

SEVEN NEW SPECIES OF *ETHA* CAMERON FROM ORIENTAL REGION (HYMENOPTERA : ICHNEUMONIDAE)

J. K. JONATHAN

Zoological Survey of India, M-Block, New Alipore, Calcutta 700 053

INTRODUCTION

The genus *Etha* Cameron belongs to the tribe Ischinini of the subfamily Mesosteninae, family Ichneumonidae. It contains medium to large species measuring 13-15 mm in length. This small genus occurs in Oriental region (Townes, 1970 : 166; Gupta, 1987 : 787).

In Oriental region this genus is represented by three species viz. *Etha striata* (Cameron) from Kalimantan, *Etha striatiformis* Cameron from Java and India, and *Etha tuberculata* (Uchida) from Taiwan. In addition seven new species are described here from India (Karnataka, Meghalaya and Uttar Pradesh), Myanmar, China and Philippines.

SYSTEMATIC ACCOUNT

Genus *Etha* Cameron

1903. *Etha* Cameron *Mem. & Proc. Manchester Lit. Phil. Soc.*, 47(14) : 17. Type : *Etha striatiformis* Cameron. Designated by Viereck, 1914.

1970. *Etha* Cameron : Townes, *Mem. Amer. Ent. Inst.*, 12 : 166. Syn.

Body slender. Face with a median tubercle (Fig. 1c). Clypeus of moderate size, strongly convex with apical 0.3 flattened, apical margin weakly convex without median tooth or irregularly. Malarspace about 0.5 as long as basal width of mandible. Lower tooth of mandible slightly shorter than upper tooth. Mesoscutum polished or subpolished, with small to median sized punctures, punctures dense to rather sparse, usually also with some indistinct transverse wrinkles. Notaulus sharp, reaching beyond the middle of mesoscutum. Propodeal spiracle about 2.2x as long as wide, propodeum with irregular crests or apophyses, apical carina not well defined. Front edge of hind coxa with a short horizontal groove arising from lower edge of its articulations. First tergite (Fig. 1b) with a lateral triangular tooth at base, without longitudinal carinae, second tergite mat with small dense punctures. Wing venation variable : such as the position of nervulus and nervellus; and sometimes axilluss vein weakly divergent from anal margin of hind wing (Fig. 1a). Ovipositor sheath about 0.7x as long as hind tibia (Fig. 1d).

Length : Female, 13-16 mm. Fore wing 12-13 mm. Ovipositor sheath 3.75-4 mm.

Type-species Etha striatifrons Cameron

This genus can be readily recognised by having a strong to weak median tubercle on face. Clypeus without a median tooth; areolet about 0.5x as high as the length of second recurrent vein. First abdominal tergite long, terete, without longitudinal carinae and its base with lateral tooth. It shows affinities with *Ischnus* Gravenhorst, *Caenocryptoides* Uchida and other related genera of tribe Ischnini, in having a weak or strong lateral tooth or projection at the base of first tergite, and clypeus without a median tooth or irregularities.

Key to the species of *Etha*

1. Epomia strongly tuberculate near the shoulder. Facial tubercle narrow at base, high and pointed. Axillus diverging from the anal margin, its tip straight. (Mesopleurum strongly rugose; nervellus intercepted at its lower 0.4. Face black, facial tubercle yellow). 1. *flavofaciata*, sp. nov.
- Epomia normal, not tuberculate. Facial tubercle broad at base, conical, weak to moderately strong. Axillus close to wing margin, its tip curved towards the anal margin. 2
2. Head and thorax largely black, variously marked with yellow. 3
- Head and thorax largely yellow to reddish-brown, with various markings. 7
3. First abdominal tergite long, about 4x as long as wide at apex, its postpetiole 2-3x as long as wide at base. (Face yellow, clypeal groove and facial tubercle black. Nervulus opposite, nervellus intercepted slightly above the middle, mesopleurum weakly rugose). 2. *longipetiolata*, sp. nov.
- First abdominal tergite about 3x (3-3.3x) as long as wide at apex, postpetiole about 2x as long as wide at base, except in *E. flavocoxata*, 2.6x and 1.5x respectively. 4
4. Facial tubercle weak, not well developed, face medially uniformly weakly convex. Mesopleurum largely finely puncto-reticulo-wrinkled type. 5
- Facial tubercle moderately high and conical. Mesopleurum without punctures, finely wrinkled or rugoso-wrinkled type. 6
5. All coxae yellow. Apices of all the abdominal tergites and apical half of propodeum, yellow. Wings yellowish hyaline. Mesopleurum finely rugoso-wrinkled, at some places puncto-reticulate. First abdominal tergite about 2.6x as long as wide at apex. Postpetiole 1.5x as long wide at apex. 3. *flavocoxata*, sp. nov.
- All coxae, propodeum and abdomen wholly black. Wings brownish, hyaline. Mesopleurum finely to coarsely transversely striatopunctate. First abdominal tergite about 3.2x as long as wide at apex; postpetiole about 2x as long as wide at base. 4. *nigra*, sp. nov.
6. Lateral carina of scutellum not marked, antennal scape, yellow. Face usually yellow, sometimes black along clypeal groove. Nervellus variable. 5. *striatifrons* Cameron

- Lateral carina of scutellum yellow marked, antennal scape black. Face yellow with a median inverted 'Y' shaped black mark. Nervellus intercepted at the middle.
..... 6. *flaviorbita*, sp. nov.
- 7. Mesopleurum finely rugose-wrinkled. Propodeum between apical carina and apex striato-wrinkled, between apical and basal carinae finely striato-punctate. Mesoscutum, metascutellum and basal area of propodeum of same colour as of thorax (reddish-brown).
..... 7. *burmensis*, sp. nov.
- Mesopleurum finely rugose. Propodeum between basal carina and apex strongly coarsely trans-striate. Mesoscutum, metascutellum, and basal area of propodeum dark brown to blackish.
..... 8. *nigromaculata*, sp. nov.

(Note : *Etha striata* (Cameron) and *Etha tuberculata* (Uchida) could not be included in the key).

1. *Etha flavofaciata*, sp. nov.

This is a distinct species by having epomia strongly tuberculate near the shoulder. Facial tubercle narrow at base, high and pointed. Axillus diverging from the anal margin, its tip straight. Face black and facial tubercle yellow.

Female : Face subpolished, indistinctly punctate in the middle, longitudinally striate at sides. Clypeus shiny, shallowly and sparsely punctate. Malarspace granulose, 0.6x the basal width of mandible. Mandible shallowly punctate. Frons subpolished, irregularly longitudinally striate in the antennal scrobes, sublaterally with fine punctures, along the eye margin smooth and shiny. Vertex shiny with sparse and minute punctures. Temple shiny, sparsely and minutely punctate. Pronotum subpolished, coarsely trans-striate in the middle groove, finely obliquely striato-punctate above, lower margin closely punctate. Epomia strong reaching up to upper margin then turned mesad, forming a tubercle above. Mesoscutum along the margins of each lobe distinctly trans-striate, middle stripe of each lobe closely punctate, punctures running into striations. Scutellum shiny with moderately deep and coarse punctures; lateral carina extending to its basal 0.5. Metascutellum smooth and shiny. Mesopleurum subpolished, largely rugoso-wrinkled, speculum with deep and coarse punctures, area below sternaulus with moderately deep and close punctures, punctures near the sternaulus running into trans-striations, prepectal carina extending 0.75 the height of mesopleurum. Metapleurum transversely rugoso-punctate, juxtacoxal carina not well defined. Propodeum between basal carina and apex coarsely trans-striate, basal of basal carina closely punctate, with fine circular striations. First tergite smooth and shiny with a few scattered shallow punctures, following tergites mat and subpolished. Ovipositor long, its sheath about 0.8x as long as hind tibia, its tip long and pointed. Nervulus basal of basal vein by its own width. Nervellus intercepted at its basal 0.4.

Black. Antenna with apical half of fourth segment to twelfth segment above, pure white. The following are yellow : Oval mark on median tubercle on face, face narrowly along the eye margin, clypeus, malarspace, mandible, frons along the eye margin (Fig. 1e), pronotal collar largely above, lateral tubercles on upper margin of pronotum, tegula, subtegular ridge, scutellum, metascutellum, propodeum between apical carina and apex, this mark extending towards the base in the middle, first tergite broadly at base and apex, and apices of all the following tergites. Fore and middle

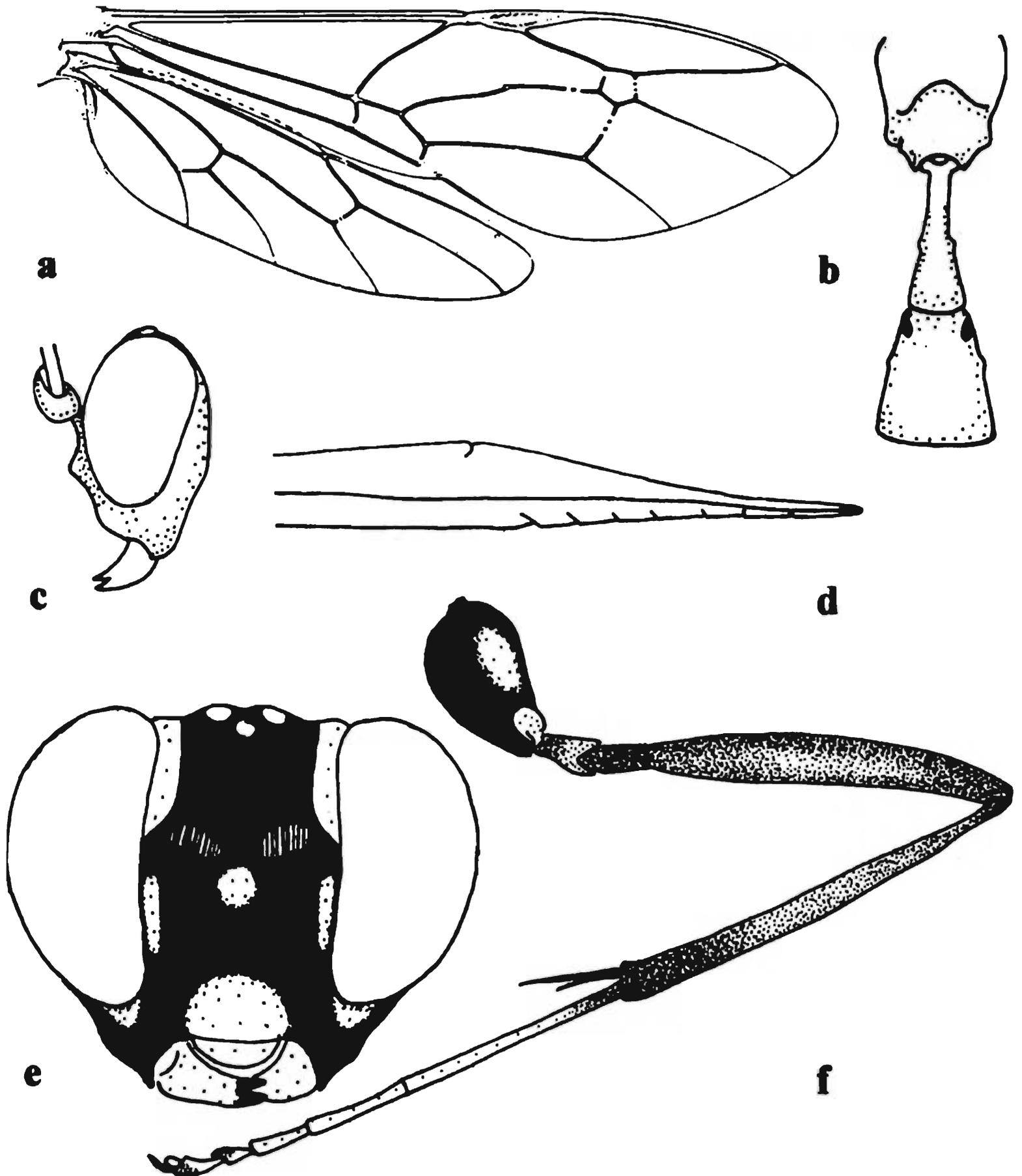


Fig. 1. *Etha* Cameron : a, fore and hind wings showing venation; b, head side view showing facial tubercle; c, dorsal view of first tergite; d, ovipositor tip. *Etha flavofaciata*, sp. nov. : colour pattern : e, front view of head; f, hind leg.

legs with their coxae and trochanters yellow, except the inner side of coxae sometimes with brown markings, rest of fore and middle legs brownish-yellow, with the apical segments of tarsi brown. Hind leg with coxa yellow except the apex irregularly black, first trochanteral segment brownish, second segment and femur almost black, tibia yellowish-brown, except its extreme base and apical 0.3 and spurs black; its tarsus white, except basal 0.2 of first and fourth, and fifth segment wholly brownish to black (Fig. 1f). Wings clear hyaline with a light yellow tinge.

Male : Essentially similar to female, except more polished and slender. Malar space 0.5x the basal width of mandible. Frons largely shiny with scattered shallow punctures in the middle and a few weak striae, rest at sides smooth and shiny. Vertex and temple shiny with a few punctures. Lateral carina of scutellum extending to its basal 0.3. Metapleurum strongly puncto-reticulate. first abdominal tergite mat and subpolished with a few punctures apico-laterally, following tergites mat and subpolished.

Black. The following are yellow : 7th - 19th flagellar segments, face almost wholly (except two sublateral stripes and along the clypeal groove dark brown), vertex along the eye margin, clypeus wholly, base of mandible, pronotal collar above and minutely below, pronotal tubercle, tegula, scutellum, subtegular ridge, metascutellum, arrow-shaped mark at the apex of propodeum, base and apex of first tergite, and apices of 2-6 tergites narrowly and seventh tergite with a median elongated mark. Legs similar to female, but colour of coxae variable, fore and middle coxae almost black to black with yellow in front, hind coxa largely black with an elongated yellow mark above.

Length : Female 13.5-16 mm; fore wing 12-13.5; ovipositor sheath 4 mm. Male, 13 mm; fore wing 9.5 mm.

Holotype Female, Philippines : Los Banos Leg., 25.x.1952, Townes family (A.E.I., Florida). *Allotype* male, Philippines : Los Banos Leg., 18.x.1953, H. & M. Townes (A.E.I., Florida). *Paratypes* 9 Females, 7 Males. Philippines : Los Banos Leg., 2 F, 1.ii.1953; 1 F, 30.i.1953; 1 M* , 1. viii. 1953 and 1 F, 25.x.1952, all Townes family; Alcate Mt victoria, Mindoro, 1 F, 9.iv.1954, H. M. & D. Townes; S. Luis Calapan, Mondoro, 1 M, 14.iv.1954, H. M. & D. Townes; Mt. Maquilling, Elev., 1 M, 10.x.1953, C. R. Baltazar. MYANMAR : Mt. Victoria, 1000m, 2 F*, 1 M, iii. 1938, Gerd Heinrich; Maymyo, 500m, 1 M, x.1937, Gerd Heinrich. W. JAVA Radjamandala, 350m, 1 M, xi.1939. All types in A. E. I., Florida, except 1 male and 1 female (*) in Z.S.I., Calcutta.

Distribution : Philippines and Myanmar.

2. *Etha longipetiolata*, sp. nov.

This species is recognised by having its first tergite about 4x as long as wide at apex, its postpetiole 2-3x as long as wide at base. Face yellow and clypeal groove and facial tubercle black.

Female : Median tubercle on face low (weak). Face subpolished largely rugulose, with fine aciculations in the middle. Clypeus dull, rugulose. Malarspace granulose, 0.8x the basal width of mandible. Mandible rugulose. Frons rugose in the middle, longitudinally striate at sides, smooth and shiny along the eye margin. Vertex mat and subpolished. Temple rugulose, subpolished; pronotum striato-wrinkled in the middle, above closely punctate, punctures running into fine striations, pronotal collar and extreme lower margin rugulose, epomia long reaching up to upper

margin but not forming tubercle. Mesoscutum subpolished, finely and densely punctate, punctures with fine transverse aciculations. Scutellum subpolished, coarsely and shallowly punctate, towards the apex smooth and shiny lateral carina extending to its basal 0.5. Metascutellum smooth and shiny. Mesopleurum subpolished, largely finely trans-rugose to striate, area just above and below sternaulus finely and closely puncto-striate, speculum shiny with moderately deep punctures and striate along the anterior margin, prepectal carina extending 0.85 the height of mesopleurum. Metapleurum largely finely transversely rugoso-punctate, juxtacoxal carina not defined. Propodeum subpolished, strongly trans-striate between basal carina and apex, basal of basal carina with moderately deep and dense punctures, punctures running into striations, at some places appears to be reticulate. First tergite 4x as long as wide at apex, post-petiole about 2-3x as long as wide at base, smooth and shiny; following tergites dull. Nervulus opposite to basal vein, nervulus intercepted slightly above the middle. Ovipositor sheath about 0.9x as long as hind tibia.

Black. Apical 0.33 of 5th to 9th antennal segments above, white. The following are yellow : Face (except median tubercle above and along clypeal groove, black), clypeus (except the apical margin), mandible (except the teeth), frons along the eye margin, malarspace and base of temple (Fig. 2a), pronotal collar, upper margin of pronotum, tegula subtegmental ridge, a small quadrangular mark in the middle of scutellum. Abdomen largely yellowish-brown, except first to third tergites dorsally dark brown. Legs in general yellowish-brown. Fore and middle coxae and trochanters yellow with brown markings; hind coxa largely black except apico-ventrally brownish, femur along its upper margin, tibia at its extreme base and apex dark brown; tarsus whitish, except basal 0.6 of first segment black (Fig. 2b). Wings clear hyaline.

Male : Unknown

Length : Female, 14 mm. Fore wing 11 mm. Ovipositor sheath 5 mm.

Holotype Female and *Paratype* 1 Female, MYANMAR : Mt. Victoria, 2200 m, iv. 1938. Gerd Heinrich (A.E.I., Florida and Z.S.I., Calcutta).

Distribution : Myanmar.

3. *Etha flavocoxata*, sp. nov.

This species is close to *Etha longipetiolata*, sp. nov., but can be recognised by having first tergite short (3x) and postpetiole about 2x as long as wide at base.

Female : Face subpolished, closely and shallowly punctate, punctures running into striations, at sides rugulose. Clypeus largely smooth and subpolished, with a few scattered shallow punctures. Malarspace granulose, 0.8x the basal width of mandible. Frons moderately strongly rugoso-punctate in the middle, at sides rugulose. Vertex subpolished, weakly punctate. Temple sparsely and shallowly punctate, shiny. Pronotum largely trans-wrinkled, above densely and deeply punctate, punctures running into fine striations, epomia long, reaching up to upper margin. Mesoscutum densely punctate, along the margins of each lobe striate. Scutellum subpolished, sparsely punctate, lateral carina extending at its basal 0.2. Metascutellum smooth and polished. Mesopleurum finely rugoso-wrinkled, at some places appears to be puncto-reticulate, below subtegmental ridge finely striate, speculum deeply punctate, punctures running into striations, area above sternaulus near

to prepectus with moderately deep and close punctures, prepectal carina extending 0.75 the height of mesopleurum. Metapleurum puncto-reticulate, juxtacoxal carina absent. Propodeum between apical carina and apex coarsely striate, between apical and basal carinae at sides coarsely striate and finely wrinkled in the middle, basad of basal carina with moderately deep and dense punctures, punctures running into striations. First and second tergites granulose, dull with a few scattered indistinct punctures. Nervulus opposite to basal vein, nervellus intercepted slightly below the middle. Ovipositor sheath about 0.8x as long as hind tibia.

Black. 4th to 10th flagellar segments white above. The following are yellow : Face (except a broad triangular black mark in the middle), clypeus except along the margins, frons and vertex along the eye margin, mandible except the teeth, malarspace, lower 0.5 of temple (Fig. 2c), pronotal collar, upper margin of pronotum, tegula, subtegular ridge, lateral carina of scutellum faintly, scutellum except at the apex, base of hind wing, propodeum broadly at apex, apices of 1st to 5th tergites narrowly in the middle and broadly at sides, 6th and 8th tergites broadly at sides, 7th broadly in the middle and sides and all the sternites almost wholly. Legs in general reddish-yellow, except fore and middle tarsi brown. Hind coxa at base with a small mark and apex of tibia, black, hind tarsus white, except basal 0.5 of first and fourth faintly, and fifth segment wholly black (Fig. 2d). Wings clear hyaline.

Male : Essentially similar to female, except more polished slender and weakly sculptured. Face weakly rugoso-punctate. Clypeus largely smooth and shiny. Frons rugoso-wrinkled. Vertex and temple distinctly punctate. Pronotum coarsely wrinkled, upper margin punctate with running striations. Propodeum in the middle coarsely trans-striate, towards the apex irregularly wrinkled, basad of basal carina with circular striae and with punctures in between the striae. Abdomen mat and subpolished. Nervulus slightly apicad of basal vein and nervellus intercepted slightly above the middle.

Black. 13th to 22nd flagellar segments white. Black mark on face small. Apices of all the tergites yellow. Hind leg with coxa broadly at base, apical 0.4 of tibia, basal 0.85 of first and apical 0.8 of fifth tarsal segment, black; rest of colour similar to female.

Length : Female 11.5 mm. Fore wing 8 mm. Ovipositor sheath 3.5 mm. Male, 12.5 mm. Fore wing 8.75 mm.

Holotype Female. KARNATAKA : Gunji, 573 m, 22.xi.1965, J.K. Jonathan, Coll. No. J100. *Allotype* Male, KARNATAKA : Mahabeleshwar, 1285 m, 14.xi.1965. D.T. Tikar, Coll. No. T110 (Z.S.I., Calcutta).

Distribution : India : Karnataka.

4. *Etha nigra*, sp. nov.

This species is close to *Etha flavocoxata*, sp. nov. in having nervulus opposite to basal vein, nervellus intercepted at its lower 0.45 and facial tubercle not so well developed. This species is distinguished by having first tergite 3.2x as long as wide at apex and lateral carina of scutellum, all coxae, propodeum and abdomen wholly, black.

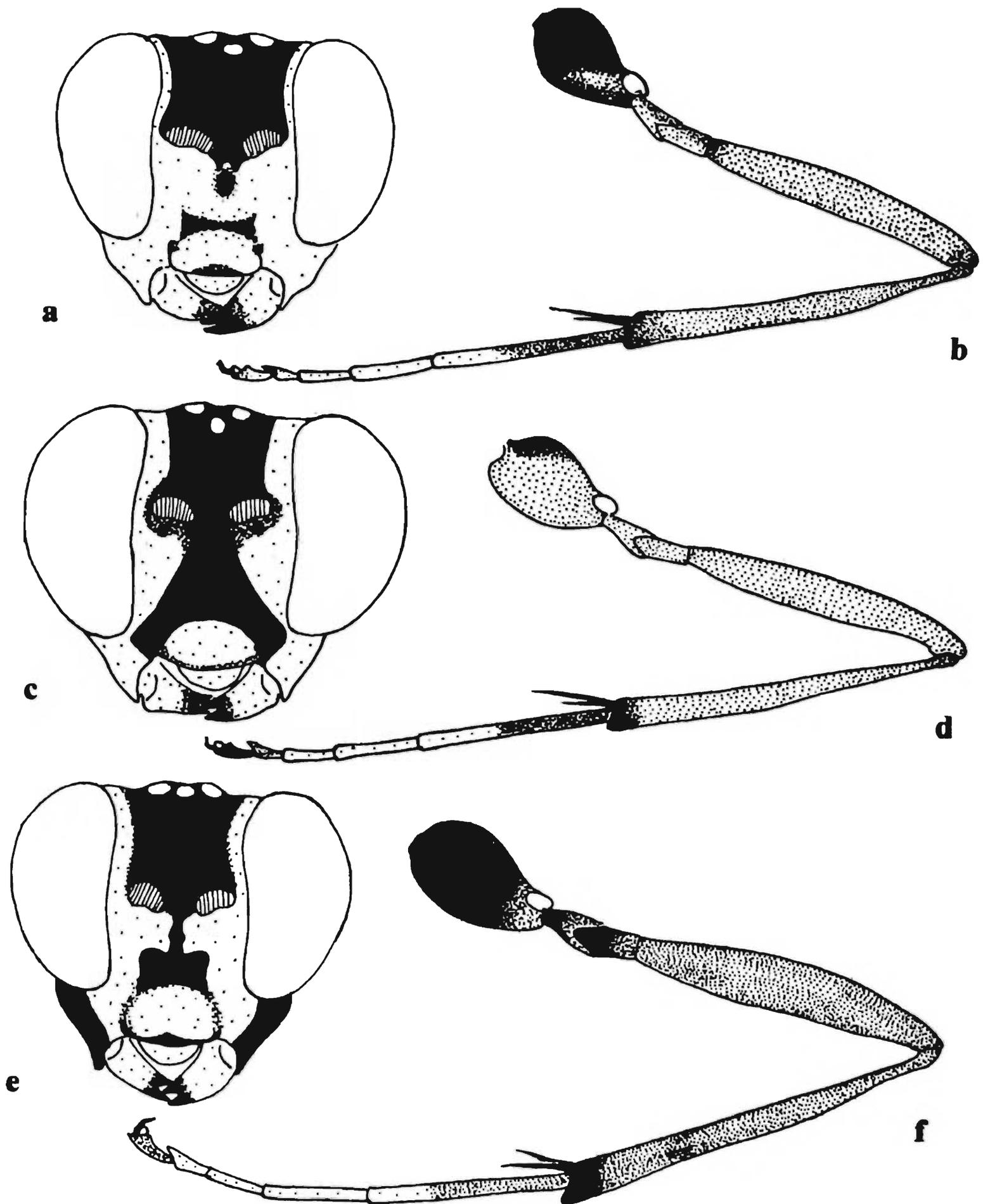


Fig. 2. *Etha longipetiolata*, sp. nov. : colour pattern : a, front view of head; b, hind leg. *Etha flavocoxata*, sp. nov. : colour pattern : c, front view of head; d, hind leg. *Etha nigra*, sp. nov. : colour pattern: e, front view of head; f, hind leg.

Female : Face subpolished, rugose-punctate in the middle, at side weakly rugose. Clypeus rugulose with a few shallow punctures in the middle. Malarspace granulose, 0.75x the basal width of mandible. Mandible shallowly punctate. Frons subpolished, finely to coarsely longitudinally striate, in between the striae in the middle with shallow punctures. Vertex shiny, somewhat shallowly punctate. Temple distinctly punctate, punctures towards the base of mandible running into striations. Pronotum subpolished, coarsely wrinkled in the scrobe, above deeply and densely punctate, punctures running into fine striations, pronotal collar also with large shallow punctures. Mesoscutum with dense, moderately large shallow punctures, punctures running into trans-striations. Mesopleurum in the middle finely to coarsely transversely striato-punctate, area below and above sternaulus closely punctate, speculum shiny with deep small punctures, striate along the anterior margin, prepectal carina extending 0.85 the height of mesopleurum. Metapleurum subpolished, finely trans-striate, punctate in between the striae, juxtacoxal carina not defined, Scutellum shiny, with coarse and shallow punctures, lateral carina extending at its basal 0.2. Propodeum between basal carina and apex coarsely trans-striate, at sides between transverse carinae deeply punctate, area basad of basal carina densely punctate, punctures small and running into circular striations. First tergite mat and subpolished, second and third tergites granulose with sparse undefined punctures, following tergites mat and subpolished. Nervulus more or less opposite to basal vein; nervellus intercepted slightly below the middle. Ovipositor long, its sheath about 0.9x as long as hind tibia.

Black. 5th to 9th flagellar segments whitish. The following are yellow : Face and clypeus (except face in the middle and along the clypeal groove and extreme apex of clypeus, dark brown to blackish), frons along the eye margin narrowly (Fig. 2e), pronotal collar above, upper margin of pronotum narrowly, tegula along the outer margin, scutellum with a squarish mark in the middle, subtegular ridge. Abdomen and legs in general black, except all the coxae at extreme apex, trochanters, femora, tibiae and tarsi, dark brown to blackish. hind tarsus whitish, except basal 0.9 of 1st and whole of 5th segment dark brown (Fig.2f). Wings clear hyaline.

Male : Unknown.

Length : Female, 14 mm. Fore wing 10.5 mm. Ovipositor sheath 4.5 mm.

Holotype Female, CHINA : Shawu Hsien, Fukein, 1200-1500 m, 6-10.v. 1943, Coll. T.C. Maa (A.E.I., Florida).

Distribution : China.

5. *Etha striatifrons* Cameron

1903. *Etha striatifrons* Cameron, *Mem. & Proc. Manchester Lit. Phil. Soc.*, **47**(14) : 18. Female, des. Type : Female, India : Khasi Hills in Meghalaya (formerly Assam) (type in Oxford museum).

1970. *Etha striatifrons* Cameron : Uchida, *Treubia*, **18** : 57. key.

1987. *Etha striatifrons* Cameron : Gupta, *Mem. Amer. Ent. Inst.*, **41**(2) : 784.

This species is close to *Etha flaviorbita*, sp. nov. in having nervulus distad of basal vein and facial tubercle moderately high and conical, but can be recognised by having lateral carina of scutellum black, face yellow. Nervellus consistently intercepted at its upper 0.4.

Female Face and clypeus subpolished. Face weakly rugose. Clypeus with moderately large and shallow punctures, interspaces about 0.5 their own diameter. Frons moderately strongly obliquely striate, with a few scattered punctures, and a median longitudinal carina extending from the base of median ocellus. Vertex mat and subpolished. Temple shiny, shallowly and closely punctate. Malarspace granulose, 0.66x the basal width of mandible. Pronotum subpolished strongly trans-striate in the middle, below striae fine and irregular, upper margin thickly punctate, and with fine striations. Mesoscutum densely punctate, punctures running into transverse striation, at some places tending to be rugose. Scutellum shiny, with deep, sparse punctures, lateral carina extending at its basal 0.75. Metascutellum smooth and shiny. Mesopleurum subpolished, finely rugoso-wrinkled, wrinkles transverse, speculum with deep punctures and trans-striation. Prepectal carina extending 0.8 the height of mesopleurum. Metapleurum finely transversely rugoso-wrinkled, at some places above appears to be reticulo-punctate, juxtacoxal carina absent. Prepodeum between apophyses and apex coarsely trans-striate, above between the basal carinae and apophyses strongly trans-wrinkled, reticulate in the middle region, basal of basal carina densely punctate, punctures running into fine circular striations. First tergite mat and dull, with a few scattered shallow punctures; following tergites mat and subpolished. Ovipositor long, its sheath about 0.8x as long as hind tibia, tip long and pointed. Nervulus slightly apicad of basal vein, nervellus intercepted little above the middle.

Black. The following are yellow Antenna with scape broadly in front, sixth to tenth flagellar segment above, face, clypeus, frons along the eye margin, temple at the basal half, mandible except the tip (Fig. 3a,c), pronotal collar above, sometimes narrowly below also, upper margin of pronotum, tegula, subtegular ridge, scutellum, metascutellum (sometimes largely blackish), metapleurum just above the middle coxa, propodeum between apophyses and at apex, this mark many be extended backward in the middle, all the abdominal segments ventrally and laterally, apices of all the tergites narrowly (Fig. 3b,d). Legs with fore and middle coxae and trochanters light yellow, their femora, tibiae and tarsi deep yellow to light brownish-yellow. Hind leg largely brownish-yellow, except coxa, trochanter and femur above with a line of dark brown; hind tibia along the upper margin and broadly at apex, dark brown, tarsus whitish-yellow, its fifth segment brown; colour of legs in general and hind leg in particular variable, sometimes becoming more darker. Wings clear hyaline, having yellowish tinge.

Variations : This species shows a high degree of variations in body structure and colour. The nervellus usually intercepted at the middle, but sometimes intercepted little below or above the middle. The face mostly yellow, but sometimes black in the middle and along the base of clypeus forming an inverted 'Y' shaped mark; middle lobe of mesoscutum at apex sometimes with an oval distinct or weak yellow mark; hind coxa reddish-brown with a black line above and apical abdominal segments becoming more reddish-brown.

Length Female, 13 mm. Fore wing 10.5 mm. Ovipositor sheath 3.75.

Specimens examined : 2 Females, INDIA : United Province, 1 F, 1949, coll. F. Bianchi, (Homotype *Etha striatifrons* Cameron, det. by H. Townes, 1958). W. JAVA : Tjibodas Godch, 1400 m, 1 F, 30.v.1937, M.A. Lieftinck, det. by H. Townes (A.E.I., Florida).

Additional specimens examined 50 Females, 25 Males. ASSAM : Rangapara : Charduar Forest, 1 M, 30.iv.1966, M.K. Kamath, No. K99. HIMACHAL PRADESH : Dalhousi, 2132m, 1 F,

27.iv.1971, M.K. Kamath, No. DH10; 1 F, 29.v.1971, J.K. Jonathan, No, JD8. Manali, 1828m, 2 M, 20-24.v.1970, M.K. Kamath, No. K222 & D. Ram, No. K235. Meghalaya (formerly Assam) : Khasi Hills : Shillong, Botanical Gardens, 1429m, 1 F, 14.v.1962, V.K. Gupta; 3 F, 27-31.iii.1966, Colls. D.T. Tikar, D. Ram & M.K. Kamath, Nos. T162, T163, K68. Cherrapunji, 1272m, 14 F, 2 M, 4-7.iv.1966, Colls. J.K. Jonathan, D. Ram, M.K. Kamath, D.T. Tikar, Nos. J122-125, T169, K77, K78 & T172-175. SIKKIM : Gangtok, 1871m, 1 F, 11.v.1966, V.K. Gupta, No. 176; 1 M, 6.v.1974, A. Ghorpade, A119. UTTAR PRADESH : Kumaon Hills : Bhowali, 1700m, 12 F, 5-10.iv.1968, V.K. Gupta, Nos. 315 & 316. Garhwal Hills : Dehra Dun, 1 F, 19.ix.1963, V.K. Gupta; 3 F, 6 M, 14-23.iii.1967, V.K. Gupta, No. 264, M.K. Kamath, no. K164. Kumaon Hills : Garjia, 2 F, 5-9.iv.1966, V.K. Gupta, No. 66, 79; 1 M, 9.iv.1968, D. Ram, No. 302; Jeolikote, 1142m, 1 F, 18.iv.1965, J.K. Jonathan, No. J20; Sat Tal, 1286m, 1 M, 6.v.1963, V.K. Gupta, No. 43; Chaubatia, nr. Ranikhet, 1942m, 1F, 16.vi.1968, V.K. Gupta, No. 321; Pawalgarh, 8 M, 11.iv.1965, Colls. D.T. Tikar, V.K. Gupta and J.K. Jonathan, Nos. T13 & 84, J13. Mohakampur, 1 M, 8.iv.1967, M.K. Kamath, No. K65. Haldwani, 1 M 14.iv.1977, P. Chand, No. P36. Mussorie, 2100m, 1 F, 22.x.1972, V. Khanna, no. V27. WEST BENGAL : Darjiling, Botanical Gardens, 1840-2142m, 3 F, 25.v.1962, V.K. Gupta; 3 F, 1 M, 4-6.iv.1966. Colls. V.K. Gupta, D.T. Tikar, Nos. 168 & 169, T234. Rangiroon nr. Darjiling, 1800m, 2 F, 25-26.v.1966, V.K. Gupta, Nos. 185 & 188.

Distribution : India : Assam, Himachal Pradesh, Meghalaya, Sikkim, Uttar Pradesh and West Bengal. Java.

6. *Etha flaviorbita*, sp. nov.

This species is distinguished from its closely related species viz., *Etha striatifrons* Cameron, by having lateral carina of scutellum marked yellow, nervellus intercepted at the middle and face with a black inverted 'Y' shaped mark (Fig. 3e).

Female : Median tubercle on face moderately high, finely punctate, face subpolished, weakly rugoso-punctate, at sides granulose. Clypeus subpolished, sparsely and shallowly punctate. Mandible transversely rugoso-punctate. Malarspace granulose 0.75x the basal width of mandible. Frons shiny, with a median longitudinal carina and on eitherside strong transverse ridges. Ocellar triangle densely punctate. Vertex subpolished, with coarse, close and shallow punctures. Temple shiny, indistinctly punctate. Pronotum subpolished, largely rough and trans-wrinkled, towards the upper margin distinctly punctate with obliquely running fine striations. Epomia strong reaching up to upper margin then turned mesad, forming weak lateral tubercles. Mesoscutum transversely rugoso-punctate, along the margins of each lobe distinctly striate. Scutellum shiny, sparsely and shallowly punctate, lateral carina more or less confined to its base. metascutellum smooth and shiny. Mesopleurum finely wrinkled, at some places wrinkles running transverse, speculum with moderately deep and close punctures, area below sternaulus and just above it finely striato-punctate, prepectal carina extending 0.9 the height of mesopleurum. Metopleurum with moderately deep and large punctures, at some places appears to be reticulate, juxtacoxal carina not defined. Propodeum between apical carina and apex coarsely trans-striate, between the transverse carinae obliquely finely striato-wrinkled and with a few punctures, basad of basal carina with circular fine striations, and punctate in between the striae. First tergite largely smooth and shiny, with a few shallow punctures towards the apex, second tergite granulose, with dense, weak punctures, following tergites mat and subpolished. Nervulus distad of basal vein by 0.2-0.4 its length,

nervellus intercepted at the middle. Ovipositor long, its sheath about 1.0x as long as hind tibia, tip long.

Black. 5th-10th flagellar segments white above. The following are yellow : Face and clypeus (except face usually in middle with an inverted 'Y' shaped mark (Fig. 3e) and clypeus along the margin, black), mandible except the teeth, malarspace, basal half of temple, frons and temple along the eye margin, upper margin of pronotum, pronotal collar above, tegula, subtegular ridge, apical 0.5 of scutellum, lateral carina of scutellum, metascutellum, propodeum between apical carina and apex, first tergite at its basal 0.4 and narrowly at apex, apices and lateral margins of all the following tergites (Fig. 3f). Fore and middle legs in general brownish-yellow, except their coxae at extreme base blackish and their tarsi, brown. Hind leg with coxa, trochanter and femur reddish-brown, except coxa with a line above, trochanters broadly and femur with a narrow line above, black. Hind tibia brownish-yellow, with its extreme base and apex blackish, hind tarsus white, except its basal half of first segment, apical half of fourth and fifth segments wholly dark brown to blackish. Wings clear hyaline.

Male : Similar to female, except more slender and polished. Frons weakly striate. Mesoscutum densely punctate, punctures running into rugosities, along the margins of each lobe trans-striate. Propodeum between basal carina and apex irregularly wrinkled, in between the wrinkles punctate; basal of basal carina and first tergite smooth and shiny, following tergites mat and subpolished, rest as in female.

Black : 16th to 25th flagellar segments dirty white. The following are yellow Face and clypeus wholly, mandible, lower 0.6 of temple, frons and vertex along the eye margin, pronotum almost all along the margins, lateral carina of scutellum, basal 0.8 of scutellum, tegula, subtegular ridge, propodeum between apical carina and apex, apices of all the tergites and also first tergite at base, and fore and middle legs almost. Hind leg colour variable, its coxa almost black, except sometimes its apex yellow, trochanter and femur black or brownish with a broad black line above, tibia dark brown, lighter towards the base, tarsus white, except its first segment at base dark brown (most of the tarsi broken, except one tarsus with first and second segments). Wings clear hyaline.

Length : Female, 12.8 mm. Fore wing 10 mm. Ovipositor sheath 5 mm. Male, 10-12 mm. Fore wing 8-10 mm.

Holotype Female, UTTAR PRADESH : Jeolikote in Kumaon Hills, 1142 m, 18.iv.1965, D.T. Tikar, No. T21. **Allotype** Male, UTTAR PRADESH : Kumaon Hills : Garjia, Dibri Vill., 13.iv.1968, D. Ram, No. 305. **Paratypes** 2 Females, 2 Males. MEGHALAYA (formerly Assam) : Pynursla, 1257 m, in Jaintia Hills, 1 F, 11.iv.1966, J.K. Jonathan, No. J127; Kumaon Hills, 1 M, 5-20.iv.1965, no further data (Z.S.I., Calcutta). MYANMAR : MT. Victoria, 1000m, 1 F, 1 M, iii-iv.1938, Gerd Heinrich (A.E.I., Florida).

Distribution : India : Meghalaya, Uttar Pradesh. Myanmar.

7. *Etha burmensis*, sp. nov.

This species is close to *Etha nigromaculata*, sp. nov. in having head and thorax largely yellow to reddish-brown with various markings, but can be distinguished by its finely rugoso-wrinkled

mesopleurum; propodeum between the transverse carinae striato-punctate. Mesoscutum, metascutum and basal area of propodeum having same colour as that thorax (reddish-brown).

Female : Face rugulose dull. Clypeus subpolished, sparsely and shallowly punctate. Malarspace granulose, 0.6x the basal width of mandible. Frons subpolished, in the middle with circular and irregular striations, at sides sparsely and shallowly punctate. Vertex subpolished, in the ocellar triangle and behind that shallowly punctate, at side mat and subpolished. Temple shiny, with indistinct punctures. Pronotum largely trans-rugose, extreme upper margin with moderately deep and close punctures, epomia strong, reaching up to upper margin, but not forming a tubercle. Mesoscutum finely rugoso-punctate, finely striate along the margin of each lobe. Scutellum shiny, sparsely and shallowly punctate, lateral carina extending 0.6 the length of scutellum. Metascutellum smooth and polished. Mesopleurum largely weakly trans-rugose, speculum densely punctate, striate along the anterior margin, prepectal carina extending 0.75 the height of mesopleurum. Metapleurum with moderately deep and close punctures, towards metapleural fold rugoso-punctate, above near the pleural carina appears to be reticulate, juxtacoxal carina not defined. Propodeum between transverse carinae striato-punctate, between apical carina and apex striato-wrinkled, basad of basal carina in the middle densely punctate, punctures running into striation, laterally in spiracular area finely trans-striate. First tergite dull, subapically granulose with sparse and shallow punctures. Second and third tergites granulose, following tergites mat and subpolished. Nervulus opposite to basal vein, nervellus intercepted at the middle. Ovipositor long, its sheath about 0.8x as long as hind tibia.

Black. Apical 0.3 of 4th to 11th segment of antennal flagellum whitish above. The following are yellow : Scape in front, face, clypeus, mandible, malarspace, basal 0.5 of temple, frons along the eye margin, sometimes scutellum at apex, apices of second to fifth tergites narrowly and at sides broadly. Thorax largely reddish-brown (Fig. 3g). Fore and middle legs in general brownish-yellow, their coxae with a mark above and tarsi wholly dark brown. Hind leg with coxa yellowish-brown with a black broad and elongated mark above; trochanter, femur and tibia largely dark brown to blackish; tarsus white, except extreme base of its first and apex of fifth segment blackish. Wings clear hyaline, with yellowish tinge.

Male : Similar to female, except more slender and polished. Frons irregularly wrinkled. Vertex minutely punctate. Temple shiny, with indistinct sparse punctures. Mesoscutum largely densely punctate, striate along the margins of each lobe. Matapleurum reticulo-punctate. Propodeum largely moderately and strongly rugose, baso-laterally weakly rugose and punctate. First tergite subpolished and smooth, except for a few scattered punctures. Nervulus opposite or little apical of basal vein, nervellus intercepted at or slightly above the middle.

Colour similar to female except 17th-25th antennal segments whitish; thorex largely reddish, with pronotum broadly in the middle, mesoscutum, metapleurum in the middle, propodeum largely, dark brown; sometimes hind coxa entirely dark brown to blackish.

Length : Female, 13 mm. fore wing 10 mm. Ovipositor sheath 3.75 mm. Male, 9.5-13 mm. Fore wing 7.5-9.5 mm.

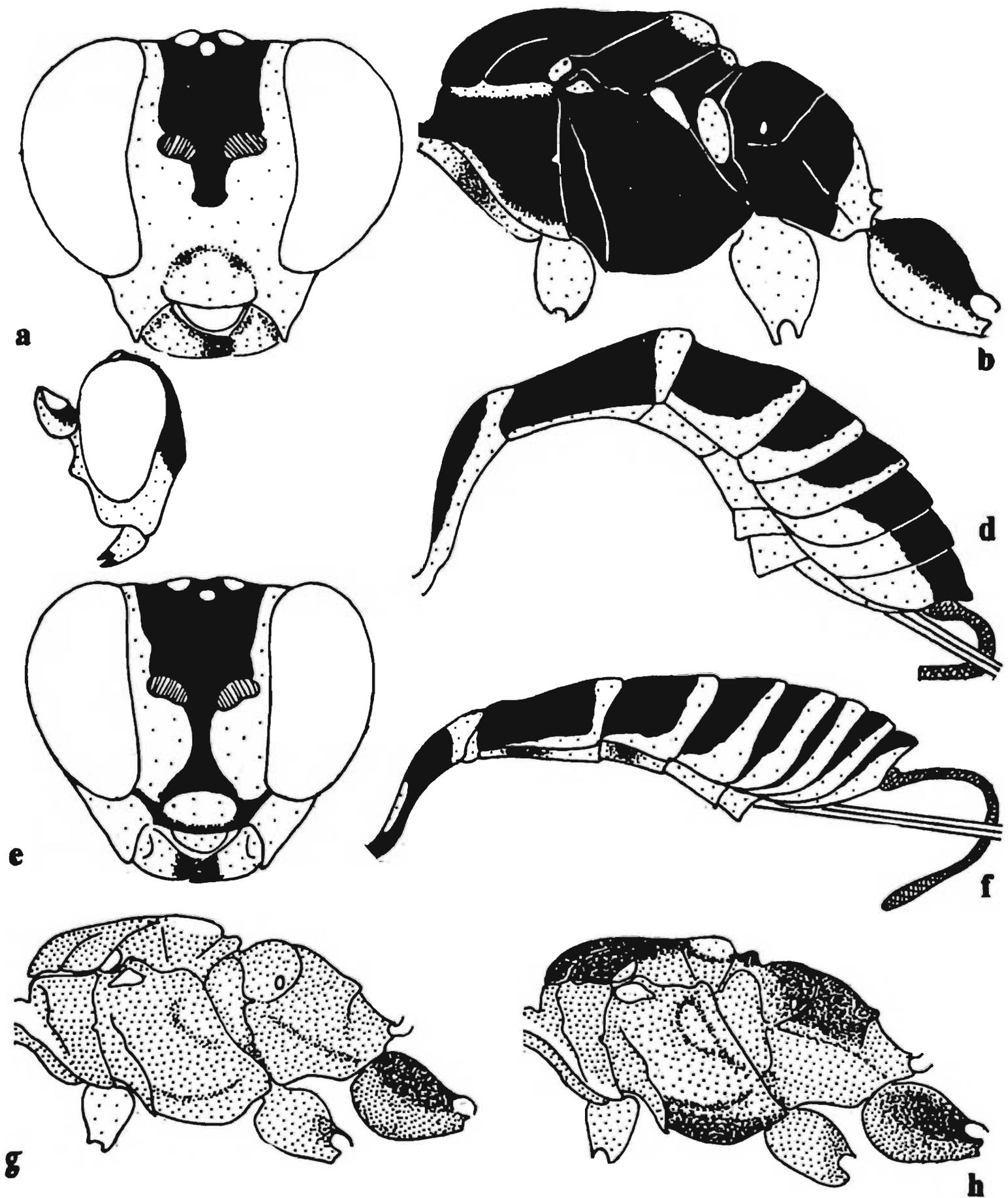


Fig. 3. *Etha striatifrons* Cameron : colour pattern; a, front view of head; b, side view of thorax; c, side of head; d, side view of abdomen. *Etha flaviorbita*, sp. nov. colour pattern : e, front view of head; f, side view of thorax. *Etha burmensis*, sp. nov. : g, side view of thorax showing colour pattern. *Etha nigromaculata*, sp. nov. : side view of thorax showing colour pattern.

Holotype Female and *Allotype* Male, MYANMAR : Mt. Popa, 600-1000m, xi.1937, Coll. Gerd Heinrich (A.E.I., Florida). *Paratypes* 3 Females, 4 Males. Same data as above, 2 F, 3 M (A.E.I., Florida); 1 F, 1 M, same data as above, x.1937 (Z.S.I., Calcutta).

Distribution : Myanmar.

8. *Etha nigromaculata*, sp. nov.

This species can be recognised from its allied species, viz., *Etha burmensis*, sp. nov. by having mesopleurum finely rugose. Propodeum largely trans-striate. Mesoscutum, metascutum and basal area of propodeum dark brown to blackish.

Female : Face subpolished, ruguloso-punctate, rugae radiating from median tubercle, at sides granulose with sparse shallow punctures. Clypeus subpolished, sparsely and shallowly punctate. Mandible subpolished, with sparse and shallow punctures. Malarspace granulose, 0.6x the basal width of mandible. Frons shiny with descending strong ridges from median ocellus, towards the antennal sockets trans-striate, a few punctures present in between the striae, at sides sparsely punctate. Ocellar triangle deeply punctate. Vertex behind ocellar triangle closely punctate. Temple shiny, distinctly punctate. Pronotum subpolished, in the scrobe finely wrinkled, upper 0.5 with deep and close punctures; pronotal collar rugoso-punctate, epomia strong, reaching upper margin then turned mesad. Mesoscutum densely punctate, punctures at some places coalescent with wrinkles, along the margins of each lobe finely striate. Scutellum sparsely and shallowly punctate, punctures, coarse, lateral carina extending to its basal more than 0.5. Metascutellum smooth and polished. Mesopleurum finely rugose in the middle, above with a few close punctures, area just above sternaulus near prepectal carina and below sternaulus finely and closely punctate, speculum shiny with small deep and close punctures, and striate along the anterior margin, prepectal carina extending 0.85 the height of mesopleurum. Metapleurum finely transversely rugoso-striate, with a few weak punctures above near pleural carina. Propodeum shiny, moderately strongly trans-striate between basal carina and apex, basad of basal carina deeply punctate. First tergite smooth and subpolished; second tergite granulose with sparse and shallow punctures, following tergites mat and subpolished. Nervulus slightly apicad of basal vein, nervellus intercepted near its 0.5. Ovipositor sheath about 0.8x as long as hind tibia.

Black : 5th to 10th flagellar segments white above. Scape, face, clypeus, mandible, malarspace, lower 0.5 of temple, frons and vertex along the eye margin, yellow. Thorax reddish-brown, except pronotal collar, upper margin of pronotum, subtegular ridge, tegula, basal 0.7 of scutellum, yellow. Mesoscutum almost wholly, apical 0.3 of scutellum, metascutellum, mesosternal area below sternaulus, propodeum at base and subtaterally black (Fig. 3h). Fore and middle legs brownish-yellow, their 5th tarsal segments dark brown. Hind leg reddish-brown, except coxa with an elongated line above, trochanters largely, femur above, tibia at extreme base and apex, blackish; its tarsus white except first segment at base black (4th & 5th segments broken). Abdomen with first tergite at base, all the tergites narrowly at apex and abdomen laterally narrowly on second and third tergites and more broadly towards the apex, yellow. Wings clear hyaline.

Male : Similar to female except more slender and polished. Face densely and shallowly punctate. Clypeus largely smooth. Frons with a few wrinkles and striations. Vertex and temple

shiny, sparsely and shallowly punctate. Pronotum trans-striate, upper area obliquely striato-punctate. Mesoscutum densely punctate, striate along the margins of each lobe. Scutellum sparsely punctate. Mesopleurum in the middle rugoso-punctate, striato-punctate above towards subtegular ridge and towards middle coxa, speculum shiny with deep coarse punctures, area below sternaulus distinctly punctate. Metapleurum with moderately large, deep and dense punctures. Propodeum between basal carina and apex coarsely trans-striate, basad of basal carina with fine circular striations, in between the striae punctate. First tergite smooth and shiny with a few (6-10) scattered punctures, following tergites mat and subpolished.

Length : Female 15.5 mm. Fore wing 13 mm. Ovipositor sheath 5 mm. Male, 12.25 mm. Fore wing 9.5 mm.

Holotype Female, and *allotype* Male, India : MEGHALAYA : Cherrapunji, 1272 m, in Khasi Hills (formerly Assam), 7.iv.1966. Colls. M.K. Kamath, Coll No. K 79 and J.K. Jonathan, Coll. No. J 125. (Z.S.I., Calcutta).

Distribution : India : Meghalaya.

9. *Etha striata* (Cameron)

1905. *Hadrocryptus striatus* Cameron *J. Straits. Branch Roy, Asiatic Soc.*, **44** : 150. Female, des. Lectotype (designated by Townes, Townes & Gupta, 1961). Female, Malaysia : Sarawak : Kuching (Type in B.M.N.H.).

1961. *Etha striata* : Townes, Townes & Gupta, *Mem. Amer. Ent. Inst.*, **1** : 167. Lectotype design., n. comb. Sarawak.

Diagnostic characters body 12mm, largely black. The following are white : clypeus, antennal joints 5-14, scutellum, postscutellum, apical slope of metanotum, 1-4 abdominal segments apically and basal 0.3 of first segment. Legs whitish, except all coxae, trochanters, hind femora, 5th joint of hind tarsi and 1-2 joints of fore and middle tarsi, black.

Facial tubercle longer than broad. Body largely striate to transversely striato-wrinkled; areolet large, squarish; wings clear hyaline.

Remarks : This species is known only from Kuching in Sarawak, Malaysia.

10. *Etha tuberculata* (Uchida)

1932. *Cryptus tuberculatus* Uchida *J. Fac. Agri. Hokkaido Imp. Univ.*, **33** : 168. Female, des. (Lectotype design. by Townes, Townes & Gupta, 1961) Female, Taiwan : Talin (= Taihorin) (type in Eberswalde museum).

1961. *Etha tuberculata* : Townes, Townes & Gupta, *Mem. Amer. Ent. Inst.*, **1** : 167. n. comb. Taiwan.

Distribution : Taiwan : Taihorin.

Remarks : Very little is known about this species, except the type specimen.

SUMMARY

This paper deals with ten species of *Etha* Cameron from Oriental Region. Of these, seven species viz., *E. flavofaciata*; *E. longipetiolata*; *E. flavocoxata*; *E. nigra*; *E. Flaviorbita*; *E. burmensis* and *E. nigromaculata* have been described as new to science.

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