

New species and records of Afrotropical, Australasian, Oriental and Palaeartic *Casinaria* Holmgren, 1859 (Hymenoptera: Ichneumonidae: Campopleginae)

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Abstract. Eight new species of *Casinaria* Holmgren, 1859 are described: *Casinaria castanea* sp. nov. and *Casinaria rubens* sp. nov. from South Africa, *Casinaria sellata* sp. nov. from South Africa and Kenya, *Casinaria kittenbergeri* sp. nov. from Uganda, *Casinaria papuensis* sp. nov. from Papua New Guinea, *Casinaria coloratilis* sp. nov., *Casinaria russea* sp. nov. and *Casinaria vesca* sp. nov. from Taiwan. The Afrotropical species of the genus are overviewed, and an identification key provided. Additionally, the first reports of *Casinaria granulicoxis* (Seyrig, 1935) from South Africa, *Casinaria albipalpis* (Gravenhorst, 1829) from Sweden and *Casinaria kriechebaumeri* (Costa, 1884) from Cyprus are given.

Keywords. species description, identification key, Old World, Kittenberger.

INTRODUCTION

Casinaria Holmgren, 1859 is a species-rich genus of family Ichneumonidae, subfamily Campopleginae. Prior to this study 106 valid species were known worldwide, 33 of them occurring in the Oriental, 28 in the Western Palaeartic, 18 in the Eastern Palaeartic, 11 in the Australasian, two in the Oceanic, two in the Afrotropical, 20 in the Nearctic, and nine in the Neotropical regions (Yu *et al.* 2012, Riedel 2018, Vas 2019a, b). Most species are koinobiont endoparasitoids of various lepidopterous hosts (Jerman & Gauld 1988).

In this paper, based on the material of the Hungarian Natural History Museum (HNHM, Budapest) and the Biological Museum of Lund University (MZLU, Lund), eight new species of the genus are described (four species from Afrotropical region, one species from Australasian region, and three species from Oriental region), the Afrotropical *Casinaria* species are revised and an identification key provided, and new distributional records of some *Casinaria* species are given.

MATERIAL AND METHODS

Taxonomy and nomenclature follow Yu & Horstmann (1997) and Yu *et al.* (2012); hence, complete nomenclatural history and list of synonym taxa are not repeated here. The morphological terminology is based on Gauld (1991) and Gauld *et al.* (1997); however, regarding wing veins, the corresponding terminology of Townes (1969) is also indicated for better comparability with previous works. The identifications were based on Szépligeti (1905), Cameron (1906), Morley (1926), Seyrig (1935), Walley (1947), Townes *et al.* (1961), Townes (1970), Townes & Townes (1973), Gupta & Maheshwary (1977), Kusigemati (1985), Jerman & Gauld (1988), Jonathan (1999), Choi & Lee (2010), Riedel (2018), van Noort (2019), Vas (2018, 2019a, b), and on checking the relevant type material (type specimens of all species mentioned in the species descriptions were examined at least by images). The specimens were identified and examined by the author using a Nikon SMZ645 stereoscopic microscope. Results are grouped into biogeog

raphical regions; within biogeographical regions species are listed alphabetically. Photos were taken with 14 MP MicroQ-U3L digital camera. Post image work was done with Touptek TouptView v4.7 and Photoshop CS3.

TAXONOMY

Subfamily: Campopleginae Förster, 1869

Genus: *Casinaria* Holmgren, 1859

Type species. *Campoplex tenuiventris* Gravenhorst, 1829; designation by Viereck (1914).

AFROTROPICAL REGION

Prior to this study, only two *Casinaria* species were known from the Afrotropical region, *Casinaria crassiventris* (Cameron, 1906) and *Casinaria granulicoxis* (Seyrig, 1935) (Yu *et al.* 2012). Their specific status is confirmed here as valid, their diagnoses are given, and four new Afrotropical species are described. An identification key to the currently known six Afrotropical *Casinaria* species is provided below.

Casinaria castanea sp. nov.

(Figure 1)

Material examined. Holotype: female, S. Afr. [= South Africa], Cape Prov., Cape Peninsula, Hout Bay, Skoorsteenkop, 26.XII.[19]50, leg. Brinck & Rudenbeck, Swedish South African Expedition 1950–1951, No. 95, Insect trap; specimen pinned, Id. No. MZLU-HYM 26376. – Paratype: male, same locality and collectors, 22.I. 1951, Swedish South African Expedition 1950–1951, No. 157, Insect trap; specimen pinned, Id. No. MZLU-HYM 26371. – The holotype and paratype specimens are deposited in MZLU (Lund).

Diagnosis. Among the Afrotropical species of the genus, *Casinaria castanea* sp. nov. can be easily identified by the combined presence of the following characters: scapus and pedicellus ventrally yellowish, mandible and tegula pale yellow, metasoma from third tergite on predominantly

chestnut-brown, hind femur dark reddish brown, hind tibia chestnut-brown with distinct basal yellowish spot.

Description. Female (Fig. 1). Body length *ca.* 8 mm, fore wing length *ca.* 5 mm.

Head. Antenna with 33 flagellomeres; first flagellomere *ca.* 3.5× as long as wide apically; pre-apical flagellomeres quadrate to slightly longer than wide. Head transverse, matt, face coarsely granulate with superficial punctures, gena finely granulate with weak punctures, and with dense, greyish hairs. Ocular-ocellar distance 0.6× as long as ocellus diameter, posterior ocellar distance 1.7× as long as ocellus diameter. Inner eye orbits strongly indented, ventrally moderately convergent. Gena very short, very strongly narrowed behind eye. Occipital carina complete, strongly bent out ventrally, reaching hypostomal carina at base of mandible, hypostomal carina slightly elevated. Malar space short, 0.4× as long as basal width of mandible. Face flat in profile, narrowed ventrally, minimal width of face *ca.* 0.5× as long as eye length. Clypeus very weakly separated from face, almost flat in profile, small, its apical margin weakly convex and moderately sharp. Mandible short, wide, lower margin of mandible with rather wide flange from base toward teeth, flange abruptly narrowed at teeth, upper mandibular tooth slightly longer and wider than lower tooth.

Mesosoma. Mesosoma with dense, relatively short, greyish hairs. Dorsal half of pronotum granulate, ventral half finely granulate with strong transverse wrinkles; epomia strong. Mesoscutum coarsely granulate to rugulose and punctate, convex in profile, 0.85× as long as wide, notaulus not developed. Scuto-scutellar groove relatively narrow. Scutellum coarsely granulate with superficial punctures, wide, almost flat, medially not impressed, lateral carina indistinct. Mesopleuron coarsely granulate with dense, superficial punctures, and with transverse wrinkles anterior to speculum; speculum granulate; mesopleural suture impressed with short, strong transverse costae. Epicnemial carina complete, strong, pleural part bent to anterior margin of mesopleuron reaching it above its middle height, transversal part (*i.e.* the part at the level of sternaulus running through the

epicnemium to the ventral edge of pronotum) not developed, ventral part (behind fore coxae) complete, slightly elevated. Sternaulus indistinct. Posterior transverse carina of mesosternum complete. Metanotum coarsely granulate, *ca.* 0.4× as long as scutellum. Metapleuron coarsely granulate with superficial punctures; juxtacoxal carina indistinct; submetapleural carina complete, strong. Pleural carina of propodeum strong; propodeal spiracle oval, separated from pleural carina by distinctly less than 0.5× its length. Propodeum long, its apex reaching about middle length of hind coxa, rather coarsely granulate to rugose, apical two-third medially narrowly impressed with strong transverse wrinkles; propodeal carinae indistinct. Fore wing with petiolate areolet, *3rs-m* present, pigmented, second recurrent vein (*2m-cu*) close to distal corner of areolet; distal abscissa of *Rs* straight; nervulus (*cu-a*) about interstitial; postnervulus (abscissa of *Cu1* between *1m-cu* and *Cu1a* + *Cu1b*) intercepted at about its middle by *Cu1a*; lower external angle of second discal cell acute. Hind wing with nervellus (*cu-a* + abscissa of *Cu1* between *M* and *cu-a*) about vertical, not intercepted by discoidella (distal abscissa of *Cu1*); discoidella spectral, proximally not connected to nervellus. Coxae granulate with superficial punctures. Hind femur relatively stout, *ca.* 5.0× as long as high. Inner spur of hind tibia *ca.* 0.75× as long as first tarsomere of hind tarsus. Tarsal claws small and short, about as long as arolium, basal half with small but distinct pecten.

Metasoma. Metasoma compressed, finely granulate to shagreened with short, greyish hairs. First tergite long and slender, *ca.* 5.0× as long as width of its apical margin, 1.25× as long as second tergite, 1.1× as long as hind femur, without glymma; dorsomedian carina of first tergite missing; postpetiolus moderately bulging. Suture separating first tergite from first sternite situated strongly above mid-height at basal third of first metasomal segment. Second tergite long and slender, 2.5× as long as its apical width; thyridium strongly elongate, long and deep, its distance from basal margin of tergite *ca.* 1.5× as long as its length, connected to basal margin of tergite by a weak, superficial groove. Posterior margins of third and following tergites medially slightly

concave. Ovipositor sheath shorter than apical depth of metasoma; ovipositor strong, straight, compressed, dorsal preapical notch distinct, lower valve abruptly narrowed before apex.

Colour. Antenna dark brown, scapus and pedicellus ventrally yellowish. Head black except palpi and mandible pale yellow, mandibular teeth reddish brown. Mesosoma black except tegula pale yellow. Metasoma: petiolus black, postpetiolus brownish; second tergite blackish, subapically brownish; basal half of third tergite dark brown, apical half chestnut-brown; following tergites chestnut-brown with indistinct, narrow, somewhat darker dorsal patches; ovipositor sheath blackish. Wings hyaline, wing veins and pterostigma brown. Fore leg: coxa extensively pale yellow, basally dark brown to blackish; trochanter and trochantellus pale yellow; femur pale yellow, ventrally reddish yellow; tibia dorsally pale yellow, ventrally reddish yellow; tarsus yellowish, apical tarsomere brownish. Middle leg: coxa black, apically narrowly yellowish; trochanter and trochantellus pale yellow; femur brownish yellow, basally and ventrally somewhat darkened; tibia dorsally pale yellow, ventrally reddish yellow; tarsus light brownish except basal half of first tarsomere yellowish. Hind leg: coxa black; trochanter dark brown with pale yellow apical margin; trochantellus pale yellow; femur dark reddish brown, apically somewhat darkened, extreme base narrowly yellowish; tibia chestnut-brown with distinct basal yellowish spot; tarsus dark brown except extreme base of first tarsomere narrowly yellowish.

Male. Similar to female in all characters described above, except: antenna with 34 flagellomeres; first flagellomere *ca.* 2.5× as long as wide; malar space 0.5× as long as basal width of mandible; minimal width of face *ca.* 0.6× as long as eye length; sculpture of mesosoma and coxae somewhat coarser, punctures stronger, propodeum more rugose than in female; hind femur *ca.* 5.5× as long as high; second tergite *ca.* 3.0× as long as its apical width; clasper narrow, elongate rod-like, apically little widened and rounded; fore and middle femora more reddish brown, hind femur and metasoma somewhat darker brownish than in female.

Distribution. South Africa.

Etymology. The specific epithet *castanea* is the feminine form of the Latin adjective *castaneus*, -a, -um meaning chestnut-coloured; it refers to the colouration of metasoma and hind legs of the new species.

Remarks. The new species is somewhat similar to the Afrotropical species *Casinaria granulicoxis* (Seyrig, 1935), but this species can be readily distinguished from the new species by its entirely dark brown scapus and pedicellus, dark brown hind femur, and dark brown hind tibia without yellowish basal spot.

***Casinaria crassiventris* (Cameron, 1906)**

Campoplex crassiventris Cameron, 1906: 95, female.

Material examined. Holotype female, deposited in Iziko South African Museum (SAMC, Cape Town).

Diagnosis. Among the Afrotropical species of the genus, *Casinaria crassiventris* (Cameron, 1906) can be easily identified by the combined presence of the following characters: scapus, pedicellus, palpi and tegula blackish, mandible predominantly blackish, fore and middle legs except coxae predominantly reddish, hind femur blackish, hind tibia dark reddish brown without distinct basal yellowish spot, metasoma black, middle tergites extensively reddish, wings infuscate. Male unknown.

Distribution. South Africa.

***Casinaria granulicoxis* (Seyrig, 1935)**

Deltop granulicoxis Seyrig, 1935: 85, female.

Material examined. Holotype female, deposited in Muséum National d'Historie naturelle (MNHN, Paris). – Two females, S. Afr. [= South Africa], Natal, Royal Natal National Park, 7–11.IV.[19]51, leg. Brinck & Rudenbeck, Swedish South African Expedition 1950–1951, No. 271, Insect trap; specimens pinned, Id. No. MZLU-HYM 26372 deposited in MZLU (Lund), Id. No.

MZLU-HYM 26373 deposited in HNHM (Budapest, Id. No. HNHM-HYM 155184).

Diagnosis. Among the Afrotropical species of the genus, *Casinaria granulicoxis* (Seyrig, 1935) can be identified by the combined presence of the following characters: scapus and pedicellus entirely dark brown, mandible and tegula yellow, hind femur dark brown, hind tibia dark brown without yellowish basal spot, metasoma blackish to dark brown, laterally dark reddish brown. Male unknown.

Distribution. Kenya, South Africa.

Remarks. First record for South Africa.

***Casinaria kittenbergeri* sp. nov.**

(Figure 2)

Material examined. Holotype: female, Uganda, Mujenje, VII.1913, leg. [K.] Katona [= K. Kittenberger]; specimen pinned, Id. No. HNHM-HYM 155185. – Paratypes: one female and one male, same locality and collector, VIII.1913; specimens pinned, Id. No. HNHM-HYM 155186–155187, respectively. The holotype and paratype specimens are deposited in HNHM (Budapest).

Diagnosis. Among the Afrotropical species of the genus, *Casinaria kittenbergeri* sp. nov. can be readily identified by the combined presence of the following characters: body black except mandible subapically and apical two-third of third tergite reddish brown, middle and hind legs black to dark brown, dorsally all tibiae extensively ivory.

Description. Female (Fig. 2). Body length *ca.* 11 mm, fore wing length *ca.* 6 mm.

Head. Antenna with 48–50 flagellomeres; first flagellomere *ca.* 2.5× as long as wide apically; preapical flagellomeres longer than wide. Head transverse, matt, face rugose-punctate, gena granulate-punctate, and with dense, relatively long, silvery hairs. Ocular-ocellar distance 0.9× as long as ocellus diameter, posterior ocellar distance 1.9× as long as ocellus diameter. Inner eye orbits indented, about parallel. Gena moderately short,

roundly narrowed behind eye, in dorsal view *ca.* 0.4× as long as eye width. Occipital carina ventrally weakened, weakly bent out, reaching hypostomal carina at or little before base of mandible, hypostomal carina slightly elevated. Malar space very short, *ca.* 0.3× as long as basal width of mandible. Face weakly convex in profile, minimal width of face *ca.* 0.75× as long as eye length. Clypeus very weakly separated from face, almost flat in profile, relatively wide, its apical margin weakly convex, sharp, punctures stronger on clypeus than on other parts of head. Mandible relatively long, strong and wide, lower margin of mandible with relatively narrow flange from base toward teeth, flange gradually tapered toward teeth, mandibular teeth of equal length.

Mesosoma. Mesosoma relatively short, with dense, relatively long, silvery hairs. Dorsal half of pronotum granulate with superficial punctures, ventral half finely granulate with moderately strong transverse wrinkles; epomia distinct. Mesoscutum rugose-punctate, weakly convex in profile, little shorter than wide, notaulus not developed. Scuto-scutellar groove narrow. Scutellum rugose-punctate, wide, weakly convex, medially not impressed, lateral carina indistinct. Mesopleuron coarsely granulate to rugose with dense, distinct punctures on lower half and along anterior margin, with relatively weak transverse wrinkles above speculum; speculum granulate; mesopleural suture impressed with short, moderately strong transverse costae. Epicnemial carina complete, strong, pleural part bent to anterior margin of mesopleuron reaching it below its middle height, transversal part (*i.e.* the part at the level of sternaulus running through the epicnemium to the ventral edge of pronotum) not developed, ventral part (behind fore coxae) complete, slightly elevated. Sternaulus indistinct. Posterior transverse carina of mesosternum complete, little elevated, medially slightly and widely excised. Metanotum rugose-punctate, *ca.* 0.3× as long as scutellum. Metapleuron rugose-rugulose with superficial punctures; juxtacoxal carina indistinct; sub-metapleural carina complete, strong. Pleural carina of propodeum strong; propodeal spiracle strongly elongate, separated from pleural carina by about 0.2–0.3× its length. Propodeum in pro-

file roundly curved toward apex, rather long, its apex reaching beyond middle length of hind coxa, rather evenly and finely sculptured rugose-rugulose, medially distinctly and widely impressed; propodeal carinae indistinct except very short basal sections of lateromedian longitudinal carinae. Fore wing with petiolate, small areolet, *3rs-m* present, pigmented, second recurrent vein (*2m-cu*) at distal corner of areolet; distal part of distal abscissa of *Rs* rather strongly curved toward wing margin; nervulus (*cu-a*) interstitial to postfurcal by about its width; postnervulus (abscissa of *Cu1* between *1m-cu* and *Cu1a + Cu1b*) intercepted at about its middle by *Cu1a*; lower external angle of second discal cell acute. Hind wing with nervellus (*cu-a + abscissa of Cu1 between M and cu-a*) broken, weakly intercepted by discoidella (distal abscissa of *Cu1*) at about its lower 0.3–0.5, its anterior section vertical, posterior section reclinuous; discoidella spectral, proximally weakly connected to nervellus. Coxae granulate with superficial punctures. Hind femur relatively slender, *ca.* 5.5× as long as high. Inner spur of hind tibia *ca.* 0.70–0.75× as long as first tarsomere of hind tarsus. Tarsal claws relatively long, longer than arolium, basal half with distinct pecten.

Metasoma. Metasoma long, weakly compressed, very finely granulate to shagreened with moderately short, greyish hairs. First tergite long and slender, *ca.* 5.0× as long as width of its apical margin, 1.3× as long as second tergite, 1.2× as long as hind femur, without glymma; dorso-median carina of first tergite missing; postpetiolus bulging. Suture separating first tergite from first sternite situated strongly above mid-height at basal third of first metasomal segment. Second tergite long and slender, 2.5–2.7× as long as its apical width; thyridium small, short and oval, its distance from basal margin of tergite *ca.* 4.0× as long as its length, not connected to basal margin of tergite by a groove. Posterior margins of apical tergites medially slightly concave. Ovipositor sheath shorter than apical depth of metasoma; ovipositor moderately strong, straight, compressed, dorsal preapical notch distinct, lower valve gradually tapered to apex.

Colour. Antenna basally, including scapus and pedicellus, blackish, apical two-third dorsally

brown, ventrally light brownish. Head black, palpi brown to yellowish brown, mandible black, before teeth narrowly reddish brown, teeth dark reddish brown. Mesosoma, including tegula, black. Metasoma black, except apical two-third of third tergite reddish brown, sometimes basal 0.1–0.2 of fourth tergite also reddish brown; ovipositor sheath dark brown. Wings little infuscate, wing veins and pterostigma brown. Fore leg: coxa black; trochanter dark brown, apically narrowly yellowish brown; trochantellus dorsally brown, apically and ventrally yellowish brown; femur predominantly brown, basally darkened, apical half dorsally yellowish brown; tibia dorsally ivory, ventrally brownish; tarsus yellowish brown, apical tarsomeres brown. Middle leg: coxa and trochanter black; trochantellus and femur blackish; tibia dorsally ivory, ventrally and a narrow apical band dark brown; tibial spurs ivory; tarsus brown. Hind leg: coxa, trochanter, trochantellus and femur black; tibia blackish, dorsally ivory from base to half or two-third of its length; tibial spurs ivory; tarsus dark brown except extreme base of first tarsomere very narrowly reddish brown.

Male. Similar to female in all characters described above, except: ocular-ocellar distance $1.1\times$ as long as ocellus diameter, posterior ocellar distance $2.2\times$ as long as ocellus diameter; lower external angle of second discal cell almost right-angled; nervellus less distinctly broken, weakly intercepted at about its lower 0.2; inner spur of hind tibia $0.65\times$ as long as first tarsomere of hind tarsus; posterior margins of apical tergites straight; clasper narrow, rather thin, elongate rod-like, apically slightly widened and rounded.

Distribution. Uganda.

Etymology. This species is dedicated to the memory of its collector, Kálmán Kittenberger (1881–1958), in honour of his remarkable collecting activity for the Hungarian natural history collection.

Remarks. The general habitus of this species shows some superficial similarity to the closely related Oriental and Eastern Palaearctic genus

Scenocharops Uchida, 1932, but the medially impressed mesopleural suture and the lack of lateral flange on petiolus clearly distinguish it from *Scenocharops* species.

***Casinaria rubens* sp. nov.**

(Figure 3)

Material examined. Holotype: female, S. Afr. [= South Africa], Cape Prov., Cape Peninsula, Hout Bay, Skoorsteenkop, 26.XII.[19]50, leg. Brinck & Rudenbeck, Swedish South African Expedition 1950–1951, No. 95, Insect trap; specimen pinned, Id. No. MZLU-HYM 26377. – The holotype specimen is deposited in MZLU (Lund).

Diagnosis. Among the Afrotropical species of the genus, *Casinaria rubens* sp. nov. can be easily identified by the combined presence of the following characters: scapus and pedicellus ventrally yellowish brown, mandible and tegula pale yellow, metasoma basally extensively, from third tergite entirely reddish, all femora reddish, middle and hind tibiae reddish with distinct basal yellowish spots.

Description. Female (Fig. 3). Body length *ca.* 8 mm, fore wing length *ca.* 5 mm.

Head. Antenna with 34 flagellomeres; first flagellomere *ca.* $4.0\times$ as long as wide apically; preapical flagellomeres quadrate to slightly longer than wide. Head transverse, matt, face rugulose-punctate, gena granulate with superficial punctures, and with dense, greyish hairs. Ocular-ocellar distance $0.5\times$ as long as ocellus diameter, posterior ocellar distance $1.7\times$ as long as ocellus diameter. Inner eye orbits strongly indented, ventrally moderately convergent. Gena very short, very strongly narrowed behind eye, in lateral view ventrally widened. Occipital carina complete, slightly bent out ventrally, reaching hypostomal carina distinctly before base of mandible, hypostomal carina slightly elevated. Malar space $0.5\times$ as long as basal width of mandible. Face flat in profile, narrowed ventrally, minimal width of face *ca.* $0.6\times$ as long as eye length. Clypeus very weakly separated from face, almost flat in profile, small,

its apical margin weakly convex, sharp. Mandible short, wide, lower margin of mandible with rather wide flange from base toward teeth, flange abruptly narrowed at teeth, upper mandibular tooth slightly longer and wider than lower tooth.

Mesosoma. Mesosoma with dense, relatively short, greyish hairs. Pronotum granulate to finely rugose, ventral half with weak transverse wrinkles; epomia distinct. Mesoscutum rugose-punctate, convex in profile, $0.9\times$ as long as wide, notaulus not developed. Scuto-scutellar groove relatively wide. Scutellum rugose, partly rugose-punctate, convex, medially not impressed, lateral carina indistinct. Mesopleuron rugose-rugulose with dense, superficial punctures on lower half and along anterior margin, with few, weak transverse wrinkles above speculum; speculum granulate to finely granulate, ventrally subpolished; mesopleural suture impressed with short, moderately strong transverse costae. Epicnemial carina complete, strong, pleural part bent to anterior margin of mesopleuron reaching it at about its middle height, transversal part (*i.e.* the part at the level of sternaulus running through the epicnemium to the ventral edge of pronotum) not developed, ventral part (behind fore coxae) complete, not elevated. Sternaulus indistinct. Posterior transverse carina of mesosternum complete, medially not excised. Metanotum granulate-rugose, *ca.* $0.4\times$ as long as scutellum. Metapleuron rugose with superficial punctures; juxtacoxal carina indistinct; submetapleural carina complete, strong. Pleural carina of propodeum strong; propodeal spiracle oval, separated from pleural carina by *ca.* $0.75\times$ its length. Propodeum relatively short, its apex not reaching middle length of hind coxa, coarsely rugose, apical half medially only slightly impressed with moderately strong transverse wrinkles. Propodeal carinae partly developed: basal sections of lateromedian longitudinal carinae weak but discernible, apical sections obsolete; lateral longitudinal carinae strong; median section of anterior transverse carina strong, costula and lateral section indistinct; posterior transverse carina strong except median section indistinct. Fore wing with petiolate areolet, *3rs-m* present, pigmented, second recurrent vein (*2m-cu*) close to distal corner of areolet; distal abscissa of *Rs*

straight; nervulus (*cu-a*) postfurcal by $0.2\times$ its length; postnervulus (abscissa of *Cu1* between *1m-cu* and *Cu1a* + *Cu1b*) intercepted little above its middle by *Cu1a*; lower external angle of second discal cell acute. Hind wing with nervellus (*cu-a* + abscissa of *Cu1* between *M* and *cu-a*) about vertical, not intercepted by discoidella (distal abscissa of *Cu1*); discoidella spectral, proximally not connected to nervellus. Coxae granulate with weak, superficial punctures. Hind femur relatively stout, *ca.* $5.0\times$ as long as high. Inner spur of hind tibia *ca.* $0.7\times$ as long as first tarsomere of hind tarsus. Tarsal claws small and short, little longer than arolium, basal half with distinct pecten.

Metasoma. Metasoma compressed, relatively short, finely granulate to shagreened with short, greyish-brownish hairs. First tergite moderately long and slender, *ca.* $4.0\times$ as long as width of its apical margin, $1.3\times$ as long as second tergite, $0.9\times$ as long as hind femur, without glymma; dorsomedian carina of first tergite missing; postpetiolus bulging. Suture separating first tergite from first sternite situated at mid-height at basal third of first metasomal segment. Second tergite moderately long and slender, $2.0\times$ as long as its apical width; thyridium oval, its distance from basal margin of tergite about as long as its length, not connected to basal margin of tergite by a groove. Posterior margins of apical tergites medially slightly, almost indiscernibly concave. Ovipositor sheath shorter than apical depth of metasoma.

Colour. Antenna dark brown, scapus and pedicellus ventrally yellowish brown. Head black except palpi and mandible pale yellow, mandibular teeth reddish brown. Mesosoma black except tegula pale yellow. Metasoma: petiolus dark brown, apically reddish, postpetiolus reddish; second tergite reddish, its basal half and apical margin blackish; third and following tergites reddish; ovipositor sheath blackish. Wings subhyaline, wing veins and pterostigma brown. Fore leg: coxa dark brown, ventrally and apically yellowish brown; trochanter and trochantellus pale yellow; femur reddish; tibia reddish, dorsally yellowish; tarsus reddish, apical tarsomeres brownish. Middle leg: coxa blackish, ventrally and apically reddish brown; trochanter pale yellow.

low; trochantellus reddish brown; femur reddish; tibia reddish with distinct yellowish basal spot; tarsus brownish. Hind leg: coxa black; trochanter and trochantellus brown; femur reddish; tibia reddish with distinct yellowish basal spot; tarsus brown.

Male. Unknown.

Distribution. South Africa.

Etymology. The specific epithet *rubens* is a Latin one-termination participle treated as an adjective, meaning coloured or tinged with red; it refers to the colouration of metasoma and legs of the new species.

***Casinaria sellata* sp. nov.**

(Figure 4)

Material examined. Holotype: female, S. Afr. [= South Africa], Cape Prov., Cape Peninsula, Hout Bay, Skoorsteenkop, 14.II.[19]51, leg. Brinck & Rudenbeck, Swedish South African Expedition 1950–1951, No. 183, Insect trap; specimen pinned, Id. No. MZLU-HYM 26375. – Paratypes: male, same locality and collectors, 26.XII.[19]50, Swedish South African Expedition 1950–1951, No. 95, Insect trap; specimen card-mounted, Id. No. MZLU-HYM 26378; male, Kenya, Mt. Elgon Nat. P., SW ridge of Koroborte, Echinaceae bush, 3300m, 16.I.1992, leg. O. Merkl, No. 472, swept; specimen card-mounted, Id. No. HNHM-HYM 155188. The holotype and one paratype (MZLU-HYM 26378) are deposited in MZLU (Lund), and one paratype (HNHM-HYM 155188) is deposited in HNHM (Budapest).

Diagnosis. Among the Afrotropical species of the genus, *Casinaria sellata* sp. nov. can be easily identified by the combined presence of the following characters: scapus and pedicellus blackish, at least apical half of mandible yellowish, tegula yellow, metasoma blackish except apical half of third tergite and almost entire fourth tergite orange to yellowish brown, middle and hind femora reddish, hind tibia brown with distinct basal yellowish spot (female) or basally and externo-

medially yellowish, sub-basally, ventrally and apically brown (male).

Description. Female (Fig. 4). Body length *ca.* 7 mm, fore wing length *ca.* 4.5 mm.

Head. Antenna with 33 flagellomeres; first flagellomere *ca.* 3.5× as long as wide apically; preapical flagellomeres quadrate. Head transverse, matt, face rugulose with superficial punctures, gena granulate with weak punctures, and with dense, short, greyish hairs. Ocular-ocellar distance 0.7× as long as ocellus diameter, posterior ocellar distance 1.6× as long as ocellus diameter. Inner eye orbits strongly indented, ventrally moderately convergent. Gena very short, very strongly narrowed behind eye. Occipital carina complete, not bent out ventrally, reaching hypostomal carina little before base of mandible, hypostomal carina slightly elevated. Malar space 0.6× as long as basal width of mandible. Face flat in profile, narrowed ventrally, minimal width of face *ca.* 0.5× as long as eye length. Clypeus very weakly separated from face, almost flat in profile, small, its apical margin weakly convex, sharp. Mandible short, wide, lower margin of mandible with rather wide flange from base toward teeth, flange abruptly narrowed at teeth, upper mandibular tooth slightly longer and wider than lower tooth.

Mesosoma. Mesosoma relatively short, with dense, short, greyish hairs. Dorsal third of pronotum granulate to rugulose, ventral two-third finely granulate with moderately strong transverse wrinkles; epomia strong. Mesoscutum rugose-punctate, convex in profile, 0.9× as long as wide, notaulus not developed. Scuto-scutellar groove moderately wide. Scutellum rugose-punctate, convex, medially not impressed, lateral carina indistinct. Mesopleuron rugose with dense, superficial punctures on lower half and along anterior margin, with relatively weak transverse wrinkles above and anterior to speculum; speculum granulate; mesopleural suture impressed with short, strong transverse costae. Epicnemial carina complete, strong, pleural part bent to anterior margin of mesopleuron reaching it at about its middle height, transversal part (*i.e.* the part at the level of sternaulus running through the epicnemium to the

ventral edge of pronotum) not developed, ventral part (behind fore coxae) complete, slightly elevated. Sternaulus indistinct. Posterior transverse carina of mesosternum complete, medially not excised. Metanotum rugose-punctate, *ca.* 0.5× as long as scutellum. Metapleuron rugulose-rugose with superficial punctures; juxtacoxal carina indistinct; submetapleural carina complete, strong. Pleural carina of propodeum complete; propodeal spiracle oval, separated from pleural carina by *ca.* 0.5× its length. Propodeum long, its apex reaching little beyond middle length of hind coxa, rugose-rugulose, apical half medially narrowly, weakly impressed with relatively weak, short transverse wrinkles; propodeal carinae indistinct. Fore wing with petiolate areolet, stalk of areolet short, *3rs-m* present, pigmented, second recurrent vein (*2m-cu*) slightly distal to middle of areolet; distal abscissa of *Rs* straight; nervulus (*cu-a*) postfurcal by about its width; postnervulus (abscissa of *Cu1* between *1m-cu* and *Cu1a + Cu1b*) intercepted at about its middle by *Cu1a*; lower external angle of second discal cell acute. Hind wing with nervellus (*cu-a* + abscissa of *Cu1* between *M* and *cu-a*) reclivous, not intercepted by discoidella (distal abscissa of *Cu1*); discoidella spectral, proximally not connected to nervellus. Coxae granulate with superficial punctures. Hind femur slender, *ca.* 5.5× as long as high. Inner spur of hind tibia *ca.* 0.7× as long as first tarsomere of hind tarsus. Tarsal claws small and short, about as long as arolium, basal half with small pecten.

Metasoma. Metasoma compressed, conspicuously elongate, finely granulate to shagreened with short, greyish hairs. First tergite rather long and slender, *ca.* 5.5× as long as width of its apical margin, 1.1× as long as second tergite, 1.0× as long as hind femur, without glymma; dorso-median carina of first tergite missing; postpetiolus moderately bulging. Suture separating first tergite from first sternite situated strongly above mid-height at basal third of first metasomal segment. Second tergite rather long and slender, 3.3× as long as its apical width; thyridium large, elongate oval, deep, its distance from basal margin of tergite *ca.* 3.0× as long as its length, not connected to basal margin of tergite by a groove. Posterior margins of third and following tergites medially

slightly, almost indiscernibly concave. Ovipositor sheath shorter than apical depth of metasoma.

Colour. Antenna, including scapus and pedicellus, blackish to dark brown. Head black except palpi yellow, apical half of mandible brownish yellow, mandibular teeth reddish brown. Mesosoma black except tegula yellow. Metasoma blackish except apical half of third tergite and almost entire fourth tergite orange; ovipositor sheath blackish. Wings hyaline, wing veins and pterostigma brown. Fore leg: coxa black; trochanter brown; trochantellus brownish yellow; femur dark reddish yellow; tibia light reddish yellow, dorsally pale yellow; tarsus light reddish yellow, apical tarsomeres brownish. Middle leg: coxa black; trochanter dark brown; trochantellus brownish yellow; femur reddish; tibia reddish, dorsally pale yellowish; tarsus reddish brown. Hind leg: coxa black; trochanter blackish; trochantellus brownish to yellowish; femur reddish; tibia brown with distinct basal yellowish spot; tarsus brown except extreme base of first tarsomere narrowly yellowish brown.

Male. Similar to female in all characters described above, except: antenna with 31–33 flagellomeres; first flagellomere *ca.* 2.5× as long as wide; ocular-ocellar distance 0.9× as long as ocellus diameter, posterior ocellar distance 1.8× as long as ocellus diameter; malar space 0.7–0.8× as long as basal width of mandible; minimal width of face *ca.* 0.6× as long as eye length; hind femur *ca.* 5.0× as long as high; first tergite about as long as second tergite, 1.0–1.1× as long as hind femur; second tergite 3.0–4.0× as long as its apical width; clasper broad, apically rounded; mandible predominantly yellowish; apical half of third tergite and fourth tergite orange to yellowish brown; all trochantelli predominantly yellowish; fore and middle tarsi yellowish, apical tarsomeres brownish; hind femur apically darkened; hind tibia basally and externo-medially pale yellow, sub-basally, ventrally and apically brown.

Distribution. South Africa, Kenya.

Etymology. The specific epithet *sellata* is the feminine form of the Latin adjective *sellatus*, *-a*, *-um* meaning saddled; it refers to the colouration of metasoma of the new species.



Figures 1–4. Holotypes of new Afrotropical *Casinaria* species. 1 = *Casinaria castanea* sp. nov., 2 = *Casinaria kittenbergeri* sp. nov., 3 = *Casinaria rubens* sp. nov., 4 = *Casinaria sellata* sp. nov. (scale bars = 1 mm)

Identification key to the Afrotropical *Casinaria* species

An identification key to the currently known Afrotropical *Casinaria* species is provided below. It should be considered preliminary and used with caution, as it is principally based on type materials, hence the intraspecific variability is little understood, and most probably several yet undescribed species occur in the region.

1. Tegula black 2
 – Tegula yellow 3
2. Middle legs except coxae predominantly reddish, hind femur blackish, hind tibia dark reddish brown without distinct basal yellowish spot
 *Casinaria crassiventris* (Cameron, 1906)
 – Middle and hind legs blackish, tibiae dorsally extensively ivory *Casinaria kittenbergeri* sp. nov.

3. Metasoma from third tergite entirely reddish, basal tergites extensively reddish *Casinaria rubens* sp. nov.
 – Metasoma predominantly black to brown 4
4. Hind femur reddish, metasoma blackish except apical half of third tergite and almost entire fourth tergite orange to yellowish brown
 *Casinaria sellata* sp. nov.
 – Hind femur dark reddish brown to dark brown, metasoma either blackish to dark brown, laterally dark reddish brown or from third tergite predominantly chestnut-brown 5
5. Scapus and pedicellus entirely dark brown, metasoma blackish to dark brown, laterally dark reddish brown, hind femur dark brown, hind tibia dark brown without yellowish basal spot
 *Casinaria granulicoxis* (Seyrig, 1935)
 – Scapus and pedicellus ventrally yellowish, metasoma from third tergite predominantly chestnut-brown, hind femur dark reddish brown, hind tibia chestnut-brown with distinct basal yellowish spot
 *Casinaria castanea* sp. nov.

AUSTRALASIAN REGION

Prior to this study, 11 *Casinaria* species were known from the Australasian region (Yu *et al.* 2012). A new species from Papua New Guinea is described here.

Casinaria papuensis sp. nov.

(Figure 5)

Material examined. Holotype: female, [Papua] New Guinea, Wau, 20.IX.1972, leg. L. Móczár, M.cs. [= Malaise-trap]; specimen pinned, Id. No. HNHM-HYM 155189. – The holotype specimen is deposited in HNHM (Budapest).

Diagnosis. Among the Australasian species of the genus, *Casinaria papuensis* sp. nov. can be easily identified by the combined presence of the following characters: propodeum elongate, its apex reaching beyond middle length of hind coxa, propodeal carinae indistinct, scutellum convex, medially not impressed, without lateral carina, speculum large, smooth, first metasomal segment long, not modified, ovipositor straight, scapus predominantly brownish yellow, mandible black, apical half reddish brown, mesosoma black except tegula brownish yellow, first tergite black, apically reddish brown, second tergite black with a subapical reddish band, third, fourth and fifth tergite dorsally blackish, laterally orange to reddish, apical tergites blackish, fore and middle femora orange, hind femur reddish, hind tibia brown, externo-medially dark reddish brown, basal yellowish spot present but indistinct.

Description. Female (Fig. 5). Body length *ca.* 12.5 mm, fore wing length *ca.* 8 mm.

Head. Antenna with 39 flagellomeres; first flagellomere *ca.* 3.0× as long as wide apically; preapical flagellomeres slightly longer than wide. Head transverse, matt, face rugose-punctate, vertex coarsely granulate, gena granulate with weak punctures, and with dense, relatively long, greyish hairs. Ocular-ocellar distance 0.6× as long as ocellus diameter, posterior ocellar distance 1.5× as long as ocellus diameter. Inner eye orbits strongly indented, ventrally moderately convergent. Gena

very short, very strongly narrowed behind eye. Occipital carina complete, not bent out ventrally, reaching hypostomal carina little before base of mandible, hypostomal carina slightly elevated. Malar space very short, 0.3× as long as basal width of mandible. Face almost flat in profile, narrowed ventrally, minimal width of face *ca.* 0.55× as long as eye length. Clypeus very weakly separated from face, slightly convex in profile, relatively wide, its apical margin weakly convex and moderately sharp. Mandible short, wide, lower margin of mandible with rather wide flange from base toward teeth, flange moderately abruptly, obliquely narrowed at teeth, upper mandibular tooth slightly longer and wider than lower tooth.

Mesosoma. Mesosoma with dense, moderately long, greyish hairs. Pronotum with strong transverse wrinkles almost on its entire length, along dorsal edge and hind corner rugulose; epomia strong. Mesoscutum coarsely rugose-punctate, convex in profile, 0.9× as long as wide, notaulus not developed. Scuto-scutellar groove wide and deep. Scutellum rugose-punctate, convex, medially not impressed, lateral carina indistinct. Mesopleuron coarsely rugose with dense punctures on lower half and along anterior margin, with strong transverse wrinkles above and anterior to speculum; speculum large, smooth and shiny; mesopleural suture impressed with short, moderately strong transverse costae. Epicnemial carina complete, strong, pleural part bent to anterior margin of mesopleuron reaching it below its middle height, transversal part (*i.e.* the part at the level of sternaulus running through the epicnemium to the ventral edge of pronotum) not developed, ventral part (behind fore coxae) complete, slightly elevated. Sternaulus indistinct. Posterior transverse carina of mesosternum complete, distinctly elevated, medially widely, shallowly excised. Metanotum rugulose-punctate, *ca.* 0.35× as long as scutellum. Metapleuron rugose-punctate; juxta-coxal carina indistinct; submetapleural carina complete, strong. Pleural carina of propodeum complete; propodeal spiracle oval, separated from pleural carina by *ca.* 0.6–0.7× its length, connected to pleural carina by a distinct ridge. Propodeum long, its apex reaching little beyond middle

length of hind coxa, rugose-rugulose, medially distinctly, moderately widely impressed with short transverse wrinkles; propodeal carinae indistinct. Fore wing with petiolate areolet, *3rs-m* present, pigmented, second recurrent vein (*2m-cu*) close to distal corner of areolet; distal abscissa of *Rs* straight; nervulus (*cu-a*) postfurcal by about its width; postnervulus (abscissa of *Cu1* between *1m-cu* and *Cu1a* + *Cu1b*) intercepted at about its middle by *Cu1a*; lower external angle of second discal cell acute. Hind wing with nervellus (*cu-a* + abscissa of *Cu1* between *M* and *cu-a*) reclivous, not intercepted by discoidella (distal abscissa of *Cu1*); discoidella spectral, proximally not connected to nervellus. Coxae granulate with superficial punctures. Hind femur slender, *ca.* 5.5× as long as high. Inner spur of hind tibia *ca.* 0.6× as long as first tarsomere of hind tarsus. Tarsal claws little longer than arolium, entire lengths with distinct, strong pecten.

Metasoma. Metasoma compressed, finely granulate to shagreened with short, greyish-brown hairs. First tergite rather long and slender, *ca.* 5.0× as long as width of its apical margin, 1.1× as long as second tergite, 1.1× as long as hind femur, without glymma; dorsomedian carina of first tergite missing; postpetiolus bulging. Suture separating first tergite from first sternite situated little above mid-height at basal third of first metasomal segment. Second tergite rather long and slender, 3.5× as long as its apical width; thyridium large, oval, its distance from basal margin of tergite *ca.* 3.0× as long as its length, not connected to basal margin of tergite by a groove. Posterior margins of third and following tergites medially distinctly, widely concave, seventh tergite medially strongly excised. Ovipositor sheath shorter than apical depth of metasoma; ovipositor strong, straight, compressed, dorsal preapical notch distinct, lower valve obliquely tapered to apex.

Colour. Antenna dark brown, scapus predominantly brownish yellow. Head black except palpi yellow, apical half of mandible reddish brown, mandibular teeth blackish. Mesosoma black except tegula brownish yellow. Metasoma: first tergite black, postpetiolus apically reddish brown; second tergite black with a subapical reddish band; third, fourth and fifth tergite dorsally blackish, laterally orange to reddish; following tergites

predominantly blackish; ovipositor sheath blackish. Wings little infusate, wing veins and pterostigma brown. Fore and middle legs: coxae black; trochanters reddish brown; trochantelli brownish yellow; femora orange; tibiae orange, dorsally yellowish; tarsi light reddish yellow, apical tarsomeres brownish. Hind leg: coxa black; trochanter blackish; trochantellus reddish; femur reddish, apically brown; tibia brown, externo-medially dark reddish brown, basal yellowish spot present but indistinct, small; tarsus brown except extreme base of first tarsomere narrowly yellowish brown.

Male. Unknown.

Distribution. Papua New Guinea.

Etymology. The specific epithet *papuensis* is the feminine form of the Latin adjective *papuensis*, *-is*, *-e* meaning Papuan.

Remarks. By using the identification key in Jerman & Gauld (1988), the new species keys out with the Australian species, *Casinaria hesperio-phaga* Jerman et Gauld, 1988, but without matching its characteristics given in the key; this species can be readily distinguished from the new species by its small speculum, distinctly upcurved ovipositor, and different colouration of legs and metasoma.

ORIENTAL REGION

Prior to this study, 33 *Casinaria* species were known from the Oriental region (Yu *et al.* 2012). Three new species from Taiwan are described here.

Casinaria coloratilis sp. nov.

(Figure 6)

Material examined. Holotype: female, Formosa [= Taiwan], Mt. Hoozan, I.1910, leg. [H.] Sauter; specimen pinned, apices of antennae broken, Id. No. HNHM-HYM 155190. The holotype specimen is deposited in HNHM (Budapest).

Diagnosis. Among the Oriental species of the genus, *Casinaria coloratilis* sp. nov. could be

easily identified by the combined presence of the following characters: malar space $0.5\times$ as long as basal width of mandible, nervulus strongly post-furcal, propodeum medially distinctly impressed, propodeal carinae partly developed, first tergite little shorter than hind femur, apex of propodeum not reaching beyond middle length of hind coxa, thyridium connected to basal margin of second tergite by a weak, superficial groove, scapus and pedicellus ventrally brownish yellow, mandible yellow, tegula yellow to brownish yellow, wings infusate, metasoma black with third and fourth tergites extensively dark reddish brown, fore and middle femora and tibiae reddish yellow to light reddish, hind femur chestnut-brown, hind tibia brown, externo-medially somewhat lighter, basal yellowish spot present, small.

Description. Female (Fig. 6). Body length *ca.* 7.5 mm, fore wing length *ca.* 5.5 mm.

Head. First flagellomere *ca.* $3.5\times$ as long as wide apically. Head transverse, matt, face rugulose with superficial punctures, gena granulate with weak punctures, and with dense, relatively short, greyish hairs. Ocular-ocellar distance $0.5\times$ as long as ocellus diameter, posterior ocellar distance $1.2\times$ as long as ocellus diameter. Inner eye orbits strongly indented, ventrally moderately convergent. Gena very short, very strongly narrowed behind eye. Occipital carina complete, bent out ventrally, reaching hypostomal carina at base of mandible, hypostomal carina slightly elevated. Malar space $0.5\times$ as long as basal width of mandible. Face flat in profile, narrowed ventrally, minimal width of face *ca.* $0.6\times$ as long as eye length. Clypeus very weakly separated from face, slightly convex in profile, its apical margin weakly convex and moderately sharp. Mandible short, wide, lower margin of mandible with rather wide flange from base toward teeth, flange abruptly narrowed at teeth, mandibular teeth of equal length.

Mesosoma. Mesosoma with dense, short, greyish hairs. Dorsal third of pronotum granulate, ventral two-third finely granulate to smooth with moderately strong transverse wrinkles; epomia strong. Mesoscutum rugulose-punctate, convex in profile, about as long as wide, notaulus not

developed. Scuto-scutellar groove wide and deep. Scutellum rugose-punctate, convex, medially not impressed, lateral carina indistinct. Mesopleuron rugose-rugulose with dense, weak punctures on lower half and along anterior margin, with distinct transverse wrinkles above and anterior to speculum; speculum very finely granulate, subpolished, in the middle smooth, shiny; mesopleural suture impressed with short, moderately strong transverse costae. Epicnemial carina complete, strong, pleural part bent to anterior margin of mesopleuron reaching it below its middle height, transversal part (*i.e.* the part at the level of sternaulus running through the epicnemium to the ventral edge of pronotum) not developed, ventral part (behind fore coxae) complete, not elevated. Sternaulus indistinct. Posterior transverse carina of mesosternum complete, little elevated, medially not excised. Metanotum rugulose-punctate, *ca.* $0.4\times$ as long as scutellum. Metapleuron rugulose with superficial punctures; juxtacoxal carina indistinct; submetapleural carina complete, strong. Pleural carina of propodeum complete; propodeal spiracle oval, separated from pleural carina by *ca.* $0.7\times$ its length. Propodeum long, its apex reaching about middle length of hind coxa, rugose-rugulose, medially distinctly, moderately widely impressed with short transverse wrinkles. Propodeal carinae mostly indistinct except short basal sections of lateromedian longitudinal carinae, median section of anterior transverse carina running conspicuously close to base of propodeum, and lateral sections of posterior transverse carina. Fore wing with petiolate areolet, stalk of areolet short, *3rs-m* present, pigmented, second recurrent vein (*2m-cu*) close to distal corner of areolet; distal abscissa of *Rs* straight; nervulus (*cu-a*) postfurcal by *ca.* $0.2\times$ its length; postnervulus (abscissa of *Cu1* between *1m-cu* and *Cu1a + Cu1b*) intercepted at about its middle by *Cu1a*; lower external angle of second discal cell weakly acute. Hind wing with nervellus (*cu-a + abscissa of Cu1 between M and cu-a*) weakly reclivous, not intercepted by discoidella (distal abscissa of *Cu1*); discoidella spectral, proximally not connected to nervellus. Coxae granulate with superficial punctures. Hind femur relatively stout, *ca.* $5.0\times$ as long as high. Inner spur of hind tibia

ca. 0.6× as long as first tarsomere of hind tarsus. Tarsal claws little longer than arolium, basal two-third with distinct pecten.

Metasoma. Metasoma weakly compressed, finely granulate to shagreened with short, greyish-brownish hairs. First tergite relatively stout, ca. 4.7× as long as width of its apical margin, 1.2× as long as second tergite, 0.9× as long as hind femur, without glymma; dorsomedian carina of first tergite missing; postpetiolus strongly bulging. Suture separating first tergite from first sternite situated distinctly above mid-height at basal third of first metasomal segment. Second tergite moderately long and slender, 2.0× as long as its apical width; thyridium large, oval, its distance from basal margin of tergite ca. 1.5× as long as its length, connected to basal margin of tergite by a weak, superficial groove. Posterior margins of third and following tergites straight. Ovipositor sheath subequal to apical depth of metasoma; ovipositor strong, straight, compressed, dorsal preapical notch deep, lower valve obliquely tapered to apex.

Colour. Antenna dark brown, scapus and pedicellus ventrally brownish yellow. Head black except palpi and mandible yellow, mandibular teeth reddish brown. Mesosoma black except tegula yellow to brownish yellow. Metasoma black except subapical band of second tergite, apical half of third tergite laterally, and fourth tergite laterally dark reddish brown; ovipositor sheath dark brown. Wings infusate, brownish, wing veins and pterostigma brown. Fore and middle legs: coxae black, apically yellowish; trochanters and trochantelli yellowish; femora and tibiae reddish yellow to light reddish; tarsi brownish yellow to brownish, apical tarsomeres brown. Hind leg: coxa black, apically narrowly yellowish; trochanter blackish; trochantellus yellowish; femur chestnut-brown; tibia brown, externo-medially somewhat lighter, basal yellowish spot present, small; tarsus dark brown except extreme base of first tarsomere narrowly yellowish brown.

Male. Unknown.

Distribution. Taiwan.

Etymology. The specific epithet *coloratilis* is the feminine form of the Latin adjective *color-*

atilis, *-is*, *-e* meaning brown, tanned; it refers to the colouration of metasoma and hind legs of the new species.

Remarks. By using the identification key in Gupta & Maheshwary (1977), the new species runs to the species of *C. infesta* species group sensu Gupta & Maheshwary (1977), but without complete match to the character combinations given in the couplets. The new species is somewhat similar to *Casinaria simillima* Maheshwary et Gupta, 1977, and *Casinaria tikari* Maheshwary et Gupta, 1977; the former species could be distinguished from the new species by its following characteristics: posterior ocellar distance longer (1.7× as long as ocellus diameter), posterior transverse carina of mesosternum medially distinctly excised, nervulus slightly postfurcal, propodeum dorsally flat, thyridium not connected to basal margin of second tergite by a groove, scapus and pedicellus blackish, hind femur reddish; while the latter species could be readily distinguished by its semicircular rugosity on face, blackish tegula and hind femur.

***Casinaria russea* sp. nov.**

(Figure 7)

Material examined. Holotype: female, Formosa [= Taiwan], Mt. Hoozan, I.1910, leg. [H.] Sauter; specimen pinned, Id. No. HNHM-HYM 155191. The holotype specimen is deposited in HNHM (Budapest).

Diagnosis. Among the Oriental species of the genus, *Casinaria russea* sp. nov. could be easily identified by the combined presence of the following characters: malar space 0.45× as long as basal width of mandible, nervulus strongly postfurcal, propodeum medially widely, shallowly impressed, propodeal carinae partly developed, first tergite slightly shorter than hind femur, apex of propodeum not reaching middle length of hind coxa, thyridium connected to basal margin of second tergite by a weak groove, scapus and pedicellus dark brown, mandible black, apical half brownish yellow, tegula brownish yellow, wings weakly infusate, metasoma reddish except first

tergite black, fore femur yellowish brown, apically narrowly yellowish, middle femur dark brown, basally and apically narrowly yellowish, hind femur dark brown, hind tibia sub-basally, ventrally and apically brown, basally and externo-medially brownish yellow.

Description. Female (Fig. 7). Body length ca. 8 mm, fore wing length ca. 5.5 mm.

Head. Antenna with 35 flagellomeres; first flagellomere ca. $3.0\times$ as long as wide apically; preapical flagellomeres quadrate. Head transverse, matt, face rugose, gena granulate with weak punctures, and with dense, moderately long, greyish hairs. Ocular-ocellar distance $0.8\times$ as long as ocellus diameter, posterior ocellar distance $1.4\times$ as long as ocellus diameter. Inner eye orbits strongly indented, ventrally weakly convergent. Gena very short, in dorsal view very strongly narrowed behind eye. Occipital carina complete, weakened and not bent out ventrally, reaching hypostomal carina little before base of mandible, hypostomal carina slightly elevated. Malar space $0.45\times$ as long as basal width of mandible. Face flat in profile, weakly narrowed ventrally, minimal width of face ca. $0.6\times$ as long as eye length. Clypeus very weakly separated from face, almost flat in profile, its apical margin weakly convex, sharp. Mandible moderately short, lower margin of mandible with rather wide flange from base toward teeth, flange moderately abruptly, obliquely narrowed at teeth, mandibular teeth of about equal length.

Mesosoma. Mesosoma with dense, moderately short, greyish hairs. Dorsal third of pronotum granulate to rugose, ventral two-third finely granulate with moderately strong transverse wrinkles; epomia strong. Mesoscutum rugose-punctate, convex in profile, ca. $0.9\times$ long as wide, notaulus not developed. Scuto-scutellar groove wide and deep. Scutellum rugose-punctate, convex, medially not impressed, lateral carina indistinct. Mesopleuron coarsely rugose with weak, indistinct punctures on lower half and along anterior margin, with weak, dense transverse wrinkles above and anterior to speculum; anterior half of speculum matt with rather dense, fine transverse wrinkles, posterior half abruptly smooth and

shiny; mesopleural suture impressed with short, moderately strong transverse costae. Epicnemial carina complete, strong, pleural part bent to anterior margin of mesopleuron reaching it below its middle height, transversal part (*i.e.* the part at the level of sternaulus running through the epinemium to the ventral edge of pronotum) not developed, ventral part (behind fore coxae) complete, not elevated. Sternaulus indistinct. Posterior transverse carina of mesosternum complete, little elevated, medially not excised. Metanotum rugose-punctate, ca. $0.4\times$ as long as scutellum. Metapleuron coarsely rugose; juxtacoxal carina indistinct; submetapleural carina complete, strong. Pleural carina of propodeum complete; propodeal spiracle small, elongate oval, separated from pleural carina by ca. $0.6\times$ its length, connected to pleural carina by a distinct ridge. Propodeum moderately long, its apex not reaching middle length of hind coxa, rugose-reticulate, medially widely, shallowly impressed. Propodeal carinae mostly indistinct except median section of anterior transverse carina running conspicuously close to base of propodeum, and lateral sections of posterior transverse carina weakly discernible. Fore wing with petiolate, small areolet, *3rs-m* present, pigmented, second recurrent vein (*2m-cu*) at distal corner of areolet; distal abscissa of *Rs* straight; nervulus (*cu-a*) postfurcal by ca. $0.2\times$ its length; postnervulus (abscissa of *Cu1* between *1m-cu* and *Cu1a + Cu1b*) intercepted at about its middle by *Cu1a*; lower external angle of second discal cell acute. Hind wing with nervellus (*cu-a + abscissa of Cu1 between M and cu-a*) vertical, not intercepted by discoidella (distal abscissa of *Cu1*); discoidella spectral, proximally not connected to nervellus. Coxae granulate with superficial, weak punctures. Hind femur relatively stout, ca. $4.5\times$ as long as high. Inner spur of hind tibia ca. $0.75\times$ as long as first tarsomere of hind tarsus. Tarsal claws little longer than arolium, basal two-third with distinct pecten.

Metasoma. Metasoma moderately compressed, finely granulate to shagreened with short, greyish-brownish hairs. First tergite relatively stout, ca. $4.0\times$ as long as width of its apical margin, $1.25\times$ as long as second tergite, ca. $0.95\times$ as long as hind femur, without glymma; dorsomedian carina

of first tergite missing; postpetiolus bulging. Suture separating first tergite from first sternite situated little above mid-height at basal third of first metasomal segment. Second tergite moderately long and slender, $2.0\times$ as long as its apical width; thyridium pear-shaped, weak and shallow, its distance from basal margin of tergite *ca.* $1.5\times$ as long as its length, connected to basal margin of tergite by a weak groove. Posterior margins of third and following tergites medially slightly concave. Ovipositor sheath shorter than apical depth of metasoma; ovipositor strong, straight, compressed, dorsal preapical notch deep, lower valve gradually tapered to apex.

Colour. Antenna dark brown, apical margin of scapus very narrowly yellowish brown. Head black except palpi yellowish and apical half of mandible brownish yellow, mandibular teeth dark reddish brown. Mesosoma black except tegula brownish yellow. Metasoma reddish except first tergite black, postpetiolus apically narrowly brownish; ovipositor sheath dark brown. Wings weakly infuscate, wing veins and pterostigma brown. Fore leg: coxa black; trochanter dark brown; trochantellus brown; femur yellowish brown, apically narrowly yellowish; tibia reddish yellow, dorsally yellowish; tarsus reddish yellow, apical tarsomere brownish. Middle leg: coxa black; trochanter dark brown; trochantellus brown; femur dark brown, basally and apically narrowly yellowish; tibia reddish yellow, dorsally extensively yellowish; tarsus reddish yellow, apical tarsomere brownish. Hind leg: coxa black; trochanter blackish; trochantellus brown; femur dark brown; tibia sub-basally, ventrally and apically brown, basally and externo-medially brownish yellow; tarsus brown.

Male. Unknown.

Distribution. Taiwan.

Etymology. The specific epithet *russea* is the feminine form of the Latin adjective *russeus*, *-a*, *-um* meaning reddish; it refers to the colouration of metasoma of the new species.

Remarks. By using the identification key in Gupta & Maheshwary (1977), the new species runs to the species of *C. infesta* species group sen-

su Gupta & Maheshwary (1977), but without complete match to the character combinations given in the couplets. The new species is most similar to *Casinaria buddha* Maheshwary et Gupta, 1977; this species could be readily distinguished from the new species by its following characteristics: malar space $0.35\times$ as long as basal width of mandible, mandible without a distinct ventral flange, propodeal spiracle large, circular, areolet large, short-stalked, *2m-cu* slightly distal to middle of areolet, scapus ventrally yellowish, tegula black, middle femur basally dark brown, apically yellowish brown, hind femur black, hind tibia basally and apically blackish, externo-medially reddish.

***Casinaria vesca* sp. nov.**

(Figure 8)

Material examined. Holotype: female, Formosa [= Taiwan], Mt. Hoozan, I.1910, leg. [H.] Sauter; specimen pinned, Id. No. HNHM-HYM 155192. The holotype specimen is deposited in HNHM (Budapest).

Diagnosis. Among the Oriental species of the genus, *Casinaria vesca* sp. nov. could be easily identified by the combined presence of the following characters: antenna conspicuously long and slender, posterior ocellar distance little longer than ocular-ocellar distance, gena short, weakly narrowed behind eye, malar space $0.4\times$ as long as basal width of mandible, nervulus slightly post-furcal, proximal abscissa of *Cu1a* $1.6\times$ as long as distal abscissa of *Cu1a*, nervellus intercepted, propodeum mostly rugulose-rugose, propodeal carinae more or less distinctly developed, anterior transverse carina not running conspicuously close to base of propodeum, area basalis trapezoidal, little longer than its basal width, metasomal segments not constricted at joints, first tergite as long as second tergite, shorter than hind femur, scapus and pedicellus ventrally, mandible and tegula yellow, metasoma black, middle tergites extensively orange, fore and middle legs including coxae yellowish, hind coxa brown, hind femur light reddish yellow, hind tibia sub-basally and apically brown, medially yellowish brown, basally with small yellowish spot.

Description. Female (Fig. 8). Body length *ca.* 6 mm, fore wing length *ca.* 4 mm.

Head. Antenna conspicuously long and slender, with 35 flagellomeres; first flagellomere rather slender, *ca.* 4.0× as long as wide apically; pre-apical flagellomeres quadrate to slightly longer than wide. Head transverse, matt, face granulate-rugulose, gena granulate with weak punctures, and with dense, moderately long, greyish hairs. Ocular-ocellar distance 0.8–0.9× as long as ocellus diameter, posterior ocellar distance 1.1× as long as ocellus diameter. Inner eye orbits distinctly indented, ventrally weakly convergent. Gena very short, in dorsal view relatively weakly narrowed behind eye. Occipital carina complete, strongly bent out ventrally, reaching hypostomal carina at base of mandible, hypostomal carina elevated. Malar space 0.4× as long as basal width of mandible. Face flat in profile, weakly narrowed ventrally, minimal width of face *ca.* 0.6× as long as eye length. Clypeus very weakly separated from face, flat in profile, its apical margin medially straight, laterally convex, sharp. Mandible relatively long, lower margin of mandible with conspicuously wide flange from base toward teeth, flange moderately abruptly, obliquely narrowed before teeth, mandibular teeth of about equal length.

Mesosoma. Mesosoma with dense, short, greyish hairs. Dorsal third of pronotum granulate, ventral two-third finely granulate with moderately strong transverse wrinkles; epomia distinct. Mesoscutum rugulose-punctate, convex in profile, about as long as wide, notaulus not developed. Scuto-scutellar groove wide and moderately deep. Scutellum granulate-rugulose, convex, medially not impressed, lateral carina indistinct. Mesopleuron granulate, punctures indistinct, with weak, irregular wrinkles above and anterior to speculum; speculum finely granulate, matt; mesopleural suture impressed with short, strong transverse costae. Epicnemial carina complete, strong, pleural part bent to anterior margin of mesopleuron reaching it below its middle height, transversal part (*i.e.* the part at the level of sternaulus running through the epicnemium to the ventral edge of pronotum) not developed, ventral part (behind fore coxae) complete, slightly elevated. Sterna-

ulus indistinct. Posterior transverse carina of mesosternum complete, distinctly elevated, medially not excised. Metanotum granulate-rugulose, *ca.* 0.4× as long as scutellum. Metapleuron granulate-rugulose; juxtacoxal carina indistinct; submeta-pleural carina complete, strong. Pleural carina of propodeum complete; propodeal spiracle small, elongate oval, separated from pleural carina by *ca.* 0.5× its length, connected to pleural carina by a weak ridge. Propodeum long, its apex reaching about middle length of hind coxa, granulate to rugulose-rugose, medially moderately widely, shallowly impressed, area supermedia and area petiolaris with strong transverse wrinkles, area basalis trapezoidal, little longer than its basal width. Propodeal carinae more or less distinctly developed: lateromedian longitudinal carinae distinct, apically weakened, lateral longitudinal carinae obsolescent except short basal sections, anterior transverse carina strongly developed, not running conspicuously close to base of propodeum, and lateral sections of posterior transverse carina discernible. Fore wing with relatively large, short-stalked areolet, *3rs-m* present, pigmented, second recurrent vein (*2m-cu*) little distal to middle of areolet; distal abscissa of *Rs* straight; nervulus (*cu-a*) slightly postfurcal; postnervulus (abscissa of *Cu1* between *1m-cu* and *Cu1a* + *Cu1b*) intercepted at about its middle by *Cu1a*; lower external angle of second discal cell acute, proximal abscissa of *Cu1a* 1.6× as long as distal abscissa of *Cu1a*. Hind wing with nervellus (*cu-a* + abscissa of *Cu1* between *M* and *cu-a*) about vertical, intercepted by discoidella (distal abscissa of *Cu1*) little below its middle; discoidella spectral, proximally connected to nervellus. Coxae finely granulate. Hind femur relatively stout, *ca.* 5.0× as long as high. Inner spur of hind tibia *ca.* 0.6× as long as first tarsomere of hind tarsus. Tarsal claws thin and short, about as long as arolium, basally with small, indistinct pecten.

Metasoma. Metasoma weakly compressed, finely granulate to shagreened with short, greyish-brownish hairs, segments not constricted at joints. First tergite relatively stout, *ca.* 4.0× as long as width of its apical margin, as long as second tergite, *ca.* 0.85× as long as hind femur, without glymma; dorsomedian carina of first tergite miss-

ing; postpetiolus bulging. Suture separating first tergite from first sternite situated distinctly above mid-height at basal third of first metasomal segment. Second tergite moderately long and slender, 2.5× as long as its apical width; thyridium elongate oval, its distance from basal margin of tergite ca. 2.0× as long as its length, connected to basal margin of tergite by a rather weak, superficial groove. Posterior margins of third and following tergites straight, seventh tergite medially weakly concave. Ovipositor sheath shorter than apical depth of metasoma; ovipositor strong, straight, compressed, dorsal preapical notch deep, lower valve gradually tapered to apex.

Colour. Antenna brown, scapus and pedicellus ventrally yellow. Head black except palpi pale yellow and mandible yellow, mandibular teeth brownish. Mesosoma black except tegula pale yellow. Metasoma: first tergite black; second tergite black with orange subapical band; basal half of third tergite blackish, apical half orange; fourth and fifth tergites dorsally with blackish, triangle-shaped, large patches, laterally and apically orange; sixth tergite dorsally blackish, laterally reddish brown; seventh tergite blackish; ovipositor sheath dark brown. Wings hyaline, wing veins and pterostigma brownish. Fore and middle legs, including coxae, yellowish, apical tarsomeres brownish. Hind leg: coxa brown, apically narrowly pale yellow; trochanter and trochantellus pale yellow; femur light reddish yellow, apically narrowly darkened; tibia sub-basally and apically brown, medially yellowish brown, basally with small yellowish spot; tarsus brownish except extreme base of first tarsomere narrowly yellowish.

Male. Unknown.

Distribution. Taiwan.

Etymology. The specific epithet *vesca* is the feminine form of the Latin adjective *vescus*, -a, -um meaning small, thin, slender; it refers to the body size of the new species.

Remarks. By using the identification key in Gupta & Maheshwary (1977), the new species runs to the species of *C. leo* species group sensu Gupta & Maheshwary (1977), and keys out with *Casinaria varuni* Maheshwary et Gupta, 1977, at couplet 27, but without complete match to the

character combination of couplet 23 (posterior ocellar distance not equal to ocular-ocellar distance in the new species). *Casinaria varuni* Maheshwary et Gupta, 1977 can be readily distinguished from the new species by its following characteristics: posterior ocellar distance equal to ocular-ocellar distance, nervulus strongly postfurcal, proximal abscissa of *Cula* 1.4× as long as distal abscissa of *Cula*, area superomedia granulate without transverse wrinkles, first tergite as long as hind femur, metasomal segments constricted at joints, scapus and pedicellus ventrally brownish, fore and middle femora partly brownish, hind femur reddish brown to brownish.

PALAEARCTIC REGION

Casinaria albipalpis (Gravenhorst, 1829)

Material examined. One female, Sweden, Vgtl. [= Västergötland], leg. J. Wermelin, Id. No. MZLU-HYM 26367. One female, Sweden, Salem, V.1922, leg. Frith. Nordström, Id. No. MZLU-HYM 26368. One female, Sweden, Gstr. [=Gästrikland], Hille, Forsby, 31.VII.[19]57, leg. Kj. Fahlander, Id. No. MZLU-HYM 26364. All mentioned specimens are deposited in MZLU (Lund).

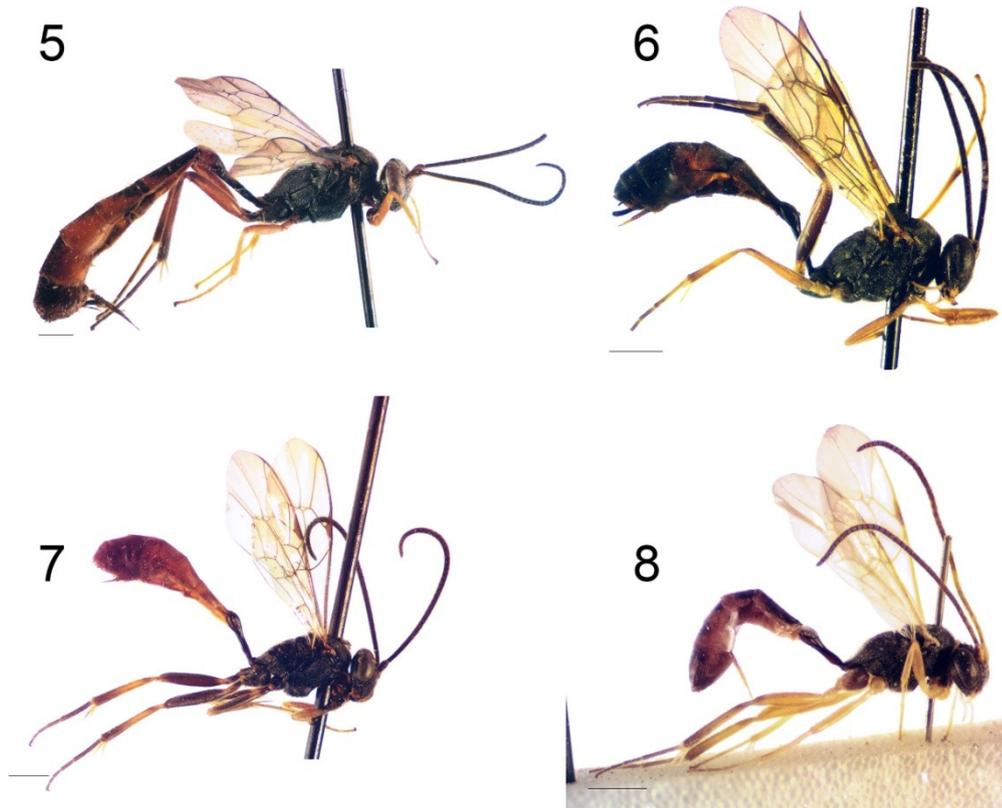
Remarks. First records for Sweden. This species is widely distributed in the Palearctic region (Yu *et al.* 2012, Riedel 2018, Vas 2018).

Casinaria krieckbaumeri (Costa, 1884)

Material examined. One female, Cyprus, Larnaka, VI.1900, leg. Glaszner, Id. No. HNHM-HYM 155193. – The specimen is deposited in HNHM (Budapest).

Remarks. First record for Cyprus. This species is widely distributed in the Palearctic region (Yu *et al.* 2012; Riedel 2018; Vas 2018, 2019a, b).

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Figures 5–8. Holotypes of new Australasian and Oriental *Casinaria* species. 5 = *Casinaria papuensis* sp. nov., 6 = *Casinaria coloratilis* sp. nov., 7 = *Casinaria russea* sp. nov., 8 = *Casinaria vesca* sp. nov. (scale bars = 1 mm)

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