New genus and new subgenus of subfamily Doryctinae (Hymenoptera: Braconidae) from the Old World fauna

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Abstract – New genus Doryctoproctus n. gen. (type species D. africanus n. sp.) from South Africa, and new subgenus of the genus Pedinotus Szépligeti (Eopedinotus n. subgen. (type species Pedinotus (Eopedinotus) inopinatus n. sp.) from Philippines are described. The genus Pedinotus is recorded in Old World for the first time.


The braconid wasps of the subfamily Doryctinae are one of the most diverse groups of parasitic wasps. They are distributed in all continents of the World. The genera of this subfamily are quite well studied in the Neotropical Region (Marsh, 1993, 2002; Braet & Achterberg, 2001; Braet et al., 2003) due to long-term intensive collecting and investigation of the very rich material from this region. On the other side, the tropical and subtropical faunas of Doryctinae in the Old World are only studied at generic level and poorly investigated till now (except perhaps for the Australasian fauna: Belokobylskij et al., 2004). It is necessary to have a special investigation of this group in the Old World fauna with intensive collecting material from the different localities of the Afrotropical and Oriental Regions.

The described below new genus and new subgenus have relatives in the Neotropical fauna. Doryctoproctus gen. n. from South Africa is closely similar to Neotropical Megaloproctus Schulz (Marsh, 1983, 2002), but from the other side has not real relatives in doryctine genera of the Afrotropical fauna. The genus Pedinotus Enderlein was previously known from the Neotropical Region. This genus is here recorded for the Old World fauna (Philippines) for the first time. But the new Oriental species P. inopinatus sp. n. differs from the Neotropical species in the medial cell of hind wing distinctly widened distally, the frons not concave, the second radiomedial cell of fore wing long, and the metasoma entirely densely pubescent. These are the main diagnostic characters of the new subgenus described below.

The terms for wing venation used to be defined by Belokobylskij & Tobias (1998). The following abbreviations are used: POL – postocellar line; OOL – ocular-ocellar line; Od – maximum diameter of lateral ocellus; BMNH – The Natural History Museum (London, U.K.); CNCI – Canadian National Collection of Insects (Ottawa, Canada); HNHM – Hungarian Natural History Museum (Budapest, Hungary); MIZW – Museum and Institute of zoology (Warsaw, Poland); ZISP – Zoological Institute, Russian Academy of Sciences (St. Petersburg, Russia).

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SYSTEMATICS

*Doryctoproctus* n. gen

Type-species: *D. africanus* n. sp.

**Etymology** – combination from the doryctine generic names *Doryctes* Haliday and *Megaloproctus* Schulz because new genus has the characters of the both these genera. Gender is masculine.

**Diagnosis** – This new genus is more similar to *Megaloproctus* Schultz 1906 and differs in the second suture distinctly broken laterally, the second tergite with deep lateral furrows, the third tergite without transverse furrow, the sides of pronotum with distinct round tubercle, the propodeum with five marginate areas, the pronotal carina present, the pronotum, metapleurum and first tergites sculptured for the most part, and the submedial cell short. From the Afrotropical doryctins, the new genus is similar to *Priosphys* Enderlein 1920 and *Odontodoryctes* Granger 1949, but it differs in the hind coxa without dorsal teeth, the second tergite with lateral furrows, the propodeum with marginate areas, the second suture distinctly broken laterally, and the sides of pronotum with distinct round tubercle. *Doryctoproctus* gen. n. differs from *Doryctes* Haliday 1836 in the hind coxa without basoventral tooth, the second tergite with deep lateral furrows, the sides of pronotum with distinct round tubercle, the submedial cell short, and the metapleural lobe small.

**Description** – Head (figs 1, 2) not depressed, weakly transverse. Ocelli arranged in weakly obtuse triangle. Frons weakly concave, without median keel. Eyes glabrous. Occipital carina complete dorsally, obliterate below at rather long distance upper hypostomal carina. Malar suture absent. Clypeus with distinct but rather narrow lower flange, marginate upper and laterally by more or less distinct carina. Face above clypeus with 2 rather deep short oval depressions. Hypoclypeal depression medium size and round. Postgenal bridge very narrow. Palpi long, maxillary palpi 6-segmented, labial palpi 4-segmented. Third segment of labial palpi not shortened, long; second segment distinctly widened toward apex. Scapus (fig. 3) wide and short, without apical lobe or basal constriction. First flagellar segment subcylindrical, almost not curved outer, longer than second segment.


*Wings* (figs 10, 11). Pterostigma of fore wing rather wide. Radial vein arising weakly behind middle of pterostigma. Radial cell weakly shortened. Both radiomedial veins present. Recurrent vein distinctly antefurcal. Nervulus postfurcal. Discoidal cell petiolate. Parallel vein arising from posterior 1/4 of apical side of brachial cell. Brachial cell closed postero-apically. Transverse anal veins absent. Hind wing with 3 hamuli. First abscissa of costal vein 0.7-0.85 times second abscissa. Radial vein arising from costal vein closely or very closely to basal vein. Radial cell almost parallel-sided, without additional transverse vein. Medial cell wide, 7.0-7.5 times as long as wide, 0.45-0.5 times as long as hind wing. Nervellus present. Submedial cell small. First abscissa of mediocubital vein 0.35-0.45 times as long as second abscissa. Recurrent vein long, distinctly oblique toward base of wing.
Legs. Fore tibia with several distinct short thick spines arranged in single row. Middle tibia with a few slender small spines. Hind coxa with 1-2 small spines on apical outer margin. Hind tibial spurs rather short, slender, subequal, setose, inner spur about 0.25 times as long as hind basitarsus. Basitarsus of hind tarsus 0.85-0.95 times as long as second-fifth segments combined.

Metasoma (fig. 9). First tergite not petiolar, rather long. Acrosternite with wide and not high median keel, 0.2-0.25 times as long as first tergite, its apical margin situated distinctly before level of spiracles. Dorsopore of first tergite large, basolateral lobes absent; spiracles situated in basal 0.3 of tergite; dorsal carinae present in basal half. Second tergite in female with deep, wide and weakly divergent posteriorly lateral furrows. Second suture in female shallow, but distinct, widely curved medially, strongly broken laterally. Second and third tergites with separate lateroter- gites. Tergites behind third one in basal halves covered by sparse long white setae, laterally and seventh tergite almost entirely covered by dense setae. Ovipositor with 3 obtuse and small dorsal long white setae, laterally and seventh tergite almost entirely covered by dense setae. Ovipositor sheath longer than metasoma, somewhat shorter than body.

Distribution – Afrotropical Region (South Africa).

**Doryctoproctus africanus** n. sp.


**Description** (figs 1-11) – Female – Body length 11.7-15.2 mm; fore wing length 10.3-11.6 mm. Head width 1.25-1.3 times its median length, 1.2 times width mesoscutum. Head behind eyes rounded narrowed. Transverse diameter of eye 1.4-1.7 times as long as temple. Ocelli medium size, in triangle with base 1.2-1.5 times its sides, situated near median line of eyes. POL 0.7-1.0 times Od, 0.3-0.45 times OOL. Eye with very small emargination opposite antennal sockets, 1.15-1.2 times as high as broad. Malar space height 0.45-0.5 times height of eye, 0.9-1.0 times basal width of mandible. Face width 1.15-1.2 times height of eye and 1.4-1.5 times height of face and Clypeus combined. Clypeus flat. Hypoclypeal depression round, its width 0.8-0.9 times distance from edge of depression to eye, 0.4-0.45 times width of face. Hypostomal flange distinct, but narrow. Palpi long, length of maxillary palpi 1.3-1.4 times head height (without mandible).

**Antennae** setiform, 70-72-segmented, 1.3 times as long as body. Scapus 1.5-1.7 times as long as its maximum width. First flagellar segment 4.5-5.0 times as long as apical width, 1.15-1.25 times as long as second segment. Penultimate segment 3.3-3.5 times as long as wide, 0.2-0.25 times as long as first flagellar segment, 0.8 times as long as apical segment; the latter with distinct apical spine.

**Metasoma.** Length 2.0-2.1 times its height. Median lobe of mesoscutum convex, distinctly protruding forward and rounded. Notauli deep and smooth anteriorly, shallow and usually widely coarsely crenulate posteriorly, rarely partly finely rugulose posteriorly. Prescutellar depression rather deep, with 1-3 carinae, almost smooth between carinae, 0.4-0.5 times as long as scutellum. Subalar depression smooth, but finely rugulose anteriorly. Sternauli connected with prepectal carina anteriorly, shallow or very shallow posteriorly, running along anterior 0.8-0.9 of lower part of mesopleura. Metapleural lobe without dense pubescence.

**Wings.** Fore wing 3.5-3.6 times as long as its maximum width. Pterostigma 3.5-4.3 times as long as wide. Metacarpus 1.3-1.4 times as long as pterostigma. First and second radial abscissae forming very obtuse angle. Second radial abscissa 2.0-3.3 times first abscissa, 0.4-0.45 times weakly curved third abscissa, 1.1-1.4 times first radiomedial vein. Second radiomedial cell short, 2.2-2.5 times as long as its maximum width, 0.9-0.95 times as long as brachial cell. First medial abscissa weakly S-shape. Distance from nervulus to basal vein 0.6-1.0 times nervulus length. Hind wing 4.7-5.0 times as long as wide. Recurrent vein mostly straight, curved distally, interstitial, unclosertised.

**Legs.** Hind coxa oval, 1.7-1.8 times as long as wide. Hind femur 3.3-3.4 times as long as wide. Hind tarsus almost as long as hind tibia. Second tarsal segment 0.4-0.45 times as long as basitarsus, 1.5-1.8 times as long as fifth segment (without pretarsus).

**Metasoma** 1.1-1.4 times as long as head and mesosoma combined. First tergite without spiracular tubercles, distinctly and almost linearly widened from base to apex. Maximum width of first tergite 1.55-1.7 times its minimum width; length 1.5-1.8 times its apical width. Median length of second tergite 0.5-0.6 times its basal width, almost equal to length of third tergite. Ovipositor sheath 0.8-0.9 times as long as body. 1.4-1.7 times as long as metasoma, 1.0-1.1 times as long as fore wing.

**Sculpture and pubescence.** Vertex, frons and temple smooth; face densely punctulate with rugosity in upper 1/3, often with fine and dense granulation between punctulae, almost smooth medially and below. Side of pronotum almost smooth upper and sometimes medially, rugose-striate anteriorly and posteriorly or for the most part. Mesoscutum smooth, coarsely transversely striate in rather wide area in medioposterior half, rarely finely rugulose posteriorly. Scutellum densely and finely punctulate. Mesopleura smooth. Propodeum with marginate areas; basolateral areas smooth, coarsely rugose near basal carina; areola wide, rugulose or rugose at least partly, 0.85-1.5 times as long as wide; rest of propodeum rugulose or smooth; basal carina 0.5-1.0 times as long as fork of areola. Hind coxae smooth, narrowly and usually finely rugose dorsally. First tergite densely striate, almost smooth on medioposterior 1/3-2/5. Rest tergites smooth Vertex entirely with rather sparse long erect setae. Antenna with long dense black erect or semi-erect setae. Mesoscutum glabrous, with
rather sparse and long erect setae arranged widely along notauli and more narrowly marginally. All legs with long dense erect setae; hind tibia dorsally with long dense and erect setae; length of their setae 0.9-1.5 times maximum width of hind tibia.

**Colour.** Head yellow, frons and the most or significant part of vertex brown. Mesos- and metasoma black with reddish spots; propodeum sometimes reddish brown in basal 1/2-2/3. Sometimes posterior half of propodeum, narrow dorsal part of pronotal side, dorso-anterior corner of mesopleura and propodeum almost entirely brownish yellow or reddish brown; anterior half of propodeum dark reddish brown, anterior half of metapleura and apex of metasoma reddish brown. Metasoma ventrally in anterior 1/2-2/3 milk white or yellow. In dark form, the most part of head and almost entirely meso- and metasoma black; metasoma ventrally reddish brown to dark reddish brown. Antenna black, two basal segments usually dark reddish brown. Palpi yellow. Fore legs yellow; middle legs coxa reddish brown, tarsi sometimes infuscate; hind leg black or dark reddish brown. In dark form, fore coxa, tibia and tarsus reddish brown to dark reddish brown; middle and hind legs dark reddish brown to black entirely. Ovipositor sheath black. Fore wing yellow in basal 3/4, brown in apical 1/4, with hyaline rather large spot submedially in brown part (but absent in dark form); metastigma and apex of costal vein black, small area around parastigma brown; sometimes present narrow and incomplete transverse stripe opposite parastigma. Hind wing yellow for the most part, narrowly infuscate apically. Pterostigma yellow.

**Male** – Body length 5.7 mm; fore wing length 4.5 mm. Transverse diameter of eye 1.1 times as long as temple. Antennae 44-segmented. First flagellar segment 5.5 times and penultimate segment 3.5 times as long as their width. Length of mesosoma 2.5 times its height. Notauli finely and shortly crenulate posteriorly. Areola of propodeum narrow, 2.5 times as long as wide. Second radiomedial cell 2.9 times as long as its maximum width. Hind coxa twice as long as wide, rather widely and coarsely rugose-striate dorsally. Hind tibia dorsally with very long setae; length of their setae 1.8-2.3 times maximum width of hind tibia. Length of first tergite 2.4 times its apical width. Second suture shallow and almost straight. Second tergite without lateral furrows, striate-granulate in basal half; its length 1.15 times basal width, 1.2 times length of third tergite. Frons and vertex of head rather narrowly infuscate medially. Scutellum, metanotum and propodeum yellow. Hind leg yellowish brown, hind tibia in basal half yellow, hind tarsus brownish yellow. Otherwise similar to female.

**GENUS Pedinotus** Szepligeti, 1902

**SUBGENUS Eopedinotus** n. subgen.

Type-species: Pedinotus (Eopedinotus) inopinatus n. sp.

**Etymology** – from “eous” (Latin for “eastern”) and generic name Pedinotus. Gender is masculine.

**Diagnosis** – New subgenus differs from nominative subgenus Pedinotus s. str. in the submedial cell of hind wing strongly widened toward apex (mostly subparallel-sided or weakly widened distally in the nominative subgenus), the second radiomedial cell of fore wing long (short in nominative subgenus), the frons not concave medially (more or less distinctly concave in nominative subgenus), and the metasoma entirely densely pubescent (with subapical rows of setae in nominative subgenus).

**Description** – Ocelli arranged in triangle with base 1.2 times its sides, situated before median line of eyes (fig. 13). Frons not concave medially. Face above clypeus with 2 distinct short depressions (fig. 12). Eye glabrous. Malar suture shallow and narrow. Clypeus with distinct lower flange. Pronotum without convex lobe dorsally; with distinct pronotal keel situated closely to anterior margin of pronotum (fig. 16). Prepectus with 2 lateral carinae. Prepectal carina ventrally without lobes. Notauli complete. Propodeum with small lateral tubercles. Radial vein of fore wing arising before middle of pterostigma (fig. 20). Radial cell not shortened. Second radiomedial cell long. Nervulus convex. Parallel vein arising from posterior 1/3 of distal margin of brachial cell. Hind wing (fig. 21) with 3 hamuli. Submedial cell strongly widened toward apex. First absissa of mediooculitual vein half as long as second absissa. Hind femur (fig. 17) submedially with distinct dorsal protuberance. Hind basitarsus 0.75 times as long as second-fifth segments combined. First tergite of metasoma (fig. 22) with large dorso and distinct latero. Second tergite with deep and convergent posteriorly lateral furrows margined subtrapezoid median area. Second suture deep, narrow laterally and very wide medially, distinctly curved medially. Ovipositor sheath long.

**Pedinotus (Eopedinotus) inopinatus** sp. n.
(figs 12-22)

**Type material** – **Holotype:** ♂, Philippines “Momungan, Mindanao” (date and collector unknown) (HNHM).

**Description** – **Female.** Body length 9.7 mm; fore wing length 7.7 mm. Head width 1.2 times its median length. Head behind eyes roundly narrowed. Transverse diameter of eye 1.7 times as long as temple. Ocelli medium size; POL 1.15 times Od, 0.8 times OOL. Eye distinctly concave opposite antennal sockets. 1.25 times as high as broad. Malar space height 0.4 times height of eye, 0.8 times basal width of mandible. Face width 1.1 times height of eye and 1.3 times height of face and clypeus combined. Clypeus marginate upper and laterally by distinct carina. Hypoclypeal depression round, its width equal to distance from edge of depression to eye, 0.45 times width of face. Occipital carina complete dorsally, obliterated ventrally at short distance before reaching hypostomal carina. Palpi long.

Antennae missing, kept scapus and pedicle only. Scapus simple, 1.8 times as long as its maximum width, 4.5 times as long as pedicle.

Mesosoma very weakly depressed; its length 2.1 times height. Mesoscutum weakly and roundly raised above pronotum. Median lobe of mesoscutum weakly protruding forward. Notauli deep and narrow anteriorly, shallow and wide posteriorly, crenulate.
Prescutellar depression rather deep, with 5 distinct carinae, finely rugulose between carinae, 0.3 times as long as scutellum. Subalar depression deep, rather wide, rugose-striate. Sternauli distinct, shallow, narrow, but widened medially, straight, smooth, connected with prepectal carina anteriorly, running along entire length of lower part of mesopleura. Mesopleural suture anteriorly coarsely and sparsely crenulate.

Wings. Fore wing 3.8 times as long as its maximum width. Pterostigma about 5.0 times as long as wide. Apical part of pterostigma (from apex to radial vein) 1.5 times its basal part (from radial vein to base of pterostigma). Metacarpus 1.2 times as long as pterostigma. Second radial abscissa 4.1 times first abscissa, 0.9 times the straight third abscissa, about twice first radiomedial vein. Second radiomedial cell 3.5 times as long as its maximum width, 1.5 times as long as brachial cell. Recurrent vein shortly antefurcal. Distance from nervulus to basal vein 1.3 times nervulus length. Hind wing 3.5 times as long as wide. First abscissa of costal vein 0.6 times as long as second abscissa. Radial cell almost parallel-sided. Recurrent vein interstitial, weakly curved toward apex of wing.

Legs. Fore tibia with distinct coarse spines arranged almost in single row. Fore tarsus long, 1.5 times as long as fore tibia. Hind coxa with basoventral tubercle. Hind femur 3.6 times as long as wide. Hind tibia with 5 spines on apical outer margin. Hind tarsus 0.9 times as long as hind tibia. Second tarsal segment about 0.45 times as long as basitarsus, 1.2 times as long as fifth segment (without pretarsus).

Metasoma 1.2 times as long as head and mesosoma combined. First tergite without spiracular tubercles, spiracles situated in basal 0.3; tergite weakly and almost linearly widened from base to apex. Maximum width of first tergite 1.4 times its minimum width; length 1.4 times its apical width. Length of second tergite 0.5 times its basal width, 0.85 times length of third tergite. Ovipositor sheath 1.5 times as long as metasoma, twice as long as mesosoma, 0.95 times as long as fore wing.

Sculpture and pubescence. Vertex finely and very densely punctulate, frons smooth medially, punctulate laterally. Face densely rugose-reticulate, partly with granulation, deeply punctulate below. Mesoscutum finely punctulate, almost smooth. Scutellum densely and finely punctulate. Mesopleura very finely punctulate, almost smooth. Propodeum with distinctly marginate areas; basolateral areas large, distinctly and sparsely punctulate, smooth between punctulate; rest of propodeum rugose; areola short and wide; basal carina 1.8 times as long as areola fork. Hind coxae finely and densely punctulate. First tergite rugose-reticulate, with sparse striae, dorsal carinae distinct in basal 2/3 of tergite. Second tergite entirely, third and fourth in basal 2/3-3/4 striate, punctulate-rugulose between striae; fifth-seventh tergites very densely punctulate in basal 2/3-3/4; apical 1/3-1/4 of third-sixth tergites smooth. Vertex almost entirely with dense, rather long, semi-erect white setae. Mesoscutum, mesopleura and tergites of metasoma entirely with dense, rather short, semi-erect white setae. Hind tibia dorsally with rather sparse and semi-erect medium length setae; length of the longest setae 0.5-0.6 times maximum width of hind tibia.

Colour. Head black. Mesosoma reddish brown to dark reddish brown, black dorsally. Metasoma dorsally black and with reddish brown apex, ventrally brownish yellow for the most part; third-sixth tergites whith on posterior 1/3-1/4. Scapus and pedicel black. Palpi brownish yellow. Legs dark reddish brown, fore coxa, trochanter and most part of femur yellowish brown; all tibiae basally pale at short distance. Ovipositor sheath black. Fore wing very faintly infuscate. Pterostigma brown.

Male – Unknown.

Diagnosis – The new species differs from the genotype *P. brasiliensis* Szepligeti (♀, “Fonteboa, Brasil”, “brasiliensis, det Szepligeti”, “Holotype *Pedinotus brasiliensis* Szepl. 1902, Papp ’69, Hym. Typ. No 1611, Mus. Budapest”; HNHM; examined) (Szepligeti, 1902) in the mesosoma not depressed, the second radiomedial cell long, the submedial cell of hind wing strongly widened toward apex, the third abscissa of costal vein of hind wing short, the propodeum with marginate areas, the second suture very wide medially, all the metasomal tergites entirely and very densely pubescent, and the tergites third to sixth white posteriorly.

*P. (E.) inopinatus* n. sp. distinctly differs from *P. columbianus* Enderlein (Colombia, Costa Rica) (♀, holotype, “Columbien,
Hac. Pehlke, E. Pehlke S., IV-VI.08", “Type”, “Pedinotus columbiaus Enderl., O, Type, Dr. Enderlein det. 1912”; MIZW; examined in the second radiomedial cell very long, the submedial cell of hind wing strongly widened toward apex, the frons not concave medially, the first tergite long, the second tergite short, all the metasomal tergites entirely and very densely pubescent, the tergites third to sixth white posteriorly, and the hind tibia dark brown basally.

This new species differs from *P. ferrugineus* (Enderlein) (compare with holotype: O (without metasoma!), “Mexico, Chiapas, L. Conradt S., 2-11-07”, “Type”, “Goniogmus ferrugineus Enderl. O, Type, Dr. Enderlein det. 1919”; MIZW; examined) in the second radiomedial cell long, the mediocubital cell of hind wing wide, the vertex and mesoscutum very densely setose, the head and mesosoma dark, and the hind tibia dorsally with dense short and sparse long setae.

New species differs from the recently described from Costa Rica *P. niger* Marsh (Marsh, 2002) in the second radiomedial cell long, the mediocubital cell of hind wing wide, the metasoma dorsally black and with reddish brown apex, the vertex almost smooth, the sternauli smooth, the areola of propodeum present, the second suture wide medially, the mesoscutum very densely setose, the head and mesosoma dark, the hind tibia dorsally with dense short and sparse long setae, and the ovipositor longer.

**Distribution** – Oriental Region (Philippines).

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