



A TAXONOMIC STUDY ON THE GENUS *RHYNCHIUM* SPINOLA (HYMENOPTERA: VESPIDAE: EUMENINAE) FROM THE INDIAN SUBCONTINENT

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INTRODUCTION

Spinola (1806) provided the name *Ryghium* which is an incorrect original spelling of *Rhynchium* Spinola based on the type species *Ryghium europaeum* Spinola, 1806. The genus *Rhynchium* Spinola is distributed at Australian, Ethiopian, Oriental and Palearctic Regions. Forty seven species with several subspecies are recorded under this genus from the world (EOL Data Portal webpage) of which five species/subspecies namely *Rhynchium brunneum brunneum* (Fabricius, 1793), *R. brunneum ceylonicum* Giordani Soika, 1994, *R. carnaticum* (Fabricius, 1798), *R. haemorrhoidale haemorrhoidale* (Fabricius, 1775) and *R. oculatum leviscutis* (Cameron, 1908) are recorded from the Indian subcontinent. In addition to this five species/subspecies, a distinctly different colour form of *R. haemorrhoidale* namely *R. haemorrhoidale andamanicum* subsp. nov. is also described in this paper. The occurrence of *Rhynchium atrum* de Saussure, 1852 from the Indian subcontinent is doubtful. All the species/subspecies from the Indian subcontinent are herewith redescribed in detail since the available descriptions are inadequate for easy identification and a key to separate the species of the Indian subcontinent is also provided. Several new distributional records are also reported in this paper.

MATERIAL AND METHODS

This study is based on about 153 specimens present in the Hymenoptera Section of the

Zoological Survey of India, Kolkata, collected from various localities of Indian subcontinent. The specimens were studied and photographed by using a Leica Stereo microscope with LAS software version 3.6.0. All the specimens were properly preserved and added to the 'National Zoological Collections' of the Hymenoptera Section of the Zoological Survey of India, Kolkata (NZC).

Abbreviations used for the Museums: BMNH = British Museum (Natural History), London, England; MSNV = Museo di Storia Naturale di Venezia, Italy; NZC = 'National Zoological Collections' of Zoological Survey of India, Kolkata, India; USNM = United States National Museum of Natural History, Washington D. C., U. S. A.; UZMC = Universitetets Zoologiske Museum, Copenhagen, Denmark.

Abbreviations used for the terms: F1-F2 = Flagellar segments 1 to 2; H = Head; M = Mesosoma; OOL = Ocellular distance; POL = Postocellar distance; S1-S7 = Metasomal sterna 1 to 7; T1-T7 = Metasomal terga 1 to 7.

RESULTS

Genus *Rhynchium* Spinola

Ryghium Spinola, 1806, *Ins. Ligur.*, 1: 84, genus (incorrect original spelling of *Rhynchium* Spinola).

Rhynchium Spinola, 1806, *Ins. Ligur.*, 1: 84, genus, emendation of *Ryghium* validated by Opinion 747 (ICZN, 1965). Type species: *Ryghium europeum* Spinola, 1806 [= *Vespa oculata* Fabricius, 1781], by monotypy.

Eurrhynchium Dalla Torre, 1904, *Genera Insect.*, **19**: 33, name for division II of *Rhynchium* Spinola in de Saussure, 1852, *Ét. Fam. Vesp.*, **1**: 105. Type species: *Vespa oculata* Fabricius, 1781, by subsequent designation of van der Vecht and Carpenter, 1990, *Zool. Verh., Leiden*.

Diagnosis: Labial palp 4-segmented; maxillary palp 6-segmented; pronotum smooth in front without punctures or impressions; mesoscutum posteriorly and scutellum anteriorly impunctate; metanotum somewhat compressed medially without tubercles; propodeum without deep fossae; tegula not evenly rounded posteriorly, emarginate adjoining parategula and not reaching the apex of parategula; axillary fossa narrower than long, slit-like; forewing with second submarginal cell not petiolate, prestigma more than half the length of pterostigma; midtibia with one spur; metasoma sessile; T1 wider than long in dorsal view, not carinate; midfemur of male basally emarginate.

Distribution: Australian, Ethiopian, Oriental and Palaearctic Regions.

**Key to species/subspecies of the genus
Rhynchium Spinola from the Indian
subcontinent**

1. Apex of clypeus, in male, narrow, almost pointed (Image 23) and not sharply truncate, almost rounded in female (Image 21); T2 almost entirely yellow with a basal black or brown mark (Images 20 & 22). *oculatum leviscutis* (Cameron)
- Apex of clypeus, in both sexes, broad and truncate (Images 2, 5, 10, 12, 14, 16 & 19); T2 not yellow, either black or reddish brown or both (Images 1, 4, 9, 11, 15 & 18). 2
2. Clypeus, in both sexes, with punctures extremely small and superficial (Images 10 & 12); punctures on T1 and basal 2/3 of remaining tergites, in both sexes, small, shallow and sparse (Images 9 & 11). *carnaticum* (Fabricius)
- Clypeus, in female, with large and dense punctures (Images 2, 14 & 19); punctures on tergites, in both sexes, large and dense (Images 1, 4, 15 & 18). 3
3. Gaster entirely black, usually the last tergites and sternites pale reddish brown *atrum atrum* de Saussure

- Gaster not entirely black, at least tergites III-IV in female (Images 1 & 18) and III-VII in male with large reddish brown markings (Images 4 & 15). 4
- 4. T1 and T2 black at basal half and a broad reddish brown or yellowish brown band at apex (Images 1 & 4); mesosoma predominantly to entirely reddish brown or yellowish brown (Images 1, 3 & 4). 5
- T1 and T2 usually entirely black, rarely with a thin reddish brown band at apex of first or second or both segments (Images 15 & 18); mesosoma predominantly to entirely black (Images 15 & 18). 6
- 5. Body with black and reddish brown colouration. Widely distributed. *brunneum brunneum* (Fabricius)
- Body with black and yellowish brown colouration. Sri Lanka. *brunneum ceylonicum* Giordani Soika
- 6. Pronotum partly or completely reddish brown (Image 15); mesosoma not entirely black; head predominantly reddish brown to yellowish brown with black markings (Images 14 & 16). *haemorrhoidale haemorrhoidale* (Fabricius)
- Pronotum entirely black (Image 18); mesosoma entirely black; head predominantly black with or without brown and yellow markings (Image 19). *haemorrhoidale andamanicum* subsp. nov.

1. *Rhynchium brunneum* (Fabricius)

This is a polytypic species with many subspecies. There are three subspecies are recorded from Oriental Region namely, *Rhynchium brunneum brunneum* (Fabricius), *R. brunneum ceylonicum* Giordani Soika and *R. brunneum maladivum* Gusenleitner. Out of these three subspecies, the nominotypical subspecies namely *R. b. brunneum* is widely distributed in the Oriental Region. *R. b. ceylonicum* is recorded from Sri Lanka and *R. b. maladivum* recorded from Maldives.

**(a) *Rhynchium brunneum brunneum* (Fabricius)
(Images 1-8)**

Vespa brunnea Fabricius, 1793, *Entomol. Syst.*, **2**: 264, Syntype, sex not mentioned, "Tranquebaria, India (UZMC)".

Odynerus brunneus: Latreille, 1806, *Gen. Crust. Ins.*, **1**: pl. 14 fig. 3.

Rhynchium brunneum: Spinola, 1808, *Ins. Ligur.*, **2**: 189.

Rhynchium haemorrhoidale var. *brunneum*: de Saussure, 1862, *Stettin. Ent. Ztg.*, **23**: 190.

Rhynchium quinquecinctum var. *brunneum*: Dalla Torre, 1894, *Cat. Hym.*, **9**: 45 (cat.).

Odynerus haemorrhoidale var. *brunneum*: Cheesman, 1928, *Ann. Mag. Nat. Hist.*, (10) **1**: 182 (in subgenus *Rhynchium*; syn. *tahitense* de Saussure; Marquesas Is., Society Is., distribution, note on biology).

Rhynchium brunneum brunneum: Gusenleitner, 2006, *Linzer biol. Beitr.*, **38** (1): 692 (Sikkim, Meghalaya, West Bengal).

Female (Image 1): Body length (H+M+T1+T2) 13-16 mm; Forewing length 12-15 mm. Body brownish red (and sometimes mixed with yellowish red) with the following black marks: a spot on interantennal space, a vertical line on lower frons, around ocelli, occiput, a large triangular mark on mesoscutum in front, a transverse line along its apex, propleuron, mesopleuron (except brownish red below tegula), metapleuron, propodeum in the middle and lateral sides below, basal two thirds of the T1 and the basal half of T2, S1 and S2 almost entirely, base of S3. Legs brownish red with variegated black markings. The black markings in the body are highly variable. Wings yellowish hyaline, deeper and darker towards base; veins yellow, brown towards base; apical margin of forewing slightly infumated. Body with rather sparsely to moderately dense fine golden pubescence mixed with brown and silvery white pubescence.

Head: As wide as long in front view (Image 2); clypeus strongly convex, pyriform, the apical third with a broad medial vertical groove, the extreme apex truncate, apex of truncated portion slightly incised, maximum width 0.98x length medially, with moderately deep punctures, larger punctures on middle and smaller on sides; mandibles on inner side with four rather broad and irregularly shaped teeth; labrum elongate rounded at apex; interantennal space smooth; a short but distinct strong carina present at the middle of interantennal space; frons closely, strongly and rugosely punctured, the diameters of the punctures greater than the distance between the punctures; ocular sinus with weak punctures; area between the antennal toruli and

inner eye margin smooth; POL 1.13x OOL; diameter of anterior ocellus 0.87x longer than the distance between anterior ocellus and posterior ocelli; vertex strongly punctured except at shallow postocellar fovea and area towards occipital carina; temple strongly punctured, 1.03x as wide as eye in profile (measured through its ocular sinus); interocular distance 0.92x greater on vertex than at clypeus; occipital carina strong, complete and narrowed ventrally. Antenna 3.29x farther from each other than from eyes; antennal scrobe granulately punctured; scape 2.37x as long as F1, 4.10x as long as wide; pedicel 0.32x F1, 0.69x as long as wide; F1 1.69x as long as F2. 1.68x as long as wide; flagellar segments slightly widening towards apex except last antennal segment; apical antennal segment 1.24x as long as wide.

Mesosoma (Image 3): Anterior face of pronotum smooth without punctures; pronotal carina strong and reaching the lateral margin of pronotum; posterior face and lateral sides of pronotum and mesoscutum strongly, closely and rugosely punctate except at posterior portion of mesoscutum; mesoscutum as long as wide; mesoscutum posteriorly and scutellum almost impunctate with few sparse punctures on posterior sides; metanotum somewhat compressed medially, strongly punctured except at posterior portion smooth; propleuron almost smooth; mesopleuron rugosely punctured except epicnemium and posterior margin smooth; epicnemial carina distinct; upper metapleuron smooth at lower portion and distinctly punctate at upper portion, lower metapleuron almost impunctate with few weak incomplete transverse striations at anterior margin. Propodeum vertical, concavo-truncate posteriorly, the sides of triangular segment at the base of propodeum is of equal length, bordered on each side by a deep groove, punctures on basal half of dorsolateral area of propodeum with strong and rugose punctures except a small smooth area anteriorly, apical half of dorsolateral area of propodeum with strong transverse striations, posterior concave area of propodeum with somewhat regular transverse striations, lateral sides of propodeum with weak and sparse rugose

punctures at upper portion and fine irregular transverse striations at lower portion, posterolateral sides of propodeum with few strong stout spine-like structures. Tegula not evenly rounded posteriorly, emarginated adjoining parategula and shorter than parategula at apex; axillary fossa narrowed, slit-like. Midtibia with 1 spur. Forewing length 3.18x its maximum width, prestigma 1.19x pterostigma.

Metasoma: T1 0.64x as long as wide, 0.59x as wide as T2 in dorsal view; T1-T5 and S2-S4 with distinct punctures, the diameter of most of the punctures less than interspace; S5 with few scattered punctures; T6 and S6 almost smooth; the narrow basal part of S1 smooth, posterior transverse area of S1 rather irregularly transversely striate, rugose at apex.

Male (Image 4): Body length (H+M+T1+T2) 11.5-12.5 mm; Forewing length 10.5-12 mm. Colour pattern is almost same as that of female except clypeus, a transverse band at lower frons and scape ventrally yellow. Inner eye margin sometimes yellow (usually yellowish brown) and extends towards frons, ocellar area, vertex and temple (Image 5). Head 1.03x as wide as long in front view; mandible with teeth not strong as in female; interocular distance 1.19x greater on vertex than at clypeus; clypeus (Image 5) more elongate and the apex between two teeth emarginate, width 0.87x length medially; POL 1.39x OOL; occipital carina come close to the eye at the lower side; antenna (Image 6) with the last segment hook like, almost reaches the apex of tenth antennal segment in curved position; mid femur basally emarginate (Image 7); stiff and stout hairs forms spine-like structures at the apical margin of S7; genitalia as in image 8, apical tip of aedeagus rounded, parallel spines elongate without hairs. Other characters almost same as in female.

Material examined: INDIA: Andhra Pradesh, Visakhapatnam, 1 ♀, date of collection and name of collector unknown, NZC Regd. No. 13642/H3. Arunachal Pradesh, West Siang district, Basar, 1 ♀, 31.x.1966, Coll. S. K. Tandon & Party, NZC Regd. No. 13643/H3; Lower Dibang Valley,

Roing, Durga Mandir, 1 ♂, 30.ix.2001, Coll. B. Mitra & Party, NZC Regd. No. 13644/H3. Assam, Tinsukia district, Margherita, 1 ♀, date of collection unknown, Coll. Doherty, NZC Regd. No. 13645/H3; Sibsagar district, Sivasagar, 4 ♀, date of collection unknown, Coll. S. E. Peal, NZC Regd. Nos. 13646/H3 to 13648/H3 & 13655/H3; Dima Hasao district, Dehangi, 1 ♂, 23.v.1979, Coll. S. B. Roy & Party, NZC Regd. No. 13649/H3; Dima Hasao district, Gunjung, 1 ♀, 25.v.1979, Coll. S. B. Roy & Party, NZC Regd. No. 13650/H3; Manas Tiger Reserve, Kamrup district, Kahitama & Alabari, 3 ♀, 31.iii.1986 & 4.iv.1986, Coll. S. S. Saha & Party, NZC Regd. Nos. 13652/H3 to 13654/H3. Chhattisgarh: Dhamtari district, Sitanadi Wildlife Sanctuary, Sankara forest, 1 ♀, 20.x.2011, Coll. S. Gupta & Party, NZC Regd. No. 13850/H3. Himachal Pradesh, Kangra Valley, 1 ♀, June 1899, Coll. Dudgeon, NZC Regd. No. 13656/H3; Solan district, Solan, 1 ♂, 1.vii.1968, Coll. O. B. Chhotani & Party, NZC Regd. No. 13657/H3. Jharkhand, Ranchi, 3 ♀, date of collection unknown, Coll. W. H. Irvine, NZC Regd. Nos. 13658/H3 to 13660/H3; Giridih district, Paresnath Hills, 1 ♀, 10.iv.1909, Coll. Annandale, NZC Regd. No. 13661/H3. Karnataka, Bengaluru, 3 ♀ & 1 ♂, date of collection unknown, NZC Regd. Nos. 13662/H3 to 13665/H3; Kodagu district, Mercara, 1 ♀, 10.x.1915, Coll. F. Hannington, NZC Regd. No. 13666/H3; Bengaluru, 1 ♀, 4.xi.1978, Coll. Neelu, NZC Regd. No. 13667/H3. Kerala, Thiruvananthapuram, 2 ♀, March 1888, name of collector unknown, NZC Regd. Nos. 13668/H3 & 13669/H3; Thiruvananthapuram, 1 ♂, May 1903, name of collector unknown, NZC Regd. No. 13670/H3; Thiruvananthapuram, 1 ♀, 13.xi.1908, Coll. Annandale, NZC Regd. No. 13671/H3; Thrissur district, Chalakkudy, 2 ♂, 14-30.ix.1914, Coll. F. H. Gravely, NZC Regd. Nos. 345/H3 & 13672/H3; Kollam, 1 ♀, May 1915, Coll. G. P. Pillai, NZC Regd. No. 13673/H3; Thiruvananthapuram district, Kudappanakunnu, 1 ♂, 24.vii.1980, Coll. M. S. Mani & Party, NZC Regd. No. 13674/H3. Madhya Pradesh, Balaghat district, Muki Banjar Valley, 1 ♀, September 1957, Coll. S. Biswas &

Party, NZC Regd. No. 13675/H3. Manipur, Imphal, 1 ♀, 27.viii.1945, Coll. M. L. Roonwal, NZC Regd. No. 13676/H3; Churachandpur, 1 ♂, 21.ix.1975, Coll. M. S. Shishodia & Party, NZC Regd. No. 13677/H3; Imphal West district, Kangchup, 2 ♂, 9.x.1976, Coll. Kuldip, NZC Regd. Nos. 13678/H3 & 13679/H3. Meghalaya, Khasi Hills, 1 ♀, date of collection and name of collector unknown, NZC Regd. No. 13680/H3; East Garo Hills district, Songsak, 1 ♀, 20.ix.1975, Coll. N. Muraleedharan, NZC Regd. No. 13681/H3; East Khasi Hills district, Cherrapunji, 1 ♂, 23-26.iv.1979, Coll. J. K. Jonathan & Party, NZC Regd. No. 13682/H3; East Khasi Hills district, Dainadubi, 3 ♀ & 4 ♂, 8-13.v.1979, Coll. S. B. Roy & Party, NZC Regd. Nos. 13683/H3 to 13688/H3 & 13692/H3; East Khasi Hills district, Darugiri, 3 ♀ & 1 ♂, 14-20.v.1979, Coll. S. B. Roy & Party, NZC Regd. Nos. 13694/H3 to 13697/H3; West Garo Hills district, Machangpani, 1 ♀, 15.x.1988, Coll. K. K. Ray & Party, NZC Regd. No. 13698/H3; Chipinag, 1 ♀, 24.x.1988, Coll. K. K. Ray & Party, NZC Regd. No. 13699/H3; Bamandanga, 1 ♀, 27.x.1988, Coll. K. K. Ray & Party, NZC Regd. No. 13700/H3; Rh-Bhoi district, Umtru, 1 ♂, 7.iv.1991, Coll. S. K. Saha & Party, NZC Regd. No. 13701/H3. Mizoram, Aizawl district, Lushai Hills, 1 ♀, 9.vi.1904, Coll. M. C. McLeod, NZC Regd. No. 13702/H3; Aibawk, 1 ♀, 17.xii.1995, Coll. M. S. Shishodia & Party, NZC Regd. No. 13703/H3. Odisha, Puri, 1 ♀, 7.xii.1908, Coll. J. Caunter, NZC Regd. No. 13704/H3; Ganjam district, Barkuda Island, 1 ♀, 18.ix.1919, Coll. Brunetti, NZC Regd. No. 13705/H3; Mayurbhanj district, Baripada, 1 ♀, 9.iv.1923, Coll. R. P. Mullins, NZC Regd. No. 13706/H3. Sikkim, exact locality not known, 1 ♀, date of collection unknown, Coll. Knyvett, NZC Regd. No. 13707/H3; exact locality not known, 1 ♂, date of collection unknown, Coll. Niceville, NZC Regd. No. 13708/H3; exact locality not known, 3 ♀, July 1897, Coll. Dudgeon, NZC Regd. Nos. 13709/H3 to 13711/H3. Tamil Nadu, Thirunelveli district, Mundanthurai Tiger Reserve, 1 ♀, 22.xi.1994, Coll. S. S. Saha & Party, NZC Regd. No. 13712/H3. Tripura, South Tripura district, Garjee, 5 ♀ & 3 ♂, 13.v.1978, Coll. J. K. Jonathan & Party, NZC Regd. Nos. 13713/H3 to 13720/H3; Gumati district, Udaipur, 1 ♀, 14.v.1978, Coll. J. K. Jonathan & Party, NZC Regd. Nos. 13721/H3; West Tripura district, Baramura, 1 ♀, 22.v.1978, Coll. J. K. Jonathan & Party, NZC Regd. Nos. 13722/H3; Agartala, 1 ♀, 11.v.1992, Coll. B. C. Das & Party, NZC Regd. Nos. 13723/H3. Uttarakhand, Dehradun, 3 ♀, date of collection and name of collector unknown, NZC Regd. Nos. 13724/H3 to 13726/H3; Dehradun district, Mussorie, 1 ♀, 20.v.1905, Coll. Brunetti, NZC Regd. No. 13727/H3; Corbett National Park, Nainital district, Dhikala, 1 ♀, 26.iv.1908, name of collector unknown, NZC Regd. No. 13728/H3; Almora, 2 ♀, 10.vi.1911, Coll. C. Paiva, NZC Regd. Nos. 13729/H3 & 13730/H3; Bageshwar district, Kousanie, 1 ♀ & 1 ♂, 29.vii.1914, Coll. Tytler, NZC Regd. Nos. 13731/H3 & 13732/H3; Dehradun district, Rishikesh, 1 ♀, 19.ix.1979, Coll. S. K. Gupta & Party, NZC Regd. No. 13733/H3; Rudraprayag district, Chopta, 1 ♂, 11.x.2001, Coll. B. C. Das & Party, NZC Regd. No. 13734/H3; Nainital district, Kathagodam, 1 ♀, 25.ix.2002, Coll. P. H. Roy & Party, NZC Regd. No. 13735/H3. West Bengal, Kolkata, 3 ♀ & 2 ♂, date of collection and name of collector unknown, NZC Regd. Nos. 13736/H3 to 13740/H3; Darjeeling district, Tindharia, 1 ♀, date of collection and name of collector unknown, NZC Regd. No. 13741/H3; Siliguri, 1 ♀ & 1 ♂, 1.vii.1906, name of collector unknown, NZC Regd. Nos. 13742/H3 & 13743/H3; S-24 Parganas district, Sonarpur, 1 ♀, 26.xi.1965, Coll. R. N. Tiwari & Party, NZC Regd. No. 5180/H3; N-24 Parganas district, Phultala, Dudhnoi, 1 ♂, 8.viii.1977, Coll. S. K. Gupta & Party, NZC Regd. No. 13744/H3; Darjeeling district, Kalimpong, 1 ♂, 1.vi.1980, Coll. S. K. Gupta & Party, NZC Regd. No. 13745/H3; Darjeeling district, Kalimpong, 2 ♀, 24.iv.1981, Coll. R. K. Ghosh & Party, NZC Regd. Nos. 13746/H3 & 13747/H3; N-24 Parganas district, Duttapukur, 1 ♀, 25.xi.2010, Coll. P. Girish Kumar, NZC Regd. No. 13748/H3; Nadia district, Uttar Panchpota, Chakdaha, 1 ♀, 13.xii.2010, Coll. C. R. Satpati, NZC Regd. No. 13749/H3. MYANMAR:

Arakan, 1 ♀, date of collection and name of collector unknown, NZC Regd. No. 13750/H3.

NEPAL: Valley, 1 ♀, date of collection and name of collector unknown, NZC Regd. No. 13751/H3.

Behaviour: See Horne (1870), Stebbing (1905), Maxwell-Lefroy (1909), Dutt (1912) and Cheesman (1928).

Distribution: India: Andhra Pradesh (new record), Arunachal Pradesh, Assam (new record), Bihar, Chhattisgarh (new record), Himachal Pradesh (new record), Jharkhand, Karnataka (new record), Kerala (new record), Madhya Pradesh (new record), Maharashtra, Manipur (new record), Meghalaya, Mizoram (new record), Odisha, Sikkim, Tamil Nadu, Tripura (new record), Uttarakhand, West Bengal. *Elsewhere*: Afghanistan, Cambodia, China, Guam, Indonesia, Iran, Iraq, Malaysia, Marquesas Island, Myanmar, Nepal, New Britain, Pakistan, Society Islands, Taiwan, Thailand.

(b). *Rhynchium brunneum ceylonicum* Giordani Soika

Rhynchium brunneum ceylonicum Giordani Soika, 1994, *Lavori Soc. Venez. Sci. Nat.*, 19: 37, 40 (key), 48 female, male. Holotype, male, Sri Lanka: C. Province: Triconmali (MSNV); also from numerous other localities.

This subspecies is very similar to the nominotypical subspecies *R. brunneum brunneum* except in a slight differences in colouration. In *R. b. brunneum* body marked with black and reddish brown colouration. But in *R. b. ceylonicum* body marked with black and yellowish brown colouration.

Material examined: SRI LANKA: Paradeniya, 5 ♀, 2.vi.1910, name of collector unknown, NZC Regd. Nos. 13752/H3 to 13756/H3.

Distribution: Sri Lanka.

2. *Rhynchium carnaticum* (Fabricius)
(Images 9-13)

Vespa carnatica Fabricius, 1798, *Suppl. Entomol. Syst.*, p. 261. Syntype, sex not mentioned, Tranquebariae, India (UZMC).

Rhynchium carnaticum: de Saussure, 1852, *Ét. Fam. Vesp.*, 1: 112, male, female, (*Rhynchium*; Bengal).

Rhynchium brunneum var. *carnaticum*: de Saussure, 1855, *Ét. Fam. Vesp.*, 3: 172.

Rhynchium haemorrhoidale var. *carnaticum*: Maindron, 1882, *Ann. Soc. Entomol. France*, (6) 2: 277 (cat.; *Rynchium*).

Odynerus haemorrhoidalis carnaticus: Dover, 1925, *J. Proc. Asiat. Soc. Bengal*, n. s., 20 (1924): 298 (in subgenus *Rynchium*; geographical race confined to Western and southern India and Ceylon).

Rhynchium carnaticum: Gusenleitner, 2006, *Linzer biol. Beitr.*, 38 (1): 692 (Rajasthan).

Female (Image 9): Body length (H+M+T1+T2) 13-16 mm; Forewing length 13-15 mm. Body brownish red (and sometimes mixed with yellowish red) with the following black marks: a spot on interantennal space (sometimes reduced or absent), a vertical line on lower frons (sometimes reduced), around ocelli (sometimes reduced or absent), occiput (sometimes reduced), a triangular mark on mesoscutum in front (sometimes reduced or absent), a transverse line along its apex, lateral sides of propleuron (sometimes absent), epicnemium (sometimes absent), propodeum in the middle, basal area of T1 (sometimes absent), at the base of T2, in between S1 and S2 (sometimes absent), base of S3. Legs brownish red with variegated black markings (black markings highly reduced). The black markings in the body are highly reduced. Wings yellowish hyaline, deeper and darker towards base; veins yellow, brown towards base; apical margin of forewing slightly infumated. Body with rather sparsely to moderately dense fine golden pubescence mixed with brown and silvery white pubescence.

Head: As wide as long in front view (Image 10); clypeus strongly convex, pyriform, the apical third with a broad medial vertical groove, the extreme apex truncate, apex of truncated portion slightly incised, maximum width 0.96x length medially, with weak and sparse minute punctures; mandibles on inner side with four rather broad and irregularly shaped teeth; labrum elongate rounded at apex; interantennal space smooth; a short but distinct weak carina present at the middle of interantennal space; frons closely,

weakly and rugosely punctured, the diameters of the punctures greater than the distance between the punctures; ocular sinus almost smooth; area between the antennal toruli and inner eye margin smooth; POL 1.31x OOL; diameter of anterior ocellus 1.30x longer than the distance between anterior ocellus and posterior ocelli; vertex weakly punctured except at shallow postocellar fovea and area towards occipital carina almost smooth; temple weakly punctured, 0.93x as wide as eye in profile (measured through its ocular sinus); interocular distance 0.91x greater on vertex than at clypeus; occipital carina strong, complete and narrowed ventrally. Antenna 3.21x farther from each other than from eyes; antennal scrobe granulately punctured; scape 2.28x as long as F1, 4.57x as long as wide; pedicel 0.36x F1, 0.80x as long as wide; F1 1.63x as long as F2. 2.21x as long as wide; flagellar segments slightly widening towards apex except last antennal segment; apical antennal segment 1.05x as long as wide.

Mesosoma: Anterior face of pronotum smooth without punctures; pronotal carina strong and reaching the lateral margin of pronotum; posterior face and lateral sides of pronotum and mesoscutum strongly, closely and rugosely punctate except at lateral corner of posterior face of pronotum and posterior portion of mesoscutum; mesoscutum 0.97x as long as wide; mesoscutum posteriorly and scutellum almost impunctate with few sparse punctures on posterior sides; metanotum somewhat compressed medially, strongly punctured except at posterior portion smooth; propleuron almost smooth; mesopleuron rugosely punctured except epicnemium and posterior margin smooth; epicnemial carina distinct; upper metapleuron almost smooth except some weak punctures at upper margin, lower metapleuron almost impunctate. Propodeum vertical, concavo-truncate posteriorly, the sides of triangular segment at the base of propodeum is of equal length, bordered on each side by a deep groove, punctures on basal half of dorsolateral area of propodeum with strong and rugose punctures except a small smooth area anteriorly, apical half of dorsolateral area of

propodeum with strong transverse striations, posterior concave area of propodeum with somewhat regular transverse striations, lateral sides of propodeum with weak and sparse rugose punctures at upper portion and fine irregular transverse striations at lower portion, postero-lateral sides of propodeum with few strong stout spine-like structures. Tegula not evenly rounded posteriorly, emarginated adjoining parategula and shorter than parategula at apex; axillary fossa narrowed, slit-like. Midtibia with 1 spur. Forewing length 2.76x its maximum width, prestigma 0.88x pterostigma.

Metasoma: T1 0.47x as long as wide, 0.95x as wide as T2 in dorsal view; T1 with very minute sparse and shiny punctures; T2-T5 with very minute sparse and shiny punctures on $\frac{3}{4}$ area and S2-S4 with distinct punctures, the diameter of most of the punctures less than interspace; S5 with few scattered punctures; T6 and S6 almost smooth; the narrow basal part of S1 smooth, posterior transverse area of S1 rather irregularly transversely striate, rugose at apex.

Male (Image 11): Body length (H+M+T1+T2) 8-11.5 mm; Forewing length 8-11 mm. Colour pattern is almost same as that of female except clypeus, a transverse band at lower frons and scape ventrally yellow. Inner eye margin sometimes yellow (usually yellowish brown) and extends towards frons, ocellar area, vertex and temple (Image 12). Head 1.05x as wide as long in front view; mandible with teeth not strong as in female; interocular distance 1.24x greater on vertex than at clypeus; clypeus (Image 12) more elongate and the apex between two teeth slightly emarginate, width 0.90x length medially; POL 1.53x OOL; occipital carina come close to the eye at the lower side; antenna with the last segment hook like, almost reaches the apex of tenth antennal segment in curved position; mid femur basally emarginate; stiff and stout hairs forms spine-like structures at the apical margin of SVII; genitalia as in image 13, apical tip of aedeagus rounded, parallel spines elongate without hairs. Other characters almost same as in female.

Material examined: INDIA: Andhra Pradesh, Kurnool district, Mahanandi, 1 ♀, 22.viii.2001, Coll. I. B. Dutta & Party, NZC Regd. No. 13761/H3. Assam: Cachar district, Ramnagar, 1 ♂, 27.v.1979, Coll. S. B. Roy & Party, NZC Regd. No. 13651/H3; Bihar: Katihar, 1 ♀, date of collection unknown, Coll. C. A. Paiva, NZC Regd. No. 13762/H3. Delhi: Delhi University Campus, 3 ♀, 3.viii.1976, 8.ix.1976 & 16.ix.1976, Coll. V. K. Gupta & Party, NZC Regd. Nos. 13763/H3 to 13765/H3. Himachal Pradesh: Bilaspur district, Kallar, 1 ♀, 8.ii.1992, Coll. A. S. Mahabal & Party, NZC Regd. No. 13766/H3. Jharkhand: Ranchi, 1 ♀, date of collection unknown, Coll. W. H. Irvine, NZC Regd. No. 13767/H3. Karnataka: Bengaluru, 2 ♀, date of collection unknown, Coll. J. Cameron, NZC Regd. Nos. 356/H3 & 13768/H3. Madhya Pradesh: Jabalpur district, Vijay Nagar, 1 ♀, 5.ix.2010, Coll. E. E. Jehamalar, NZC Regd. No. 13769/H3. Meghalaya: East Khasi Hills district, Dainadubi, 4 ♂, 8-13.v.1979, Coll. S. B. Roy & Party, NZC Regd. Nos. 13689/H3 to 13691/H3 & 13693/H3; Odisha: Khorda district, Khandagiri, 1 ♀, 7.xi.1912, Coll. F. H. Gravely, NZC Regd. No. 13770/H3; Ganjam district, Barkuda Island, 1 ♀, 18.ix.1919, Coll. E. Brunetti, NZC Regd. No. 13771/H3. Uttarakhand: Almora district, Lamgara, 1 ♀, 19.ix.2003, Coll. B. Mitra & Party, NZC Regd. No. 13772/H3. West Bengal: Bankura, 1 ♀, 11.x.1951, Coll. N. C. Chatterjee & Party, NZC Regd. No. 13773/H3; S-24 Parganas district, Lakshmikantapur, 1 ♀, 15.x.1965, Coll. S. P. Chakraborty & Party, NZC Regd. No. 5274/H3; Bankura district, Simlapal, 1 ♀, 8.x.1985, Coll. K. K. Ray & Party, NZC Regd. No. 13774/H3. PAKISTAN: Karachi, 1 ♀, date of collection unknown, Coll. Cumming, NZC Regd. No. 13775/H3.

Behaviour: See Horne (1870).

Distribution: India: Andhra Pradesh (new record), Assam (new record), Bihar (new record), Delhi (new record), Himachal Pradesh (new record), Jharkhand (new record), Karnataka (new record), Madhya Pradesh (new record), Meghalaya (new record), Odisha (new record), Rajasthan, Tamil Nadu, Uttarakhand (new

record) and West Bengal. *Elsewhere:* Indonesia (Sumatra), Pakistan (new record), Sri Lanka.

3. *Rhynchium haemorrhoidale* (Fabricius)

This is a polytypic species with many subspecies. There are four subspecies are recorded from Oriental Region namely, *Rhynchium haemorrhoidale haemorrhoidale* (Fabricius), *R. haemorrhoidale sanguineum* (de Saussure), *R. haemorrhoidale dohertyi* (deSaussure) and *R. haemorrhoidale umeroatrum* (Gusenleitner) (Giordani Soika, 1994). Out of these four subspecies, the nominotypical subspecies namely *R. haemorrhoidale haemorrhoidale* (Fabricius) is recorded from Indian subcontinent. During our studies we found that there is one distinctly different colour form from Andaman & Nicobar Islands. For the time being we consider it as a separate subspecies namely, *R. haemorrhoidale andamanicum* subsp. nov. The species *R. haemorrhoidale haemorrhoidale* (Fabricius) and *R. haemorrhoidale andamanicum* subsp. nov. are very close to each other in their structure and sculptures. But the colour patterns on head and mesosoma are distinctly different as mentioned in the key. While studying a moderately large collection of specimens from different localities of Indian subcontinent, we found that *R. haemorrhoidale haemorrhoidale* (Fabricius) are present in both mainland and in Andaman & Nicobar Islands. But *R. haemorrhoidale andamanicum* subsp. nov. is so far recorded from Andaman & Nicobar Islands only. So, it requires further studies for the conformation of species status of these colour forms. For the time being we are considering them as two colour forms (subspecies) of the same species.

Behaviour: See Iwata (1938, 1942 & 1965).

(a). *Rhynchium haemorrhoidale haemorrhoidale* (Fabricius) (Images 14-17)

Vespa haemorrhoidalis Fabricius, 1775, *Syst. Entomol.*, p. 366, Type male, "ad Cap. b. Spei" (BMNH).

Odynerus dimiatus Guèrin, 1834, in Bélanger, *Voyage Indes-Orient. Zool.*, p. 503, pl. 4 fig. 4, "Côte du Coromandel".

Rhynchium haemorrhoidale: de Saussure, 1852, *Ét. Fam. Vesp.*, 1: 109 (male, female).

Odynerus haemorrhoidalis: Bequaert, 1918, *Bull. Am. Mus. Nat. Hist.*, 39: 300 (occurrence in Cape Province very doubtful).

Rhynchium haemorrhoidale: Bingham, 1897, *Fauna Brit. India*, Hym., 1: 353 (key), 354, male, female (India; Burma; Ceylon; Tenasserim; Java; Cape of Good Hope).

Female: Body length (H+M+T1+T2) 14-16 mm; Forewing length 13-15.5 mm. Body black with the following reddish brown marks: antenna, mandibles except at margin, clypeus, a broad transverse mark on lower frons, inner eye margins, extending towards posterior ocelli and towards vertex, temple and lower portion of occiput, pronotum almost entirely except lateral margins, tegula almost entirely, a spot on mesopleuron below tegula, apical half and remaining portions of fore femora, apical margin of T2 and the visible parts of remaining tergites, apical margins of S2 to S4 and visible parts of S5 & S6. Wings yellowish hyaline, deeper and darker towards base; veins yellow, brown towards base. Body with rather sparsely to moderately dense fine brown pubescence.

Head: 1.02x as wide as long in front view (Image 14); clypeus strongly convex, pyriform, the apical third with a broad medial vertical groove, the extreme apex truncate, apex of truncated portion slightly incised, maximum width 1.03x length medially, with moderately deep punctures, larger punctures on middle and smaller on sides; mandibles on inner side with four rather broad and irregularly shaped teeth; labrum elongate rounded at apex; interantennal space smooth; a short but distinct strong carina present at the middle of interantennal space; frons closely, strongly and rugosely punctured, the diameters of the punctures greater than the distance between the punctures; ocular sinus with weak punctures; area between the antennal toruli and inner eye margin smooth; POL 1.35x OOL; diameter of anterior ocellus as long as the distance between anterior ocellus and posterior ocelli; vertex strongly punctured except at shallow postocellar fovea and area towards occipital

carina; temple strongly punctured, as wide as eye in profile (measured through its ocular sinus); interocular distance 0.93x greater on vertex than at clypeus; occipital carina strong, complete and narrowed ventrally. Antenna 3.12x farther from each other than from eyes; antennal scrobe granulatedly punctured; scape 2.38x as long as F1, 4.00x as long as wide; pedicel 0.35x F1, 0.69x as long as wide; F1 1.69x as long as F2, 1.73x as long as wide; flagellar segments slightly widening towards apex except last antennal segment; apical antennal segment 0.93x as long as wide.

Mesosoma: Anterior face of pronotum smooth without punctures; pronotal carina strong and reaching the lateral margin of pronotum; posterior face and lateral sides of pronotum and mesoscutum strongly, closely and rugosely punctate except at posterior portion of mesoscutum; mesoscutum 0.99x as long as wide; mesoscutum posteriorly and scutellum almost impunctate with few sparse punctures on posterior sides; metanotum somewhat compressed medially, strongly punctured except at posterior portion smooth; propleuron almost smooth; mesopleuron rugosely punctured except epicnemium and posterior margin smooth; epicnemial carina distinct; upper metapleuron smooth at lower portion and distinctly punctate at upper portion, lower metapleuron almost impunctate with few weak incomplete transverse striations at anterior margin. Propodeum vertical, concavo-truncate posteriorly, the sides of triangular segment at the base of propodeum is of equal length, bordered on each side by a deep groove, punctures on basal half of dorsolateral area of propodeum with strong and rugose punctures except a small smooth area anteriorly, apical half of dorsolateral area of propodeum with strong transverse striations, posterior concave area of propodeum with somewhat regular transverse striations, lateral sides of propodeum with weak and sparse rugose punctures at upper portion and fine irregular transverse striations at lower portion, posterolateral sides of propodeum with few strong stout spine-like structures. Tegula not evenly rounded posteriorly, emarginated adjoining parategula

and shorter than parategula at apex; axillary fossa narrowed, slit-like. Midtibia with 1 spur. Forewing length 2.73x its maximum width, prestigma 0.90x pterostigma.

Metasoma: T1 0.66x as long as wide, 0.92x as wide as T2 in dorsal view; T1-T5 and S2-S4 with distinct punctures, the diameter of most of the punctures less than interspace; S5 with few scattered punctures; T6 and S6 almost smooth; the narrow basal part of S1 smooth, posterior transverse area of S1 rather irregularly transversely striate, rugose at apex.

Male (Image 15): Body length (H+M+T1+T2) 12.5-13.5 mm; Forewing length 12-13 mm. Colour pattern is almost same as that of female except clypeus, a transverse band at lower frons and scape ventrally yellow. Inner eye margin sometimes yellow (usually yellowish brown) and sometimes extends towards the margins of frons and temple (Image 16). Head as wide as long in front view; mandible with teeth not strong as in female; interocular distance 1.13x greater on vertex than at clypeus; clypeus (Image 16) more elongate and the apex between two teeth slightly emarginate, width 0.86x length medially; POL 1.27x OOL; occipital carina come close to the eye at the lower side; antenna with the last segment hook like, almost reaches the apex of tenth antennal segment in curved position; mid femur basally emarginate; stiff and stout hairs forms spine-like structures at the apical margin of S7; genitalia as in image 17, apical tip of aedeagus rounded. Other characters almost same as in female.

Material examined: INDIA: Andaman & Nicobar Islands, South Andaman district, Premnagar, 1 ♀, 25.iii.1992, Coll. D. D. Prakasam, NZC Regd. No. 13781/H3. West Bengal: S-24 Parganas district, Sunderbans Tiger Reserve, Gosaba, 1 ♀ & 1 ♂, 12.ix.1983, Coll. S. S. Saha & Party, NZC Regd. Nos. 13785/H3 & 13851/H3.

Distribution: India: Andaman & Nicobar Island (new record), Karnataka, Tamil Nadu, West Bengal. *Elsewhere*: Throughout the Oriental Region, from Iran to New Guinea, Australia, Borneo, Indonesia (Batavia, Buitenzorg, Flores,

Java, Korinchi Valley, Krakatau, Sumatra), Malaysia (Malaya), Myanmar, New Guinea, Singapore, Sri Lanka, Taiwan. A questionable record from the Cape Province of the Cape of Good Hope of the Republic of South Africa.

(b). *Rhynchium haemorrhoidale andamanicum*
subsp. nov.
(Images 18-19)

This new subspecies is almost same to the nominotypical subspecies except mesosoma entirely black and head predominantly black with or without brown and yellow markings. Mandibles usually brown; clypeus usually with varying degree of brown markings (sometimes entirely black), sometimes a narrow brown marks on inner margin of eye; usually a brown area on temple; usually a transverse yellow band on lower frons (sometimes brownish and sometimes absent).

This subspecies comes close to *Rhynchium haemorrhoidale dohertyi* Schulz of Sanana Island (Indonesia) in general colour pattern but distinctly differs in the following characters: (1). Antenna ferruginous (In *R. h. dohertyi* antenna brown black at upper side and red ferruginous at lower side) and (2). Apex of S3-S5 (sometimes apex of S2 also) and S6 entirely red ferruginous to yellow ferruginous (In *R. h. dohertyi* sternites entirely black).

Material examined: Holotype: INDIA: Andaman & Nicobar Islands, South Andaman district, Port Blair, Delanipur, 1 ♀, 14.viii.1978, Coll. K. C. Banerjee, NZC Regd. No. 13777/H3. Paratypes: South Andaman district, Aberdeen bazar, 1 ♀, 19.vi.1935, Coll. H. S. Rao, NZC Regd. No. 13776/H3; Wandoor, 1 ♀, 15.vi.1982, Coll. R. M. Sharma, NZC Regd. No. 13778/H3; Port Blair, 1 ♀, 7.i.1984, Coll. Gopichand, NZC Regd. No. 13779/H3; Nicobar Islands, 1 ♀, 28.vii.1984, Coll. S. S. Saha, NZC Regd. No. 13780/H3; Port Blair, Dalthaman Tank, 1 ♀, 22.viii.1992, Coll. S. Kumar, NZC Regd. No. 13782/H3; North Andaman, North Reef Island, 1 ♀, 12.iii.1993, Coll. G. C. Rao & Party, NZC Regd. No. 13783/H3; South Andaman district, Port Blair, Haddo, 1 ♀,

16.vi.1996, Coll. P. Boominathan, NZC Regd. No. 13784/H3 (All type specimens are deposited at NZC).

3. *Rhynchium oculatum leviscutis* (Cameron)
(Images 20-24)

Odynerus leviscutis Cameron, 1908, *J. Bombay Nat. Hist. Soc.*, **18**: 306, male, Bombay (BMNH).

Rhynchium levisticus: Meade-Waldo & Morley, 1914, *Ann. Mag. Nat. Hist.*, (8) **14**: 405.

Odynerus "oculatum var. lefebri Lep.": Dover, 1925, *J. Proc. Asiat. Soc. Bengal.*, **20**: 297 (in subgenus *Rhynchium*).

Odynerus oculatum levisticus: Giordani Soika, 1941, *Boll. Soc. Venez. Stor. Nat.*, **2**: 262 (note on type; in subgenus *Rhynchium*).

Rhynchium oculatum levisticus: Giordani Soika, 1952, *Boll. Soc. Venez. Stor. Nat.*, **6**: 49.

Female (Image 20): Body length (H+M+T1+T2) 13.5 mm; Forewing length 13.5 mm. Body brown (and sometimes mixed with yellowish brown) with the following yellow markings: a broad transverse marks on lower frons; inner margins of eye extends towards temple and lower sides of occiput; tegula (sometimes yellowish brown); T2 almost entirely except basal triangular brownish marks; lateral sides of S2. Wings yellowish hyaline; veins yellowish brown. Body with rather sparsely to moderately dense fine golden pubescence.

Head: 1.05x as wide as long in front view (Image 21); clypeus strongly convex, pyriform, the extreme apex not sharply truncated, almost rounded, maximum width 0.93x length medially, with moderately deep punctures, larger punctures on middle and smaller on sides; mandibles on inner side with four rather broad and irregularly shaped teeth; labrum elongate rounded at apex; interantennal space smooth; a short and weak carina present at the middle of interantennal space; frons closely, weakly and rugosely punctured, the diameters of the punctures greater than the distance between the punctures; ocular sinus with weak punctures; area between the antennal toruli and inner eye margin smooth; POL 1.08x OOL; diameter of anterior ocellus 1.50x longer than the distance

between anterior ocellus and posterior ocelli; vertex weakly punctured except at shallow post ocellar fovea and area towards occipital carina almost smooth; temple weakly punctured, 0.93x as wide as eye in profile (measured through its ocular sinus); interocular distance 0.95x greater on vertex than at clypeus; occipital carina strong, complete and narrowed ventrally.

Mesosoma: Anterior face of pronotum smooth without punctures; pronotal carina strong and reaching the lateral margin of pronotum; posterior face and lateral sides of pronotum and mesoscutum strongly, closely and rugosely punctate except at lateral corner of posterior face of pronotum and posterior portion of mesoscutum; mesoscutum 0.89x as long as wide; mesoscutum posteriorly and scutellum almost impunctate with few sparse punctures on posterior sides; metanotum somewhat compressed medially, strongly punctured except at posterior portion smooth; propleuron almost smooth; mesopleuron rugosely punctured except epicnemium and posterior margin smooth; epicnemial carina distinct; upper metapleuron smooth at lower portion and punctate at upper portion, lower metapleuron almost impunctate with few weak incomplete transverse striations at anterior margin. Propodeum vertical, concavo-truncate posteriorly, the sides of triangular segment at the base of propodeum is of equal length, bordered on each side by a deep groove, punctures on basal half of dorsolateral area of propodeum with strong and rugose punctures except a small smooth area anteriorly, apical half of dorsolateral area of propodeum with strong transverse striations, posterior concave area of propodeum with somewhat regular transverse striations, lateral sides of propodeum with weak and sparse rugose punctures at upper portion and fine irregular transverse striations at lower portion, postero-lateral sides of propodeum with few strong stout spine-like structures. Tegula not evenly rounded posteriorly, emarginated adjoining parategula and shorter than parategula at apex; axillary fossa narrowed, slit-like. Midtibia with 1 spur. Forewing length 3.25x its maximum width, prestigma as long as pterostigma.

Metasoma: T1 0.61x as long as wide, 0.93x as wide as T2 in dorsal view; T1-T5 and S2-S5 with distinct but fine, smooth punctures, the diameter of most of the punctures less than interspace; T6 and S6 almost smooth; the narrow basal part of S1 smooth, posterior transverse area of S1 rather irregularly transversely striate, rugose at apex.

Male (Image 22): Body length (H+M+T1+T2) 10-12 mm; Forewing length 9.5-12.5 mm. Colour pattern is almost same as that of female except clypeus, a transverse band at lower frons and scape ventrally yellow. Inner eye margin yellow and narrowly extends towards temple. Head (Image 23) 1.06x as wide as long in front view; mandible with teeth not strong as in female; interocular distance 1.21x greater on vertex than at clypeus; clypeus (Image 23) more elongate and the apex pointed, width 0.82x length medially; POL 1.21x OOL; occipital carina come close to the eye at the lower side; antenna with the last segment hook like, almost reaches the apex of tenth antennal segment in curved position; mid femur basally emarginate; stiff and stout hairs at the apical margin of S7; genitalia as in image 24, apical tip of aedeagus almost rounded. Other characters almost same as in female.

Material examined: INDIA: Delhi, Delhi University Campus, 1 ♀ & 2 ♂, 21.ix.1961, Coll. V. K. Gupta & Party, NZC Regd. Nos. 13786/H3 to 13788/H3.

Distribution: India: Delhi (new record), Maharashtra.

Remarks: This is the second report of this subspecies from India after its original description from Mumbai (=Bombay) by Cameron in 1908.

5. *Rhynchium atrum atrum* de Saussure

Rhynchium atrum de Saussure, 1852, *Ét. Fam. Vesp.*, 1: 109, female, male (*Rhynchium*), Indes Orientales, Sunda Is., New Guinea (Neotype female USNM).

Rhynchium haemorrhoidale var. *atrum*: Maindron, 1882, *Ann. Soc. Entomol. France*, (6) 2: 280.

Rhynchium atrum atrum: van der Vecht, 1968, *Zool. Meded.*, 42: 256 (designation of neotype female from Manila; redescription female, male)

Diagnosis: Female: Body length (H+M+T1+T2) 13-16 mm. Body black except the following parts dull red: mandibles, clypeus, a spot between and above the antennae, a line at inner and outer orbits, dilated on upper part of temples, part of the post-ocellar fovea on the vertex, and anterior part of pronotum; antennae ferruginous; terminal antennal segment somewhat brownish; ill-defined reddish markings on the sides of scutellum and propodeum and on upper part of mesepisternum; legs black; fore legs with red spot on coxae, and reddish beyond the base of femora; distal half of midfemora reddish anteriorly. Wings yellowish, basal third of forewing and basal half of hind wing infuscated.

Male: Body length (H+M+T1+T2) 11-13 mm. Similar to female, but the red markings often less extensive; mandible black, clypeus yellow; interantennal mark, a line on the antennal scape and a line on the lower side of the eye emargination pale yellow.

Behaviour: See Williams (1919 & 1928).

Distribution: India ("Indes Orientales") is doubtful. Elsewhere: Malayan region to New Guinea, Myanmar, Philippines, Sunda Islands and Taiwan.

Remarks: Saussure (1852) described this species from "Indes Orientales" and Smith (1857) in his catalogue mentioned its presence from India. Bingham (1897) not studied any specimens of this species from India but mentioned its presence in India based on de Saussure and Smith. After that there is no reference of this species from Indian region. We examined a large number of specimens of the genus *Rhynchium* from all over India, but did not find any single specimen of this species. So, we strongly doubted about the identity of this species by de Saussure (1852) from "Indes Orientales" is incorrect.

Since the specimens are not available, the diagnostic characters were taken from van der Vecht (1968).

SUMMARY

The genus *Rhynchium* Spinola from Indian subcontinent is reviewed, recognizing 4 species in the subcontinent. An illustrated key to species/subspecies of the genus from Indian subcontinent is provided. Detailed description of each species is also provided. The species *Rhynchium brunneum* (Fabricius, 1793) is reported here for the first time from Andhra Pradesh, Assam, Chhattisgarh, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Manipur, Mizoram and Tripura. The species *R. carnaticum* (Fabricius, 1798) is reported here for the first time from Andhra Pradesh, Assam, Bihar, Delhi, Himachal Pradesh, Jharkhand, Karnataka, Madhya Pradesh, Meghalaya, Odisha and Uttarakhand. This species is herewith recorded for the first time from Pakistan also. The subspecies *R.*

haemorrhoidale haemorrhoidale (Fabricius, 1775) is reported here for the first time from Andaman & Nicobar Island. A new colour form of the species *R. haemorrhoidale* namely *R. haemorrhoidale andamanicum* subsp. nov. is described. The subspecies *R. oculatum leviscutis* (Cameron, 1908) is recorded for the first time from Delhi.

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PLATE I



1



2



3



4



5



6

Images : 1-6. *Rhynchium brunneum brunneum* (Fabricius). 1-3 Female. 1 Body profile; 2. Head front view; 3. Mesosoma dorsal view. 4-6 Male. 4. Body profile; 5 Head front view; 6. Antenna.

PLATE II



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Images : 7-8. *Rhynchium brunneum brunneum* (Fabricius) Male. 7. Mid femur; 8. Genitalia. Images 9-12. *R. cornaticum* (Fabricius). 9-10 Female. 9. Body profile; 10. Head front view. 11-12 Male. 11. Body profile; 12. Head front view.

PLATE III



13



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18

Image : 13. *Rhynchium cornaticum* (Fabricius) Male. Genitalia. Images 14-17. *R. haemorrhoidale haemorrhoidale* (Fabricius). 14. Female Head front view. 15-17 Male. 15. Body profile; 16. Head front view; 17. Genitalia (Parameral spine broken). Image 18. *R. haemorrhoidale andamanicum* ssp. nov. Female Body profile.

PLATE IV



19



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23



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Image: 19. *Rhynchium haemorrhoidale andamanicum* ssp. nov. Female. Head front view. Images 20-24. *R. oculatum leviscutis* (Cameron). 20-21. Female. 20. Body profile; 21. Head front view. Images 22-24. Male. 22. Body profile; 23. Head front view; 24. Genitalia.