The genus *Phumosia* of Sulawesi, Indonesia, with descriptions of two new species (Diptera: Calliphoridae)

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**Abstract:** Four species of *Phumosia* are recorded from Sulawesi, Indonesia, of which two are described as new to science under the names *P. elegans* and *P. njonja*. A brief comment and additional data on the specimens examined are given for the two previously known species *P. abdominalis* and *P. indica*. Male genitalia of *P. abdominalis* and *P. njonja* sp. nov. are illustrated.

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**INTRODUCTION**

The genus *Phumosia* Robineau-Desvoidy is a small group of blow flies inhabiting tropical rain forests in the Old World and ten species have been known from the Oriental region. Up to the present, two species, *Phumosia abdominalis* and *P. indica*, have been recorded from Sulawesi, Indonesia (Senior-White *et al.*, 1940; James, 1977). During the field survey on the Diptera of Medical Importance in Southeast Asia (Tokyo Medical and Dental University Overseas Scientific Research Project 1973), the members collected a lot of the calliphorid flies from the tropical rain forest near Manado, North Sulawesi. Additionally, Mr. Y. Nishiyama, a lepidopterologist, also made a series of fly collections during his survey trips in Central Sulawesi. Examination of these materials has revealed two unnamed species in addition to the previously recorded ones. In the following lines the present paper deals with four Sulawesi species of the genus and the descriptions of two new species are given.

**Key to the species of *Phumosia* from Sulawesi, Indonesia**

1. Sternopleural bristles (st) 1+1 .... 2
   - St 2+1 .............................. 3
2. Wings yellowish orange tinged, strongly infuscated along costa from apex of subcosta (sc) to wing tip .................. *P. elegans* sp. nov.
   - Wings hyaline, often entirely slightly yellowish tinged .... *P. indica* (Surcouf)
3. Hind tibia with 1 pd in ♂ and ♀, sometimes 2 pd in ♀; wings hyaline, slightly yellowish-brown tinged along anterior margin apically, at most with costal suffusion very distinctly starting from apex of vein 1(\(r_1\)); tergites entirely testaceous yellow; ac 0–2+2 ...................... .... *P. abdominalis* Robineau-Desvoidy
   - Hind tibia with 2 pd in ♂ and ♀; wings strongly infuscated along costa, its costal suffusion starting from apex of sc; tergites 4–5 largely metallic bluish black, tergite 3 marginal banded, often metallic on posterior 1/3 or more in ♀; ac 1+:
   1–2 ........................ *P. njonja* sp. nov.

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**Phumosia abdominalis** Robineau-Desvoidy


*Phumosia abdominalis*: Senior-White et al., 1940: 66.—James, 1977: 537.

Specimens collected from Sulawesi show no development of metallic portion on the abdominal tergites and wing suffusion. The abdomen is wholly yellowish brown in color and the wings are usually hyaline, slightly yellowish brown tinged, at most with a costal suffusion very slightly brown tinged along anterior margin of apices. These characteristics are somewhat different from those of the specimens collected in the Philippines. The male genitalia, however, as shown in Fig. 2, agree with those of typical specimens.

**Length.** 9.0–11.0 mm.


**Bionomics.** Adults are found in rain forests and attracted to decaying animal matter and fruits.

**Distribution.** Malaysia (Borneo), Indonesia (Sumatra, Timor, Sulawesi, Maluku) and Philippines (Luzon).

**Phumosia elegans** sp. nov.

**Female.** Head: eyes bare, dichoptic; frons index 0.25 at narrowest point on vertex; frontal stripe broad, brown, parallel-sided, slightly narrowed posteriorly, the ratio of anterior to posterior width 1:0.8; parafrontalia black, yellowish-gray dusted, darkened posteriorly, blackish setulose anteriorly, provided with ca 7 pairs of ori and several fine interstitials; ors 2+1; oc developed; acoc absent; pocf fine; iv and ov well developed; poc parallel; oce 1; parafacialia black, yellowish-gray dusted, blackish setulose above; facalia yellowish orange, yellowish-golden dusted, with black setulae on lower 1/3; face orange, slightly yellowish-golden dusted, with two black setulae just above epistome, without facial carina; medianae narrow, yellowish orange, bare; vibrissaria narrow, yellowish orange, with several black setulose hairs; vibrissae well developed; episome yellowish orange, not remarkably projecting forward; peristomal bristles black; genae yellowish orange, yellowish gray-dusted, clothed with black hairs on anterior 1/2, with orange hairs on posterior 1/2; postgenae concolorous with genae, yellowish-gray dusted, clothed with orange hairs; occiput largely blackish, with black hairs on upper part, central and lower portions yellowish-gray dusted, with orange hairs; 2nd antennal segment orange; 3rd antennal segment fuscous, more or less reddish ventrally and basally, yellowish-gray pubescent, slightly more than 3× as long as 2nd; arista blackish, reddish on basal 1/3, long plumose; palpi orange, phylliform, blackish setulose and haired.

**Thorax:** ochreous-yellow, bright yellowish orange on pleura; humeri, postalar calli and scutellum concolorous with dorsum; dorsum without distinct dark marking; prosternum and propleura yellow-haired; supraspiracular convexity covered with fine orange upstanding hairs; hypopleura largely bare except for a few fine and yellow hairs on anterior upper portion; mesopleura with black hairs; sternopleura and peropleura intermixed with both yellow and black hairs; mesothoracic and metathoracic spiracles orange. Chaetotaxy: $ac$ 1+2, $dc$ 2+3, $ia$ 1+3, $h$ 2–3, $ph$ 2, $prs$ 1, $sa$ 3, $pa$ 2–4, $st$ 1+1, $sc$ 4–5+1, $n$ 2, $pp$ 1–2, $ps$ 1.

**Wings.** relatively long, bicolored; costal area between costa and 2nd longitudinal vein blackish tinged; apical portion of posterior margin also infuscated, discal part colored with bright yellow; veins bicolored, black on blackish tinged portion of wing and yellow on yellowish tinged membrane; epaulet and basicosta orange; subcostal sclerite orange, brownish pubescent; 3rd longitudinal vein ($r_{3+5}$) blackish setulose on 2/3 of a way from node of 2nd ($r_{2+3}$) and 3rd longitudinal ($r_{3+5}$) veins to $r$-$m$; node of humeral ($h$) and subcostal ($sc$) veins with several black setulae below; node of 1st ($r_{1}$) and 2nd longitudinal ($r_{2+3}$) veins also with several black setulae below; 4th longitudinal vein bent with a right angle; section of the 4th vein ($m$) from bend to wing edge concave; $R_{5}$ open; squamae fuscous brown, thoracic
Fig. 1  Right wing and abdomens, dorsal view.

a, Phumnosis elegans sp. nov.; b, P. abdominalis Robineau-Desvoidy; c, P. njonja sp. nov.; d, P. elegans sp. nov.

one bare on upper surface; halter orange.

Legs: orange, darkened on apical four tarsal segments, black haired, intermixed with yellow hairs on coxae; fore tibia with 1 p and 4 ad; mid tibia with 1 ad, 1 pd, 2 p and 1 v; hind tibia 2 ad, 2 pd and 1 av.

Abdomen: elongate oval, blackish except for venter and lateral sides of tergite 1+2 orange, largely black-haired, fine yellow hairs present on sternites 1–2 and venter of tergite 1+2; tergite 1+2 with several black long hairs on lateral sides; tergite 3 with a row of decumbent marginal bristles; tergites 4–5 with a row of erect marginal bristles, but with no discals; sternites 1–2 orange, other sternites hidden by lateral edges of tergites; hairs on sternites and lateral sides of tergites normal, not remarkable in length.
Fig. 2 *Phumosia abdominalis* Robineau-Desvoidy, male hypopygium.

a, epandrium, cercus and paralobus, lateral view; b, cerci and paralobi, caudal view; c, aedeagus, lateral view; d, aedeagus, posterior view; e, anterior and posterior parameres, lateral view.
Length. 11.0 mm.

Type series. Holotype: ♀, Sulawesi (Central Celebes), Pulu Pulu, 2,000 m, forest, 24. X. 1980, Y. Nishiyama.

Type depository. Holotype is preserved in the B. P. Bishop Museum, Honolulu.

Bionomics. The type material was collected in native forests.

Distribution. Indonesia (Sulawesi).

Remarks. The specific name is derived from the beauty of the body and wing bi-colored with black and orange. These colorations can easily distinguish this new species from the previously known forms of the genus Phumosia.

**Phumosia indica** (Surcouf)


_Caiusa indica_: Senior-White et al., 1940: 66.

**Phumosia indica** : James, 1977: 537.

Length. 6.5–9.0 mm.

Specimens examined. SULAWESI: 4♂♂ 7♀, Makassar, 50 m, 11–12. XII. 1973, S. Shinonaga (TMDU); 1♀, Noongan, 50 km S of Manado, 1,200 m, 2–10. XII. 1973, H. Kurahashi (TMDU); 1♀, Manado, 1–2. XII. 1973, H. Kurahashi (TMDU).

Bionomics. Adults are found in rain forests and attracted to decaying animal matter and fruits.

Distribution. S. India, Sri Lanka, Thailand, Malaysia (Malaya), Indonesia (Java, Sulawesi) and Taiwan.

**Phumosia njongja** sp. nov.

**Male.** Head: eyes bare, holoptic, very closely approximated, separated at narrowest point by less than width of anterior ocellus; frons index 0.01–0.02; frontal stripe dark brown, often reddish anteriorly, widened anteriorly and posteriorly, not obliterated at narrowest point; parafrontalia very narrow, yellowish-gray dusted, darkened posteriorly, very sparsely with black setulae anteriorly, provided with ca 8 pairs of ori; parafacialia yellowish-gray dusted, with a row of fine black setulae above; face yellowish, thinly yellow-dusted, with several minute black setulae medially, also with one pair of black setulae hairs just above level of vibrissae, without median carina; facialia yellowish brown, thinly yellow-dusted, blackish setulose on lower 1/2 from vibrissae to antennal bases; medianae yellowish brown, with yellow dusting, bare; vibrissaria very narrow, concolorous with medianae, thinly yellow-dusted, with a few black setulae; vibrissae well developed; epistome yellowish white, slightly projecting forward; genae brown anteriorly, orange posteriorly, yellowish-gray to golden dusted, black haired anteriorly, with yellow hairs posteriorly; postgenae concolorous with posterior parts of genae, clothed with yellow hairs; occiput fuscous, gray-dusted, clothed with yellow hairs except for a row of post-orbital bristles; 2nd antennal segment orange; 3rd antennal segment brown, reddish on ventral and basal parts, pubescent, nearly 3.5× as long as 2nd; arista brown, reddish basally, long plumose; palpi orange.

Thorax: yellowish brown, somewhat darkened on dorsum, covered with yellowish dusting; prescutum with a trace of brown narrow submedian stripe when viewed from behind; scutum with brown lateral longitudinal stripe when viewed from behind; humeri, postalar calli and scutellum concolorous with dorsum; prosternum and propleura yellowish-haired; supraspiracular convexity and pleurotergite clothed with fine yellow upstanding hairs; hypopleura yellowish-haired, with black bristles; mesopleura, sternopleura and pteropleura clothed with yellow hairs except for some black ones, mesopleura with black hairs on upper 1/2, sternopleural hairs on lower 1/3 intermixed with several black ones, pteropleura with a tuft of black hairs below base of alar squama; mesothoracic spiracle rather large, pale yellow; metathoracic one pale yellow; postalar declivity with a tuft of yellow hairs on central circle; tympanic tuft absent; suprasquamal ridge with some fine yellow hairs. Chaetotaxy: ac 1+2, dc 2+3, ia 1+3, h 2–3, ph 2, prs 1, sa 3, pa 2–3, st 2+1, sc 5–6+1, n 2, pp 1–2, pst 1.

Wings: hyaline, with fuscous suffusion along costa from apex of sc; veins fuscous brown; epaulet and basicosta yellowish brown; subcostal sclerite brown, with yellowish brown pubescence; node of h and sc with several fine black setulae below; base of sc with a few fine yellow or black setulae below;
Fig. 3 *Phumosia njonja* sp. nov., male hypopygium.

a, epandrium, cercus and paralobus, lateral view; b, cerci and paralobi, caudal view; c, aedeagus, lateral view; d, aedeagus, posterior view; e, anterior and posterior parameres, lateral view.
node of 2nd and 3rd longitudinal veins with several black setulae above and below; 3rd longitudinal vein with black setulae on 2/3 way from base to r-m cross vein above, the setulose hairs extending to 1/2 way to r-m below; 4th longitudinal vein bent with a right angle; section of the 4th vein from bend to wing edge inflexed; squamae fuscous brown, thoracic one bare on upper surface; halter yellow.

Legs: yellowish brown except for hind tibia and tarsi and apical four segments of fore and mid tarsi fuscous; fore coxa and trochanter yellowish-haired; fore tibia with 1 p and 4-5 ad; mid coxa and trochanter with both yellow and black hairs; mid tibia with 1 ad, 1 pd, 2 p and 1 v; hind femur with 3-4 paired av and pv on basal 1/2; hind tibia with 2-3 ad, 2 pd and 1 av.

Abdomen: tergites 1-2-3 and sternites 1-3 yellow brown; posterior margin of tergite 3 and large or whole part of tergites 4-5 metallic bluish black; abdominal hairs mostly black except for some yellow ones on sternites 1-2 and ventral sides of tergite 1+2; tergites 1+2-3 with several lateral marginals strong; tergite 3 with a row of decumbent marginals medially; tergites 4-5 with a row of erect marginals, with no discals; hypopygium normal in size, epandrium brownish. Male genitalia as shown in Fig. 2.

**Female.** Head: eyes bare, dichoptic; frons index 0.27-0.28, at narrowest point on vertex; frontal stripe broad, brown, reddish anteriorly, parallel-sided, slightly narrowed anteriorly and posteriorly, slightly narrower than 4× as broad as one of parafrontalia just in front of anterior ocellus; parafrontalia black, yellowish-gray dusted, darkened posteriorly, with blackish setulae, provided with ca 6 pairs of ori and several interstitials; ors 2+1; oc developed; acoc absent; pooc weakly developed; ov and iv well developed, poc divergent; occ 1; 3rd antennal segment largely yellowish orange on venter and base; occiput with several black hairs uppermost below a row of postorbital bristles.

Thorax: suprasquama ridge with some fine yellow hairs anteriorly, with black setulose hairs posteriorly.

Wings: setulose hairs at base of sc below black.

Abdomen: marginal bristles fine and decumbent. Ovipositor short. Otherwise same as for ♂.

**Length.** 8.0-10.0 mm.

**Type series.** Holotype: ♂, Sulawesi Utara, Noongan, 50 km S of Manado, 1,200 m, 2-10. XII. 1973, H. Kurahashi. Paratypes: 8 ♂ 14 ♀, same data as holotype.

**Other specimens examined.** SULAWESI: 5 ♀, Makassar, 1,000 m, 9-10. XII. 1973, R. Kano and S. Shiononaga (TMDU).

**Type depository.** Holotype and one pair of ♂ and ♀ paratypes are preserved in the Museum Zoologicum Bogoriense, Bogor. One pair of ♂ and ♀ paratypes is deposited in the B. P. Bishop Museum, Honolulu and the British Museum (Natural History), London, respectively, the reminder being in the National Science Museum (Nat. Hist.), Tokyo.

**Bionomics.** Adults are found in native forests and attracted to decaying meat.

**Distribution.** Indonesia (Sulawesi).

**Remarks.** The specific name "njonja" is derived from Indonesian noun, which means "married woman."

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**References**


摘 要
インドネシア・セレバス産のウリンクロバエの
2新種（双翅目：クロバエ科）

西南太平洋地域における衛生上重要な双翅類昆虫の
動物地理学的調査（1973）を行ったさいの採集品なら
びに西山保典氏が中央セレバスで採集された標本を検
査した結果、ウリンクロバエ属の既知種 Phumosia
abdominalis Robineau-Desvoidy ウリンクロバエ（新
称）と P. indica (Surcouf) インドウリンクロバエ

（新称）のほかに、2新種が見いだされたので、ここに
P. njonja sp. nov. ニヨニウリウンクロバエ（新称）
と P. elegans sp. nov. ハマダラウリンクロバエ（新
称）として記載し、特徴を図示した。ハマダラウリン
クロバエの翅は黄色で翅縁が黒色にふちどられ、腹部
背面のほぼ全体が黒色であるのが特徴である。ニヨ
ニウリウンクロバエは後脛節が黒色を帯び、2本の pd
（後背剛毛）をもち、腹部の黒色部分のパターンの特
徴で既知種より区別される。タイプ種ウリンクロバエ
については詳細な♂の外部生殖器の図がなかったの
で、これを図示した。