Notes on the Bangladesh calliphorid flies of medical importance (Insecta: Diptera)¹⁾

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Abstract: A key is provided to the common species of the Bangladesh calliphorid flies. List of new localities, distributions and other ecological data are also recorded. The following twenty-one species were recorded for the first time from Bangladesh: *Onesia khasiensis* n. comb., *Hemipyrellia ligurriens*, *Hypopygiopsis infumata*, *H. tumrasvini*, *Lucilia bismarckensis*, *L. papuensis*, *Phumosia indica*, *P. testacea*, *Bengalia torosa*, *B. labiata*, *Chrysomya chani*, *C. pinguis*, *Cosmina limbipennis*, *C. bicolor*, *Strongyloneura prolata*, *Isomyia oestracea*, *I. pseudonepalana*, *Rhyncomya setipyga*, *Idiella mandarina*, *I. divisa*, *Borbororhinia bivittata*.

Taxonomical studies on muscoid flies in Bangladesh have not been conducted yet since Senior-White *et al.* published the Fauna of British India in 1940. Recently, fly surveys were programmed by the Toyama Medical and Pharmaceutical University Overseas Scientific Research Project and carried out by the authors in Bangladesh from May to June, 1989. A number of adult flies were collected from different parts of the country for taxonomic purposes. A simple key was prepared from these materials and some specimens collected by the other members of project team from September to October 1988. The present authors intended to describe the male of a little known species, *Onesia khasiensis* (Senior-White, 1923) n. comb. and illustrate the male genitalia hereinafter.

Key to the subfamilies of Calliphoridae

1. Metathoracic spiracle without distinct lappet usually with very small with marginal hairs; 4th longitudinal vein (m) with evenly rounded bend; female postabdomen forming telescopic ovipositor; oviparous. *No record from Bangladesh* Subfamily Rhinophorinae
- Metathoracic spiracle with single large reniform lappet with dorsal opening; 4th longitudinal vein (m) with evenly rounded bend; female postabdomen not forming telescopic ovipositor; larviparous. *Neotropical flies* Subfamily Mesembrinellinae

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- Metathoracic spiracle with normal anterior and posterior lappets; 4th vein (m) with bend distinctly angulate; female postabdomen usually forming telescopic ovipositor, sometimes short in larviparous species; oviparous or larviparous 2
- 2. Stem vein with long fine setulae posteriorly on upper surface; subalar bulla sometimes setulose 3
- Stem vein bare; subalar bulla always bare..... 5
- 3. Thoracic squama bare above; subcostal sclerite with fine pubescence; subalar bulla bare Subfamily Rhiniinae
- Thoracic squama with hairy on upper surface; subcostal sclerite setulose; subalar bulla usually setulose (if bare, then metallic blue and yellow flies as in *Eucompsomyia* Malloch) Subfamily Chrysomyinae
- 4. Anterior lappet of metathoracic spiracle with a conspicuous backwardly-directed tuft of long hairs; postscutellum forming a definite convex swelling which is micro-rugose and shows slight trace of shallow median incision; female postabdomen non-telescopic, modified for deposition of mature larvae Subfamily Ameniinae
- Anterior lappet of metathoracic spiracle bare or at most with a very few small inconspicuous hairs; postscutellum region not at all convex or at most with rudimentary trace of swelling, not as above; female postabdomen forming a telescopic ovipositor, but sometimes short in larviparous species for deposition of first instar larvae Subfamily Calliphorinae

Subfamily CALLIPHORINAE

Key to the genera of Calliphorinae

- 1. Supraspiracular convexity clothed with long upstanding fine hair 2
- Supraspiracular convexity bare or pubescent 4
- 2. Body predominantly brilliant metallic green, blue or purple; subcostal sclerite covered with short black bristles 3
- Parts of thorax and base of abdomen testaceous; subcostal sclerite without black bristles or upstanding hair *Phumosia* Robineau-Desvoidy
- 3. Legs in ♂ more or less fringed; hypopygium strongly developed; generally large flies, more than 15 mm in length *Hypopygiopsis* Townsend
- Legs in ♂ not fringed; hypopygium not strongly developed; generally small flies, not exceeding 12 mm in length *Hemipyrellia* Townsend
- 4. Thoracic squama bare 5
- Thoracic squama with hairs on disc or with a patch of small setulae towards inner margin 8
- 5. Brilliant shining green, blue or purple flies 6
- Brownish flies; sternopleural bristles 1+1; pleura without soft white hairs, but covered with long yellow, brown and black setulae; vibrissae generally inserted well above oral margin; arista long plumose to tip; no facial carina; eyes widely separated in ♂; prosternum hairy; propleura bare except around the propleural bristle *Bengalia* Robineau-Desvoidy
- 6. Propleura and prosternum bare; postsutural *dc* usually 4, sometimes 3 Subfamily Ameniinae, Tribe Catapicephalini, *Catapicephala* Macquart
- Propleura and prosternum hairy, postsutural *dc* 3 7

7. Upper half of parafacialia bare; posterior parasquamal tuft developed *Lucilia* Robineau-Desvoidy
- Upper half of parafacialia hairy; posterior parasquamal tuft absent *Onesia* Robineau-Desvoidy
8. Thoracic squama covered almost entirely or in part with hairs; eyes in ♂ closely approximated, widely separated in ♀; metallic flies generally bluish or with purple tinge. *No record from Bangladesh* *Calliphora* Robineau-Desvoidy
- Thoracic squama with small patch of setulae; eyes in ♂ nearly as widely separated as in ♀; flies gray-dusted. *No record from Bangladesh* *Tainanina* Villeneuve

Genus *Onesia* Robineau-Desvoidy

Onesia Robineau-Desvoidy, 1830, Essai Myod.: 365 (Type-species: *Musca sepulcralis* Meigen, 1826).

***Onesia (Melindopsis) khasiensis* (Senior-White) n. comb.**

Nitellia khasiensis Senior-White, 1923, Mem. Dept. Agr. Ind., Ent. Ser. 7: 49.

Type-locality: Khasia Hills, Assam, India. Type and paratypes in the British Museum.

Pollenia khasiensis: Senior-White, Aubertin and Smart, 1940: 119.

This species was previously included in the genus *Pollenia* by Senior-White *et al.* (1940). Examination of type material and one male in our collection revealed that it belongs to *Melindopsis* Kurahashi, 1964 which was considered as a subgenus of *Polleniopsis* at the time. The first author recently concluded it should be transferred from the genus *Polleniopsis* Townsend to *Onesia* Robineau-Desvoidy (Kurahashi, 1987). The subgenus *Melindopsis* consists of the three species: *menechma* Séguy, 1934 (*Polleniopsis*); *menechmoides* Chen, 1979 (*Bel-lardia*); *parafacialis* Kurahashi et Tumrasvin, 1979 (*Onesia*) and *khasiensis* Senior-White, 1923 (*Nitellia*).

♂.—Head: Eyes bare, holoptic, very narrowly separated on frons by a distance equal to the width of anterior ocellus; frons index 0.03; frontal stripe (frontalia) dark reddish, widened anteriorly, obliterated at narrowest point posteriorly; parafrontalia grayish-silver dusted, darkened toward vertex, with fine rather long black setulae anteriorly, provided with about 8 pairs of *ori*, uppermost one fine, reclinate; parafacialia gray-silver dusted with rather long, fine black setulae on upper part; face fuscous, gray-silver dusted, with a slight indication of a rounded carina at base of antennae; facialia fuscous, more or less brownish laterally, with black setulae on lower 1/3 from vibrissae to antennal bases; medianae reddish brown, bare; vibrissaria brown, with two black setulae in front of genae; vibrissae well developed; epistome not projecting forward, fuscous brown; genae black, gray-dusted, clothed with black hairs; postgenae concolorous with genae, without yellow hairs; occiput concolorous with genae, clothed with black hairs; 2nd antennal segment fuscous black, slightly reddish apically; 3rd antennal segment yellowish brown basally, darkened apically, 2.0 × as long as 2nd; arista fuscous except for apical and basal portions brown, plumose; palpi brownish, with black setulae.

Thorax: Black, covered with bluish gray dusting, with indications of two median and two broad lateral black stripes anteriorly, black haired; humeri concolorous with scutum; postalar calli concolorous with scutum; scutellum concolorous with scutum; postscutellum slightly developed; prosternum hairy; propleura black haired; suprspiracular convexity pubescent, without setulose hairs; hypopleural hairs black; other pleural hairs also black; mesothoracic spiracle small, blackish; metathoracic one also small, blackish; postalar declivity with a few black setulae on central portion; tympanic tuft absent; anterior and posterior para-

Fig. 1 *Onesia khasiensis* (Senior-White) n. comb., male hypopygium.

a, epandrium, cercus and parolobus, lateral view; b, cerci and parolobi, caudal view; c, 5th sternite, ventral view; d, aedeagus, lateral view; e, aedeagus, posterior view; f, anterior and posterior parameres, lateral view.

squamal tufts absent. Chaetotaxy; *ac* 2+3, *dc* 2-3+3, *ia* 0+2, *h* 3, *ph* 1-2, *prs* 1, *sa* 3-4, *pa* 2, *st* 1+1, *sc* 3+1, *n* 2-3, *pp* 1, *pst* 1.

Wings: Hyaline, very slightly brownish tinged; veins brown; epaulet fuscous; basicosta yellowish brown; subcostal sclerite yellowish brown, pubescent; node of 2nd and 3rd longitudinal veins with 1-2 black setulae above and below; 4th longitudinal vein bent with obtuse

angle, the section of the 4th vein from bend to wing edge is straight; cell R_5 closed; squamae fuscous; thoracic one lobulate, bare on upper surface. Halteres pale brown.

Legs: Black, with black hairs; fore tibia with 1 p on apical 1/3, without distinct ad ; mid tibia with 2 p ; hind tibia with 2 ad , 2 pd and 2 well developed av .

Abdomen: Black, bluish-gray dusted, with black median longitudinal stripe on tergites 3–5, black haired; tergites 1+2 with several lateral marginal bristles; tergite 3 with a row of marginal bristles, the bristles on median part are finer than those on laterals; tergites 4–5 with a row of well developed marginal bristles, tergite 5 with bristly hairs on disc; sternites clothed with rather long black hairs. Hypopygium relatively large, black, subshining; male genitalia as shown in Fig. 1.

♀.—The first author examined female type specimens and found them having the open cell R_5 and 2+1 sternopleurals as mentioned in the previous work (Senior-White *et al.*, 1940). These two seem to be characteristic of female, but not of male.

Length: 4.0 mm.

Specimens examined. DHAKA DIV.: 1 ♂, 32 km SW Mymensingh, 30–31. V. 1989, H. Kurahashi (NIHJ).

Bionomics. Nothing is known.

Distribution. India (Assam) and Bangladesh.

Genus *Hemipyrellia* Townsend

Hemipyrellia Townsend, 1918, Insecutor Inscit. menst., 6: 154 (Type-species: *Hemipyrellia curriei* Townsend, 1918 (= *Lucilia fernandica* Macquart, 1855)).

***Hemipyrellia ligurriens* (Wiedemann)**

Musca ligurriens Wiedemann, 1830, Aussereurop. zweifl. Insekt., 2: 655.

Length: 7.0–8.5 mm.

Specimens examined. CHITTAGONG DIV.: 5 ♂, Sylhet, forest, 21–25. V. 1989, H. Kurahashi (NIHJ); 2 ♂, Cox's Bazar, 5. X. 1988, M. Iwasa (OU); 1 ♂, Srimongal, 7. X. 1988, M. Iwasa (OU).

Bionomics. *H. ligurriens* seems to be very common in market sections, gardens in towns and forests. The larva is a scavenger.

Distribution. India, Sri Lanka, Bangladesh, Thailand, Malaysia, Indonesia (Java, Celebes), New Guinea, Australia, China, Korea, Japan, Taiwan, and Philippines.

Genus *Hypopygiopsis* Townsend

Hypopygiopsis Townsend, 1916, Proc. U. S. natn. Mus., 51: 300 (Type-species: *Hypopygiopsis splendens* Townsend, 1916 (= *Musca fumipennis* Walker, 1856)).

Key to the species of *Hypopygiopsis*

1. Antennae yellowish orange; facial tomentum golden yellow; tarsi in ♂ without fringe *H. infumata* (Bigot)
- Antennae dark reddish brown; facial tomentum silver white; tarsi in ♂ with long fringes *H. tumrasvini* Kurahashi

***Hypopygiopsis tumrasvini* Kurahashi**

Hypopygiopsis tumrasvini Kurahashi, 1977, Kontyû, 45: 556.

Length: 13.0 mm.

Specimens examined. CHITTAGONG DIV.: 2♂, Srimongal, West Bhanugach, reserve forest, 7. X. 1988, M. Iwasa (NIHJ).

Bionomics. Adults are found in dense tropical forests. Oviparous.

Distribution. India, Bangladesh, Thailand, Cambodia, and S. China (Yunnan and Hainan Isl.).

***Hypopygiopsis infumata* (Bigot)**

Somomyia infumata Bigot, 1877, Ann. Soc. Ent. Fr., (5) 7: 41.

Length: 9.0–15.0 mm.

Specimens examined. CHITTAGONG DIV: 3♂, Srimongal, West Bhanugach, reserve forest, 6. X. 1988, 8. X. 1988, M. Iwasa (NIHJ); 4♂ 5♀, Sylhet, forest, 21–25. V. 1989, H. Kurahashi (NIHJ); 1♀, Srimongal, 7. X. 1988, M. Iwasa (OU).

Bionomics. Adults are found in dense forests. Oviparous.

Distribution. India, Bangladesh, Burma, Thailand, Laos, Cambodia, Viet Nam, and China (Yunnan, Hainan Isl.).

Genus *Lucilia* Robineau-Desvoidy

Lucilia Robineau-Desvoidy, 1830, Essai Myod.: 452 (Type-species: *Musca caesar* Linnaeus, 1758).

Key to the species of *Lucilia*

1. Basicosta yellow; postsutural *ac* 3. *No record from Bangladesh* *L. cuprina* (Wiedemann)
- Basicosta black; postsutural *ac* 2 2
2. Anterior postsutural *ac* usually more advanced than 2nd pair of postsutural *dc*; tergites 3–4 without dark marginal band; mid tibia with 1 *ad* in ♂ and ♀. *No record from Bangladesh* *L. porphyrina* (Walker)
- Anterior postsutural *ac* level with, or slightly posterior to the 2nd pair of postsutural *dc*; tergites 3–4 with dark marginal band; mid tibia with 1 *ad* in ♂, 2 *ad* in ♀ 3
3. Alar and thoracic squamae whitish, with a tuft of whitish yellow hairs on outer margin of connection; anterior paramere of male genitalia with 4 hairs *L. bismarckensis* Kurahashi
- Alar squama fuscous black as in thoracic one, sometimes paler than thoracic one, but usually with a tuft of blackish hairs *L. papuensis* Macquart

***Lucilia bismarckensis* Kurahashi**

Lucilia bismarckensis Kurahashi, 1987, Entomol. Soc. Jpn., Occ. Pub., (1): 46.

Length: 6.5–10.0 mm.

Specimens examined. DHAKA DIV.: 2♂ 1♀, 32 km SW Mymensingh, forest, 30–31. V. 1989, H. Kurahashi (NIHJ). CHITTAGONG DIV.: 1♀, Sylhet, forest, 21–25. V. 1989, H. Kurahashi (NIHJ); 3♀, Kararhat Forest, 28. V. 1989, H. Kurahashi (NIHJ).

Bionomics. Adults are found in forests.

Distribution. Bangladesh and New Guinea (PNG), Ferg I., New Britain and New Ireland.

***Lucilia papuensis* Macquart**

Lucilia papuensis Macquart, 1842, Mém. Soc. Sci. Agric. Lille, 1842: 298 (1843: 141).

Length: 9.0–10.0 mm.

Specimens examined. CHITTAGONG DIV.: 2♂ 1♀, Kararhat Forest, 28. V. 1989, H. Kurahashi (NIHJ); 17♂ 3♀, Sylhet, forest, 21–25. V. 1989, H. Kurahashi (NIHJ); 1♂ 3♀, Srimongal, 7. X. 1988, 8. X. 1988, M. Iwasa (OU).

Bionomics. Adults are found in forests.

Distribution. Widely distributed through southeast and east Asia, India, Bangladesh, Thailand, Malaysia, Indonesia, Papua New Guinea, Australia (Queensland, New South Wales), China, Korea, Japan, Taiwan, and Philippines.

Genus *Phumosia* Robineau-Desvoidy

Phumosia Robineau-Desvoidy, 1830, Essai Myod.: 427 (Type-species: *Phumosia abdominalis* Robineau-Desvoidy, 1830).

Key to the species of *Phumosia*

1. Mesonotum all pale testaceous; hind tibia with 2 *pd* *P. testacea* (Senior-White)
- Mesonotum with dark markings; hind tibia with 1 *pd*, sometimes 2 *pd* in some rare cases *P. indica* (Surcouf)

Phumosia indica (Surcouf)

Caiusa indica Surcouf, 1914, Arch. Mus. natn. Hist. nat., Paris, (5)6: 53.

Length: 8.0 mm.

Specimen examined. CHITTAGONG DIV.: 1♀, Sylhet, forest, 21–25. V. 1989, H. Kurahashi (NIHJ).

Bionomics. Forest species.

Distribution. India, Sri Lanka, Bangladesh, Thailand, Malaysia (Malaya), Indonesia (Java, Celebes), and Taiwan.

Phumosia testacea (Senior-White)

Caiusa testacea Senior-White, 1923, Spolia zeylan., 12: 310.

Length: 7.5 mm.

Specimen examined. CHITTAGONG DIV.: 1♀, Sylhet, forest, 21–25. V. 1989, H. Kurahashi (NIHJ).

Bionomics. Forest species.

Distribution. India, Sri Lanka, Bangladesh, Thailand, Malaysia (Malaya), and Philippines (Luzon).

Genus *Bengalia* Robineau-Desvoidy

Bengalia Robineau-Desvoidy, 1830, Essai Myod.: 425 (Type-species: *Bengalia labiata* Robineau-Desvoidy, 1830).

Key to the species of *Bengalia*

1. Protuberance below the base of wing pointed; abdomen not tessellated; 4th sternite with 1 pair of long and strong bristles in ♂; body small to medium-sized *B. labiata* Robineau-Desvoidy
- Protuberance below base of wing rounded; abdomen more or less tessellated; 4th sternite without such bristles; body medium to large-sized *B. torosa* (Wiedemann)

Bengalia torosa* (Wiedemann)Musca torosa* Wiedemann, 1819, Zool. Mag., 3: 21.

Length: 15.0 mm.

Specimen examined. DHAKA DIV.: 1♂, Mymensingh, 28. IX. 1988, M. Iwasa (OU).*Bionomics.* Forest species.*Distribution.* India (Madras, West Bengal), Sri Lanka, Bangladesh, Thailand, Indonesia (Java), Philippines, Taiwan, and Japan (Iriomote-Jima I.).***Bengalia labiata* Robineau-Desvoidy***Bengalia labiata* Robineau-Desvoidy, 1830, Essai Myod.: 426.

Length: 9.5–10.0 mm.

Specimens examined. CHITTAGONG DIV.: 2♂, Sylhet, forest, 21–25. V. 1989, H. Kurahashi (NIHJ).*Bionomics.* Forest inhabitant.*Distribution.* ?India, Bangladesh, Thailand, Malaysia (Malaya), and Indonesia (Sumatra).

Subfamily AMENIINAE

Tribe CatapicephaliniGenus *Catapicephala* Macquart*Catapicephala* Macquart, 1851, Mém. Soc. Sci. Agric. Lille, 1850: 210 (1851: 237) (Type-species: *Catapicephala splendens* Macquart, 1851).***Catapicephala* sp. nr *sinica* Fan, 1965**

Length: 12.5 mm.

Specimen examined. CHITTAGONG DIV.: 1♀, Kararhat Forest, 28. V. 1989, H. Kurahashi (NIHJ).*Bionomics.* Forest inhabitant.*Distribution.* Bangladesh.

Subfamily CHRYSOMYINAE

Tribe ChrysomyiniGenus *Chrysomya* Robineau-Desvoidy*Chrysomya* Robineau-Desvoidy, 1830, Essai Myod.: 444 (Type-species: *Chrysomya regalis* Robineau-Desvoidy, 1830).**Key to the species of *Chrysomya***

1. Mesothoracic spiracle white; facets of male eyes small and uniform *C. rufifacies* (Macquart)
- Mesothoracic spiracle fuscous brown to black; facets on upper 2/3 of male eyes remarkably enlarged but lower 1/3 small 2
2. Parafacialia and genae yellowish-orange, both covered with yellowish-white hairs; 3rd antennal segment entirely orange *C. megacephala* (Fabricius)

- Parafacialia and genae fuscous, both covered with black hairs; 3rd antennal segment not entirely orange 3
- 3. Anterior half of alar squama whitish and bare ventrally; male head hemispherical with swollen eyes in profile *C. chani* Kurahashi
- Anterior half of alar squama never pure whitish, covered with dark brown to black hairs ventrally; male head normal in profile *C. pinguis* (Walker)

***Chrysomya megacephala* (Fabricius)**

Musca megacephala Fabricius, 1794, Syst. Ent., 4: 317.

Chrysomya megacephala: James, 1977: 542.

Length: 9.0–10.0 mm.

Specimens examined. CHITTAGONG DIV.: 5♂ 2♀, Sylhet, forest, 21–25. V. 1989, H. Kurahashi (NIHJ); 1♀, Chittagong, 2. X. 1988, M. Iwasa (OU); 1♀, Srimongal, 7. X. 1988, M. Iwasa (OU).

Bionomics. *C. megacephala* is very common around houses and in forests in Bangladesh. This species is a common scavenger and sometimes produces myiasis of man and domestic animals. Adults are commonly found on garbage in dumps and very often attracted to decaying meat and human excrement in natural forest.

Distribution. Widely distributed through the Oriental and Australasian Regions and recently introduced into the Afrotropical and Neotropical Regions.

***Chrysomya chani* Kurahashi**

Chrysomya chani Kurahashi, 1979, J. Med. Entomol., 16: 288.

Length: 7.0 mm.

Specimen examined. CHITTAGONG DIV.: 1♂, Sylhet, forest, 21–25. V. 1989, H. Kurahashi (NIHJ).

Bionomics. Forest inhabitant.

Distribution. Bangladesh, Thailand, Malaysia (Malaya), and Singapore.

***Chrysomya pinguis* (Walker)**

Lucilia pinguis Walker, 1858, Trans. R. ent. Soc. Lond., (2) 4: 213.

Length: 6.5–10.5 mm.

Specimens examined. CHITTAGONG DIV.: 4♀, Sylhet, forest, 21–25. V. 1989, H. Kurahashi (NIHJ).

Bionomics. Forest inhabitant.

Distribution. India (Assam, Himachal Pradesh, Madras), Sri Lanka, Bangladesh, Thailand, Malaysia (Malaya), Indonesia (Java, Moluccas), China, Korea, Japan, Taiwan, and Philippines (Palawan, Tawi Tawi).

***Chrysomya rufifacies* (Macquart)**

Lucilia rufifacies Macquart, 1843, Mém. Soc. Sci. Agric. Lille, 1842: 303 (1843: 146).

Chrysomya rufifacies: James, 1977: 542.

Length: 7.5–10.0 mm.

Specimens examined. CHITTAGONG DIV.: 2♂ 5♀, Sylhet, forest, 21–25. V. 1989, H. Kurahashi (NIHJ).

Bionomics. Larvae are primary scavenger but often become predacious and attack other dipteran larvae. This fly is also known to be involved in secondary myiasis.

Distribution. Widely distributed in the Oriental and Australasian Regions.

Subfamily RHINIINAE

Key to the genera of Rhiniinae

1. Arista pectinated; *ac* and *dc* not distinguishable from the general ground hairs, the prescutellars at most weakly developed; suprasquamal ridge bare 2
- Arista pubescent or plumose, not pectinated 3
2. Hind tibia without a conspicuous row of *ad*, but with 2–3 *ad* as long as or longer than the tibial diameter; *R*₅ open; body slender, parallel-sided; abdomen mostly testaceous *Idiella* Brauer et Bergenstamm
- Hind tibia with a conspicuous row of subequal setae on anterodorsal surface, longer than the normal ground hairs, sometimes 2–3 rather strong *ad* developed among them; fore tibia with 1 *pv*; body rather stout with ovate abdomen and usually of a dark coloration *Stomorphina* Robineau-Desvoidy
3. Arista plumose, the rays at least as long as the width of 3rd antennal segment 4
- Arista pubescent, the longest hairs never exceeding 1.5 × the width of arista at base; fore tibia with *pv*; propleura bare *Ryncomyia* Robineau-Desvoidy
4. Outer *ph* absent *Borbororhinia* Townsend
- Outer *ph* present 5
5. Presutural *ac* absent or indistinct; *dc* and postsutural *ac* usually indistinct except for the prescutellars; if 1–2 postsutural *ac* developed as the prescutellars, then the propleura hairy *Cosmina* Robineau-Desvoidy
- Presutural *ac* well developed at least in one pair; *dc* also well developed; propleura bare 6
6. Mesopleura with a group of bristles on its upper part; bend of 4th vein regularly curved or angulose; male hypopygium of normal size, scarcely visible seeing the abdomen in profile; female last sternite not projecting posteriorly *Isomyia* Walker
- Mesopleura without bristle on its upper part next the first notopleural bristle; bend of vein 4 gently curved; male hypopygium and 5th sternite very strongly developed, altogether almost the same size as the rest of abdomen; female last sternite widely uncovered by the corresponding tergites, its posterior border projecting outwards *Strongyloneura* Bigot

Genus *Cosmina* Robineau-Desvoidy

Cosmina Robineau-Desvoidy, 1830, Essai Myod.: 423 (Type-species: *Cosmina fuscipennis* Robineau-Desvoidy, 1830).

Key to the species of *Cosmina*

1. Epaulet reddish brown; propleura hairy; mesonotum faintly with a trace of 4 black longitudinal stripes *C. bicolor* (Walker)
- Epaulet black; propleura bare in center; mesonotum with two rather broad longitudinal black stripes *C. limbipennis* (Macquart)

***Cosmina limbipennis* (Macquart)**

Idia limbipennis Macquart, 1848, Mém. Soc. Sci. Agric. Lille, 1848: 214 (1847: 54).

Length: 5.0–7.0 mm.

Specimens examined. CHITTAGONG DIV.: 3♂, Kararhat Forest, 28. V. 1989, H.

Kurahashi (NIHJ); 4♂ 5♀, Sylhet, forest, 21–25. V. 1989, H. Kurahashi (NIHJ); 2♂ 2♀, Chandraghona, 50 m, 27. V. 1989, H. Kurahashi (NIHJ); 3♂, Chittagong, 2. X. 1988, M. Iwasa (OU); 1♀, Srimongal, 8. X. 1988, M. Iwasa (OU).

Bionomics. Adults are found on grasses.

Distribution. India, Bangladesh, Malaysia (Malaya), and Indonesia (Java, Bali).

***Cosmina bicolor* (Walker)**

Idia bicolor Walker, 1856, J. Proc. Linn. Soc. Lond., Zool. 1: 23.

Length: 6.0–7.5 mm.

Specimens examined. DHAKA DIV.: 5♂ 3♀, 32 km SW Mymensingh, forest, 30–31. V. 1989, H. Kurahashi (NIHJ). CHITTAGONG DIV.: 2♂, Kararhat Forest, 28. V. 1989, H. Kurahashi (NIHJ); 1♂, Sylhet, forest, 21–25. V. 1989, H. Kurahashi (NIHJ); 1♂ 1♀, Chandraghona, 50 m, 27. V. 1989, H. Kurahashi (NIHJ).

Bionomics. Adults are found on grasses.

Distribution. India, Bangladesh, Burma, Thailand, Malaysia (Malaya), Indonesia (Sumatra, Java), and Viet Nam.

Genus *Strongyloneura* Bigot

Strongyloneura Bigot, 1887, Annls. Soc. ent. Fr., (6)6: Bull.: xiv (Type-species: *Strongyloneura prasina* Bigot, 1887).

***Strongyloneura prolata* (Walker)**

Idia prolata Walker, 1860, J. Proc. Linn. Soc. Lond., Zool. 4: 133.

Length: 5.0–6.5 mm.

Specimens examined. CHITTAGONG DIV.: 3♂ 35♀, Sylhet, forest, 21–25. V. 1989, H. Kurahashi (NIHJ); 3♀, Srimongal, 7. X. 1988, M. Iwasa (OU).

Bionomics. Adults are found frequently on flowers or blossoms.

Distribution. India, Bangladesh, Burma, Nepal, Japan (Ryukyu), Malaysia (Malaya), and Indonesia (Celebes).

Genus *Isomyia* Walker

Isomyia Walker, 1859, J. Proc. Linn. Soc. Lond., Zool. 4: 134 (as subgenus of *Musca*, Type-species: *Musca delectans* Walker, 1859).

Key to the species of *Isomyia*

1. Thoracic squama strongly lobulate, its longitudinal diameter subequal to the transverse; body very stout; thoracic and alar squamae fuscous; scutellum with 3 pairs of marginal bristles, equidistant from each other; basicosta black; pleural hairs black and dense *I. oestaracea* (Séguy)
- Thoracic squama generally not lobulate, if not so, never reaches the base of scutellum and its longitudinal diameter longer than the transverse; body usually slender 2
2. Basicosta yellow; *ac* 1+2; abdomen metallic green except for discal part of tergites 1+2–5 coppery, and with black longitudinal median stripe; genae clothed with yellow hairs; 4th longitudinal vein gently curved; wings with apical cloud very faint *I. pseudonepalana* Senior-White, Aubertin et Smart
- Basicosta black; postsutural *ac* usually 1–2+2–3; tergites 3–4 with median black longitudinal stripe or triangular dark spot when viewed from behind 3

3. Mesopleura largely covered with black hairs except for several yellow ones on lower margin, also with a row of long yellow pilosity along posterior margin; notopleura entirely with black setulae; alar and thoracic squamae yellowish brown; wings with apical cloud very faint; *ac* 1-2+2, if 1-2+3, then anterior postsutural *ac* fine and located close to the second pair of postsutural *ac* *Isomyia* sp. nr *quadrina* Fang et Fan
- Mesopleura largely clothed with yellow hairs on lower 1/3 to 1/2 and along posterior margin before a row of yellow pilosity; notopleura more or less with yellow hairs; wings yellowish hyaline; *ac* 2+3-4, three to four postsutural *ac* well developed and with equidistance or anterior one located far from the second 4
4. Thoracic and alar squamae whitish; many black hairs present on upper 1/2 to 2/3 of mesopleura; tibiae fuscous brown; notopleura with black and yellow hairs; *ac* 2+3-4; body metallic bluish green in color *I.* sp. 1
- Thoracic and alar squamae yellowish brown; mesopleura clothed with yellow hairs except for several black ones on median and anterior part of upper half; tibiae yellowish brown, in contrast with fuscous femora; notopleura only with yellow hairs; *ac* 2+3; body metallic green with golden or coppery tinge *I.* sp. 2

***Isomyia* sp. nr *quadrina* Fang et Fan, 1985**

Length: 8.5-11.5 mm.

Specimens examined. DHAKA DIV.: 13♂ 14♀, 32 km SW Mymensingh, 30-31. V. 1989, H. Kurahashi (NIHJ). CHITTAGONG DIV.: 2♀, Sylhet, forest, 21-25. V. 1989, H. Kurahashi (NIHJ).

Bionomics. Adults are found frequently on the blossoms in forests.

Distribution. Bangladesh.

***Isomyia pseudonepalana* (Senior-White, Aubertin et Smart)**

Strongyloneura pseudonepalana Senior-White, Aubertin et Smart, 1940, Fauna Br. India, Dipt., 6: 162.

Length: 6.5-9.0 mm.

Specimens examined. CHITTAGONG DIV.: 3♀, Sylhet, forest, 21-25. V. 1989, H. Kurahashi (NIHJ); 1♀, Srimongal, 7. X. 1988, M. Iwasa (OU).

Bionomics. Adults are frequently found on the blossoms in forests.

Distribution. India (Assam), Sri Lanka, Nepal, and Bangladesh.

***Isomyia oestracea* (Séguy)**

Pachycosmina oestracea Séguy, 1934, Encycl. ent. (B)II, Dipt., 7: 18.

Length: 10.0-10.5 mm.

Specimens examined. CHITTAGONG DIV.: 1♂ 4♀, Sylhet, forest, 21-25. V. 1989, H. Kurahashi (NIHJ); 1♀, Srimongal, 7. X. 1988, M. Iwasa (OU). DHAKA DIV.: 1♀, Mymensingh, 30-31. V. 1989, H. Kurahashi (NIHJ).

Bionomics. Adults are frequently found on the blossoms in forests.

Distribution. India, Bangladesh, Malaysia (Malaya), Laos, Indonesia (Java), and China.

***Isomyia* sp. 1**

Length: 9.0-10.5 mm.

Specimens examined. CHITTAGONG DIV.: 1♂, Kararhat Forest, 28. V. 1989, H. Kurahashi (NIHJ); 61♀, Sylhet, forest, 21-25. V. 1989, H. Kurahashi (NIHJ). DHAKA

DIV.: 2♂ 3♀, 32 km SW Mymensingh, 30–31. V. 1989, H. Kurahashi (NIHJ).

Bionomics. Adults are frequently found on the blossoms in forests.

Distribution. Bangladesh.

***Isomyia* sp. 2**

Length: 7.5–9.0 mm.

Specimens examined. CHITTAGONG DIV.: 34♀, Sylhet, forest, 21–25. V. 1989, H. Kurahashi (NIHJ); 2♀, Kararhat Forest, 28. V. 1989, H. Kurahashi (NIHJ). DHAKA DIV.: 2♂ 8♀, 32 km SW Mymensingh, 30–31. V. 1989, H. Kurahashi (NIHJ).

Bionomics. Adults are frequently found on the blossoms in forests.

Distribution. Bangladesh.

Genus *Rhyncomya* Robineau-Desvoidy

Rhyncomya Robineau-Desvoidy, 1830, Essai Myod.: 424 (Type-species: *Musca felina* Fabricius, 1794).

***Rhyncomya setipyga* Villeneuve**

Rhyncomya setipyga Villeneuve, 1929, Bull. Anns. Soc. ent. Belg., 69: 62.

Length: 5.0–8.0 mm.

Specimens examined. CHITTAGONG DIV.: 2♂ 5♀, Chandraghona, 50 m, 27. V. 1989, H. Kurahashi (NIHJ); 2♂, Kararhat Forest, 28. V. 1989, H. Kurahashi (NIHJ); 2♀, Sylhet, forest, 21. V. 1989, H. Kurahashi (NIHJ).

Bionomics. Adults are frequently found on the blossoms and often attracted to the honeydew excreted by aphids.

Distribution. Nepal, Bangladesh, Japan (Ryukyu), Taiwan, and Philippines (Palawan).

Genus *Stomorphina* Rondani

Stomorphina Rondani, 1861, Dipt. Ital. Prodromus, 4: 9 (Type-species: *Musca lunata* Fabricius, 1805).

***Stomorphina discolor* (Fabricius)**

Musca discolor Fabricius, 1794, Ent. Syst., 4: 320.

Stomorphina discolor: James, 1977: 554.

Length: 5.0–7.0 mm.

Specimens examined. CHITTAGONG DIV.: 1♂ 7♀, Sylhet, forest, 21–25. V. 1989, H. Kurahashi (NIHJ); 1♂, Chandraghona, 50 m, secondary forest, 27. V. 1989, H. Kurahashi (NIHJ). DHAKA DIV.: 3♂ 3♀, 32 km SW Mymensingh, forest, 30–31. V. 1989, H. Kurahashi (NIHJ).

Bionomics. Adults are frequently found on flowers or blossoms.

Distribution. Entire Oriental Region.

Genus *Idiella* Brauer et Bergenstamm

Idiella Brauer et Bergenstamm, 1889, Denkschr. Akad. Wiss. Wien, 56: 154 (Type-species: *Idia mandarina* Wiedemann, 1830).

Key to the species of *Idiella*

1. Basicosta black; occipital dilatation, mesopleura and sternopleura with distinct piliferous spots *I. divisa* (Walker)

- Basicosta brown; occipital dilatation, mesopleura and sternopleura without distinct piliferous spots; 2nd antennal segment reddish; mid tibia with 2 *p* and with a brush of hairs in ♂; male frons usually broader than the width of ocellar triangle
..... *I. mandarina* (Wiedemann)

***Idiella divisa* (Walker)**

Idia divisa Walker, 1861, J. Proc. Linn. Soc. Lond., Zool. 5: 267.

Length: 6.0–7.5 mm.

Specimens examined. CHITTAGONG DIV.: 3♂ 1♀, Sylhet, forest, 21–25. V. 1989, H. Kurahashi (NIHJ).

Bionomics. Adults are attracted to animal matter in forests.

Distribution. Inida, Bangladesh, Malaysia (Malaya), Viet Nam, and Indonesia (Celebes).

***Idiella mandarina* (Wiedemann)**

Idia mandarina Wiedemann, 1830, Aussereurop. zweifl. Insekt., 2: 350.

Length: 9.5–10.0 mm.

Specimens examined. DHAKA DIV.: 2♂, 32 km SW Mymensingh, forest, 30–31. V. 1989, H. Kurahashi (NIHJ).

Bionomics. Adults are frequently found on the blossoms in forests.

Distribution. India (West Bengal), Sri Lanka, Bangladesh, Burma, Thailand, Malaysia (Malaya, Borneo), Indonesia (Sumatra, Timor), Key Is., S. China, and Taiwan.

Genus *Borbororhinia* Townsend

Borbororhinia Townsend, 1917, Rec. Indian Mus., 13: 188 (Type-species: *Borbororhinia pubescens* Townsend, 1917 (= *Idia bivittata* Walker, 1856)).

***Borbororhinia bivittata* (Walker)**

Idia bivittata Walker, 1856, J. Proc. Linn. Soc. Lond., Zool. 1: 128.

Length: 6.5 mm.

Specimen examined. CHITTAGONG DIV.: 1♀, Sylhet, forest, 21–25. V. 1989, H. Kurahashi (NIHJ).

Bionomics. Adults are attracted to animal matter in forests.

Distribution. India (Kerala), Sri Lanka, Bangladesh, Laos, Malaysia (Malaya, Borneo), Indonesia (Java, Moluccas, Buru), Taiwan, and Philippines (Mindoro, Palawan, Tawi Tawi).

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摘 要

バングラデシュの衛生上重要なクロバエ

1988年と1989年に行われた文部省海外学術調査の際、バングラデシュで採集されたクロバエは15属28種であった。採集された標本を材料にバングラデシュ産クロバエの検索表を作った。このうち、*Isomyia* 属の3種と *Catapicephala* 属の1種は同定未了として残った。東洋区に広く分布することが知られている *Chrysomya megacephala* (Fabricius), *C. rufifacies* (Macquart), *Stomorphina discolor* (Fabricius) を除く21種はすべてバングラデシュと明記された記録としてははじめてであった。*Onesia khasiensis* (Senior-White, 1923) n. comb. については、これまで雄についての記載がなかったので、今回採集された1♂に基づいて外部形態の記載を行い、外部生殖器を図示した。本種の所属はこれまで *Pollenia* 属に含まれていたが、雄の交尾器の形態から明らかに *Onesia* 属のものと判断されるので、*Onesia* 属の *Melindopsis* 亜属に移した。