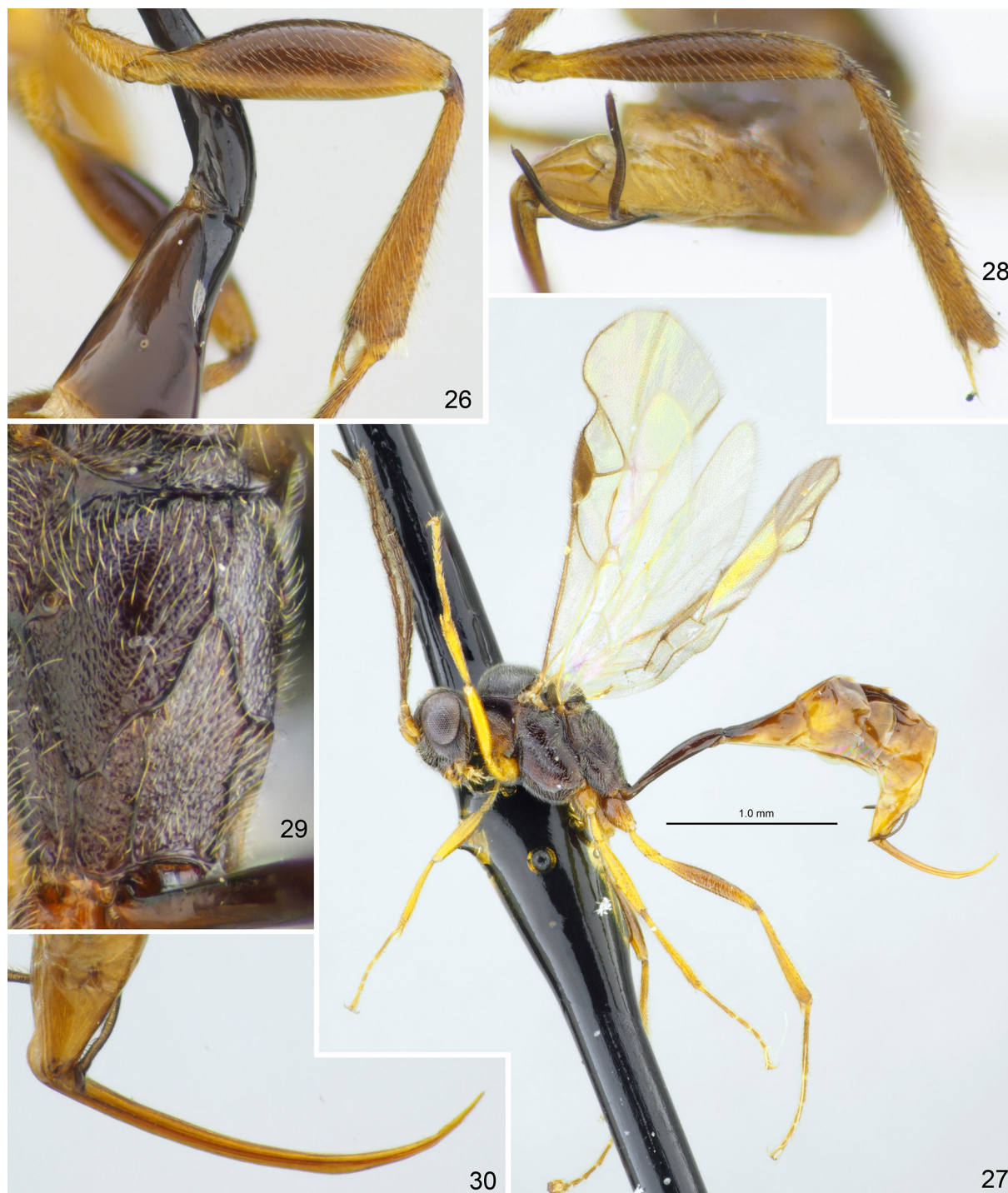
Рис. 19–25. *Allophrys divaricata*, самка (19–23) и самец (24, 25). 19–21, 24 — антенны, вид сбоку; 22, 25 — голова, вид спереди; 23 — пропodeум, вид сверху, сзади и сбоку.

row and longitudinal (or irregular) wrinkles (Fig. 23). Second tergite 2.0–2.5 times as long as anteriorly broad.

Male. Body generally darker than in female, head and mesosoma sometimes entirely dark brown or black (Figs 16–18). Flagellum very slender, usually entirely black (Fig. 24),

sometimes with apical flagellomere whitish. Eyes very large (Figs 17, 25), inner eye orbits strongly divergent ventrad, lateral ocellus almost touching the eye.

Distribution. USA (south), Mexico (Nuevo León, Tamaulipas, Veracruz), Costa Rica, Trinidad and Tobago, Argentina (Tucumán).



Figs 26–30. *Allophrys barycnemica*, female, paratype (Costa Rica) (26), *A. nataliae* sp.n., females, holotype (27, 29, 30) and paratype (Costa Rica) (28). 26, 28 — hind legs, lateral view; 27 — habitus, lateral view; 29 — propodeum, dorso-postero-lateral view; 30 — ovipositor, lateral view.

Рис. 26–30. *Allophrys barycnemica*, самка, паратип (Коста-Рика) (26), *A. nataliae* sp.n., самки, голотип (27, 29, 30) и паратип (Коста-Рика) (28). 26, 28 — задняя нога, вид сбоку; 27 — габитус, вид сбоку; 29 — проподеум, вид сверху, сзади и сбоку; 30 — яйцеклад, вид сбоку.

Allophrys nataliae Khalaim, sp.n.

Figs 27–34.

<https://zoobank.org/NomenclaturalActs/6E272893-3BFA-4EE4-AFA2-13F37A5DD1A3>

Material. Mexico, *Chiapas*: Holotype female, San Cristobal [de las Casas], Reserva Cerro El Huitepec, 16°46'06"N, 92°41'04"W, 790 m,

Malaise trap, 3–14.VIII.1997, coll. A. González-Hernández, CIB-97072 (ZISP).

Paratypes: Guatemala, *Suchitepéquez*: 1 female (ZMUT), 4 km S of volcano Atitlán, 14.54804°N, 91.19108°W, 1580 ± 7 m, cloud forest, 15–18.VI.2009, [collector unknown], LLAMA#Ma-B-09-1-01. Costa Rica, *San José/Carthago Prov.*: 1 female (MUCR), Cartago — San José, 20 km SE of Empalme, 2800 m, X.1988, coll. P. Hanson. *Puntarenas*

Prov.: 1 female (INBio), Golfito, Buenos Aires, Cerro [Mountain] Frantzius, 2134 m, Malaise trap, 9.VI–11.VII.2000, coll. D. Rubí, L_S_574450_334150 #58145; 1 female (INBio), Buenos Aires, Potrero Grande, Cerro [Mountain] Frantzius, 2134 m, Malaise trap, 26.XI–28.XII.2000, coll. D. Rubí, L_S_574450_334150 #61083.

Description. Female. Body length 3.2 mm. Fore wing length 2.4 mm.

Head, in dorsal view, roundly constricted posterior to eyes; gena 0.6 times as long as eye width (Fig. 32). Inner eye orbits, in front view, very weakly divergent ventrad (Fig. 33). Clypeus 2.5 times as broad as long, in front view lenticular, separated from face by shallow furrow; clypeus smooth, with fine and sparse punctures in upper 0.6 (Fig. 33). Mandible slender, weakly tapered basally, with upper tooth much longer than the lower. Malar space 1.4–1.8 times as long as basal mandibular width (Fig. 33). Antennal flagellum slender, filiform, with 15 flagellomeres; subbasal flagellomeres 2.8 times and subapical flagellomeres 1.8 times as long as broad (Fig. 31). Face with weak median prominence. Face and frons very finely granulate, dull, impunctate or with very fine (sometimes indistinct) punctures. Vertex and gena nearly smooth, weakly shining, with fine and shallow (sometimes indistinct) punctures. Occipital carina complete, strongly dipped mediodorsally (Fig. 32). Hypostomal carina complete, strong.

Mesosoma predominantly finely and shallowly granulate, impunctate, dull; mesopleuron smooth centrally (above foveate groove) and ventrally, with fine but distinct punctures. Notaulus with distinct wrinkle on anterolateral side of mesoscutum. Scutellum with lateral longitudinal carinae present at its anterior 0.3. Epinomial carina with upper end reaching front margin of mesopleuron. Foveate groove of mesopleuron deep, long, moderately broad, curved anteriorly, extending in centre of mesopleuron, reaching neither front nor posterior margin of mesopleuron, with strong transverse wrinkles (Fig. 34). Propodeal spiracle separated from pleural carina by 2.0–2.5 times diameter of spiracle. Propodeum (Fig. 29) with basal part 0.4–0.5 times as long as apical area; basal area narrow, indistinct, with one or several weak longitudinal wrinkles; apical area flat, long and narrow, pointed or narrowly rounded anteriorly; apical longitudinal carinae distinct posteriorly and weak anteriorly, usually reaching transverse carina.

Fore wing (Fig. 27) with vein 2m-cu interstitial to postfurcal, weakly pigmented in anterior half. Vein 2rs-m relatively long. First abscissa of radius (2r&RS) straight, about as long as width of pterostigma. First and second abscissae of radius (2r&RS and RS) meeting at slightly acute angle. Metacarpus (RA) ending far short apex of fore wing (Fig. 27). Hind wing with nervellus strongly reclivous. Legs slender; tarsal claws slender, not pectinate.

First tergite very slender, 6.0 times as long as posteriorly broad, in cross-section centrally round, its upper margin in lateral view weakly and more or less evenly arcuate (Fig. 34); postpetiole not separated from petiole, lateral margins of first tergite in dorsal view nearly parallel. Glymma absent. Second tergite about 4.5 times as long as anteriorly broad. Thyridial depression very long, shallow, reaching about midlength of second tergite, with posterior end rounded. Ovipositor short, nearly straight basally and strongly upcurved at apex, with dorsal subapical notch (Fig. 30); sheath about half as long as first tergite (Fig. 27).

Head, mesosoma and first metasomal tergite almost entirely dark reddish brown or brownish black (Fig. 34), clypeus brownish yellow in lower 0.3 (Fig. 33). Mandible yellow, teeth red. Mouthparts yellow. Antenna (Fig. 31) with scape and pedicel yellow ventrally and brown dorsally; flagellum uniformly brownish black. Tegula and pterostigma brown. Legs

predominantly brownish yellow; hind leg with coxa and femur centrally brown, tibia apically and tarsus infusate; fore and mid tibiae and tarsi sometimes infusate. Metasoma posterior to first tergite predominantly brown to dark brown dorsally and laterally, yellow-brown ventrally (Fig. 27).

Male. Unknown.

Comparison. The new species is similar to *A. barycnemica* Khalaim et Broad, 2010, but easily differs from this species by its much slenderer hind leg, i.e. femur 5.5 times as long as broad (Fig. 28) vs. 2.0–2.6 times in *A. barycnemica* (Fig. 26).

Etymology. The species is named in honor of my colleague and friend, Russian botanist Natalia Valerievna Petrova (Komarov Botanical Institute of the Russian Academy of Sciences, St. Petersburg, Russia).

Distribution. Mexico (Veracruz), Costa Rica (San José/Cartago, Puntarenas).

Allophrys phradiformis Khalaim, sp.n.

Figs 35–45.

<https://zoobank.org/NomenclaturalActs/DA3865D1-13FB-4D41-8E0A-9DE2817855AF>

Material. Mexico, Veracruz: Holotype female, 23 km S of Xalapa, 19°18.987'N, W 96°50.544'W, 800 m, 16.II.2009, coll. A.I. Khalaim (ZISP).

Paratype: Mexico, Tamaulipas: 1 female, Gómez Farías, 300 m, garden and forest, 13.III.2003, coll. D.R. Kasparyan (ZISP).

Description. Female. Body length 2.85 mm. Fore wing length 1.85 mm.

Head, in dorsal view, 1.75 times as broad as long, roundly constricted posterior to eyes; gena 0.4 times as long as eye width (Fig. 40); vertex, in lateral view, flattened. Inner eye orbits, in front view, subparallel (Fig. 39). Clypeus 2.4 times as broad as long, in front view lenticular, separated from face by distinct furrow; clypeus smooth, with very sparse punctures (Fig. 39). Mandible moderately slender, weakly tapered basally, with upper tooth somewhat longer than the lower (Fig. 37). Malar space about as long as basal mandibular width (Fig. 43). Antennal flagellum robust, filiform, with 14 flagellomeres; second flagellomere twice, flagellomeres 3 and 4 about 1.6–1.7 times, and subapical flagellomeres 1.2 times as long as broad (Figs 37, 38). Face with weak median prominence. Face and frons very finely granulate, dull, impunctate. Vertex and gena smooth and shining. Occipital carina present laterally and widely absent dorsally (Fig. 38). Hypostomal carina strong.

Mesosoma finely and shallowly granulate, impunctate, dull; in paratype mesopleuron nearly smooth centrally and ventrally, with very fine (mostly indistinct) punctures above foveate groove. Notaulus with strong wrinkle on anterolateral side of mesoscutum. Scutellum with lateral longitudinal carinae short, present at extreme base of scutellum. Epinomial carina with upper end reaching front margin of mesopleuron. Foveate groove of mesopleuron narrow, extending in anterior 0.6 of mesopleuron, not reaching epinomial carina anteriorly (Fig. 43). Propodeal spiracle separated from pleural carina by about 2.0 times diameter of spiracle. Propodeum (Fig. 44) with basal area narrow, indistinct (weakly impressed and with weak irregular wrinkles), about 0.3 times as long as apical area; apical area flat or slightly impressed, long and narrow, pointed anteriorly; apical longitudinal carinae complete, reaching transverse carina anteriorly.

Fore wing (Fig. 42) with vein 2m-cu interstitial, weakly pigmented in anterior part. Vein 2rs-m relatively long. First abscissa of radius (2r&RS) straight or slightly curved, about as long as width of pterostigma. First and second abscissae of radius (2r&RS and RS) meeting at right angle. Metacarpus



Figs 31–34. *Allobryas nataliae* sp.n., females, holotype (33, 34) and paratype (Costa Rica) (31, 32). 31 — antenna, lateral view; 32, 33 — head, dorsal (32) and front (33) view; 34 — head and mesosoma, lateral view.

Рис. 31–34. *Allobryas nataliae* sp.n., самки, голотип (33, 34) и паратип (Коста-Рика) (31, 32). 31 — антенна, вид сбоку; 32, 33 — голова, вид сверху (32) и спереди (33); 34 — голова и мезосома, вид сбоку.

(RA) ending far short apex of fore wing. Hind wing with nervellus strongly reclivous. Legs slender (Fig. 42); tarsal claws not pectinate.

First tergite slender, 4.1 times as long as posteriorly broad, in cross-section trapeziform basally and round centrally, its upper margin in lateral view nearly straight in anterior 0.6 and arcuate in posterior 0.4 (Fig. 42), predominantly smooth with several oblique striae on lateral side of petiole; postpetiole not separated from petiole in dorsal view. Glymma absent. Second tergite 2.5 times as long as anteriorly broad. Thyridial depression long and shallow, with posterior end rounded. Ovipositor short, moderately robust, weakly upcurved, with weak dorsal subapical depression (Fig. 45); sheath 0.8–0.9 times as long as first tergite (Figs 35, 36).

Head and mesosoma almost entirely brownish black to black (Fig. 43), clypeus reddish brown in lower part (Fig. 39). Mandible yellow, teeth dark red. Mouthparts yellow. Antenna (Figs 37, 38) with scape and pedicel brownish yellow; flagellum dark brown to black, basally yellowish. Tegula brownish yellow. Pterostigma brown. Legs brownish yellow, in holotype hind coxa brownish. First metasomal segment brownish black; metasoma posterior to first tergite predominantly dark brown, with pale brown markings posteriorly (Figs 35, 36).

Male. Unknown.

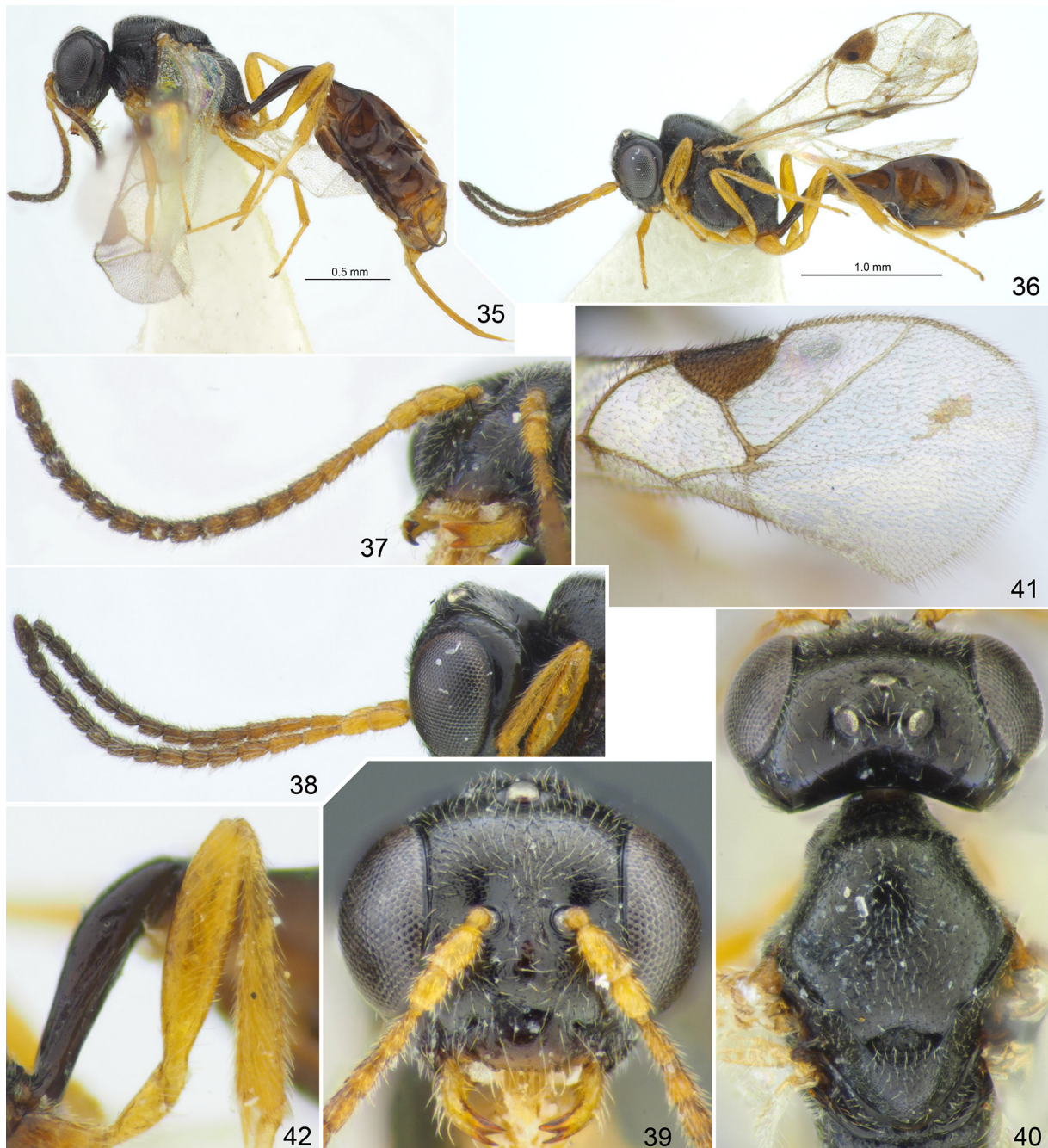
Comparison. The new species resembles *A. bribria* Khalaim et Broad, 2010 as both species have short gena, occipital carina broadly incomplete dorsally and robust flagellum of antenna, but *A. phradiformis* sp.n. differs from this species by having entirely black flagellum (Figs 37, 38), longer malar space, shorter upper tooth of mandible (Fig. 37), narrow clypeus (Fig. 39) and less transverse head (in dorsal view, 1.75 times as broad as long in *A. phradiformis* sp.n. vs. 2.0 times in *A. bribria*) (Fig. 40).

Etymology. The new species is named after its similarity to the genus *Phradis* Förster, 1869.

Distribution. Mexico (Tamaulipas, Veracruz).

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Figs 35–42. *Allophrys phradiformis* sp.n., females, holotype (35, 37, 39–42) and paratype (36, 38). 35, 36 — habitus, lateral view; 37, 38 — antennae, lateral view; 39 — head, front view; 40 — head and mesoscutum, dorsal view; 41 — apex of fore wing; 42 — hind leg, lateral view.

Рис. 35–42. *Allophrys phradiformis* sp.n., самки, голотип (35, 37, 39–42) и паратип (36, 38). 35, 36 — габитус, вид сбоку; 37, 38 — антенны, вид сбоку; 39 — голова, вид спереди; 40 — голова и мезоскутум, вид сверху; 41 — вершина переднего крыла; 42 — задняя нога, вид сбоку.



Figs 43–45. *Allophrys phradiformis* sp.n., females, holotype (44, 45) and paratype (43). 43 — mesosoma, lateral view; 44 — propodeum, dorso-postero-lateral view; 45 — ovipositor, lateral view.

Рис. 43–45. *Allophrys phradiformis* sp.n., самки, голотип (44, 45) и паратип (43). 43 — мезосома, вид сбоку; 44 — проподеум, вид сверху, сзади и сбоку; 45 — яйцеклад, вид сбоку.

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