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*Epicharis (Epicharoides) decellii*,  
a new neotropical species of bee (Anthophila,  
Centridini) from Serra da Mantiqueira region  
(Penedo, Itatiaia, RJ, Brazil)<sup>1</sup>

*Epicharis (Epicharoides) decellii*,  
uma nova espécie neotropical de abelha (Anthophila,  
Centridini) da região da Serra da Mantiqueira  
(Penedo, Itatiaia, RJ, Brasil)<sup>1</sup>

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& LETICIA NERY<sup>3</sup>

The description of this species of bee is a part of a larger project being developed in cooperation with members of Fiocruz (*Coleção Entomológica do Instituto Oswaldo Cruz*), Rio de Janeiro, Brazil. The main goal is to compare faunistic parameters extracted of the bee collection made by José Francisco Zikán (*Coleção Zikán*), now mainly at Fundação Oswaldo Cruz, with that from bee samples made in the same general area by the senior author with the help of Mister Ari Hohenthal in Serra da Mantiqueira Region, specially at Itatiaia and its vicinities.

The species of *Epicharoides* are found from Querétaro de Arteaga, Sinaloa, in the higher lands of Mexico (nearctics) through neotropics occurring in Costa Rica, French Guiana, Venezuela, Colombia, Paraguay, Uruguay, Brazil and Argentina (see MOURE ET. ALL., 2012, <<http://www.moure.cria.org.br/catalogue>>, accessed nov/18/2012).

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<sup>1</sup>Part of a project on the bees of Itatiaia (Apifauna de Itatiaia (RJ): Biofaunística e diversidade: de Zikan ao presente. The members; Sebastião Laroca (coordinator), Sandor Buys, Maria Christina de Almeida, Leticia Nery Alves Sant'Ana and Maria Alice Gonçalves (history of science). <sup>2</sup> Senior Professor (UFPR) and scientific colaborator in *Biodiversity [Coleção Entomológica do Instituto Oswaldo Cruz (Fiocruz, RJ, Brazil)]*. Email: slaroca@netpar.com.br. <sup>3</sup>Bolsista, *Fundação Oswaldo Cruz (Coleção Entomológica do Instituto Oswaldo Cruz)*. Pavilhão Mourisco, Av. Brasil 4365, Manginhos 21040-360, Rio de Janeiro, RJ.

Females and males of present species were collected in the surroundings of Penedo (Itatiaia) near a moderately disturbed piece of a tropical forest on the blue flowers of the garden species *Duranta erecta* Linnaeus.

After Dr. Peter Ashlock (*in memoriam*) (in a class at *The University of Kansas*, Lawrence, KS, USA) the description of a new organism is always a scientific hypothesis in which the author implicitly says: "Here is an organism which I think it is new, by the hypothesis has to be tested by other members of the scientific community". Therefore, it is with this spirit we present this description.

#### FEMALE (Figs 1-3)

**DIMENSIONS** — Total length (approximately): 19 mm, maximum head width: 5.4 mm, forewing length (including tegula): 10.5 mm.

**INTEGUMENTAL COLOR** — Black, but a yellow spot at mandibular base dorsally, entire labrum, at each side of clypeus an irregular trapezoid area and an irregular triangular area at praocular areas reaching the internal orbits and, superiorly, at the middle of the antennal alveolus; the internal side somewhat irregular: also a small band at each mandibular base and another at each scape apex, a small also at each side of pronotum, and two spots at scutellum; is yellow also 1/3 of the tegulae basally and a small yellow spot at each hind wing basal sclerite; is yellow an elongated band at each side of T1 and another another at each margin of T2 to T5; in T2 it is wider and at each sides it is yet wider; the one at T5 is interrupted at median area (in which it is yellow-ferruginous), the disc of basal basal plate of posterior tibia; posterior tibiae and tarsi as well as abdomen ventrally yellow-ferruginous.

**PILOSITY** — Labrum with yellow-rufous somewhat decumbent setae about 0.6-0.7 mm long, and shorter hairs 0.1-0.2 mm long; clypeus laterally with long decumbent brownish setae 0.6 mm and shorter ones (about 0.2 mm); disc bare; at praocular areas short dark brownish plumous hairs being longer superiorly at the front; the ones at vertex longer (about 0.75 mm) and ramified ones; gena inferiorly with copious pale yellowish, being shorter superiorly; area near superior eye mar-

gin; scutellum disc also glabrous but with plumous hairs in the sides and posteriorly; at metanotum and at propodeal flanks they are copious, while the basal area of propodeum is almost bare; mesepisternum with semi-erect setae hooked with the tips turned backward; metasomal terga univormely covered with short decumbent brownish setae; metasomal sterna S2 to S5 (base) with long (about 1.0-2.0 mm long) semi-decumbent setae and shorter golden-yellow hairs, uniformly distributed; apex of S5 almost bare.

SCULPTURING (PUNCTUATION) — Clypeal disc brilliant and somewhat rugous, punctures scatterly distributed, interspaces variable, median regions surface almost smooth and polished; laterally denser punctures, interspace less than a diameter puncture; in face regular punctuation with interspace of one halfm to two diameters of the punctures, except in the yellow area in which punctuation is sparsed and piliferous; the frontal carina is strong. Mesonotum with a minute punctuation regularly distributed, in which the interspaces are reduced to minute carinas, with also a grosser punctuation distributed sparsely all over the surface; the same punctuation is observed in the scutellum surface; mesepisterno with a rough punctuation uniformly distributed with interspace equivant to 1.5-2.0 diameters of punctures; metasomal terga uniformly covered with a very fine punctuation and also larger piliferous punctures; yellow bands provided only with fine punctuation and larger piliferous punctures regularly distributed, interspaces 3-5 diameters of punctures; grosser punctures (0.1 mm) more or less uniformly distributed at S1 to S5.

MEASUREMENTS AND PROPORTIONS — Head approximately 1.5 times wider than longer (5.4: 3.5 mm); compound eyes convergent, lower interorbital distance less than upper (2.6: 2.8 mm); clypeus 1.6 wider than longer (2.4: 1.5 mm); eyes almost twice times as longer as wider (3.4: 1.75 mm); malar area length a litle less tha diameter of scape (0.2: 0.25 mm); interocellar distante twice the diameter of median ocellus and this less than half the ocello-orbital distance (0.6: 0.3: 0.75 mm); intervalveolar distance more than twice alveolar diameter and greater alveolo-orbital distance (0.9: 0.4. 0.45 mm); scape length 2.5 times its maximum diameter (0.5: 0.2 mm); pedicel diameter approximately 1.7 times its length (0.25: 0.15); length of first flagellomere 4.5 times length

of second and 2.6 times length of third (0.9: 0.2: 0.35 mm); hind basitarsus 1.85 times longer than its width (3.7: 2.0 mm); discal cell length a little more than jugal lobe length and 1.7 times the vanal lobe length (2.9: 2.6: 1.7 mm).

MALE  
(Figs 4-6)

DIMENSIONS — Total length (approximately): 13.4 mm, maximum head width: 4.45 mm, forewing length (including tegula): 12.6 mm.

INTEGUMENTAL COLOR — Black but yellow on about 60 % of mandibular surface dorsally; apical part of mandibles is yellow to weak ferruginous; entire labrum, clypeus (except anterior tentorial pit, most part of hypostomal suture, disc carina and marginal band which are dark brown almost black), a triangular band in paracocular areas, from near malar area to 1/2 of alveolus with irregular upper limit; it is also yellow the anterior surface of scape; also yellow are one band transverse (interrupted in the middle) at pronotum, 3/4 of scutellum surface apically; a band at vertical area of T1; a band at T2 to T5, the T2 one is



Fig.1. *Epicharis (Epicharoides) decellii* n. sp., female: lateral view.

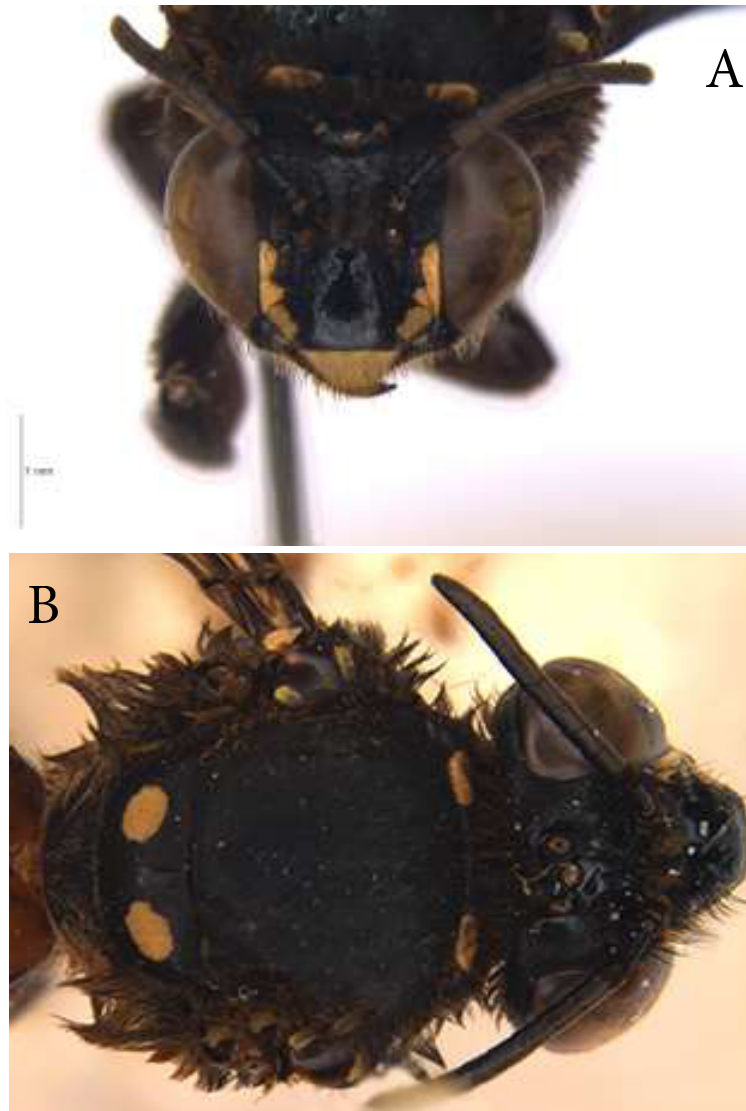


Fig.2. *Epicharis (Epicharoides) decellii* n. sp. , female: A, head, frontal view; B, head and thorax upper view.



Fig.3. *Epicharis (Epicharoides) decellii* n. sp. , female: A, posterior wing and basitibial plate of posterior tibia; B, hooked setae of mesepisternum (in detail).



Fig. 4. *Epicharis* (*Epicharoides*) *decellii* n. sp., male: A, frontal view of head; B, dorsal view of thorax and T1 and T2.



Fig.5. *Epicharis (Epicharoides) decellii* n. sp., male abdomen: A, dorsal view; B, ventral.



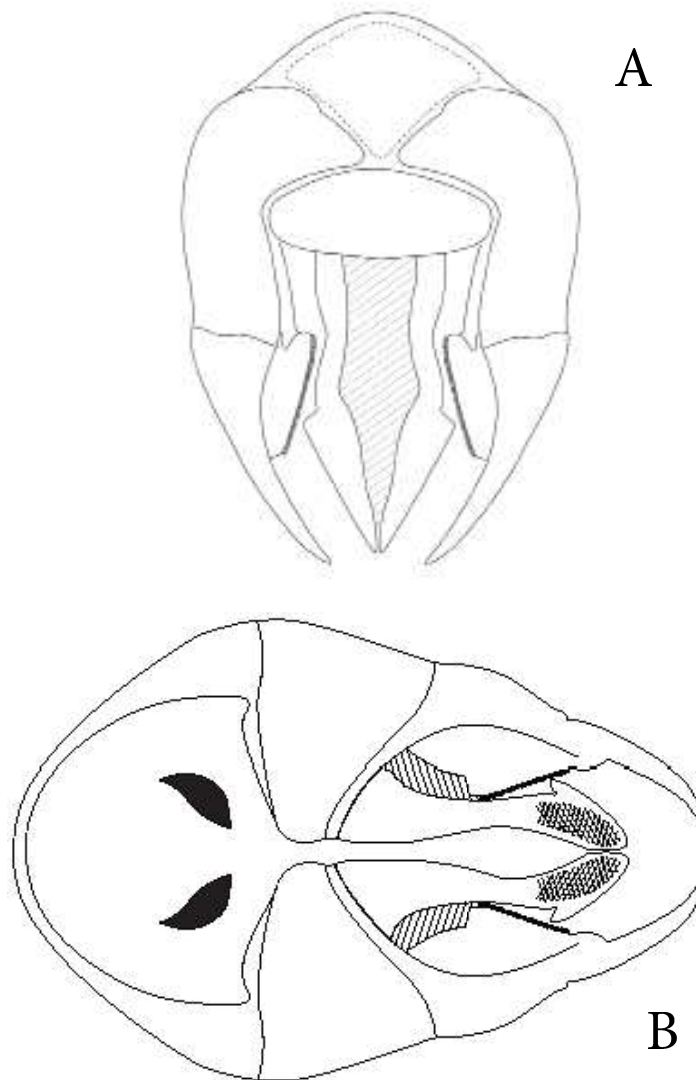


Fig.6. *Epicharis (Epicharoides) decellii* n. sp., schematic drawings of male genitalia: A, dorsal and B, ventral views.

wider occupying almost 1/2 of its surface, and the one of T5 is very reduced; yellow is also pigdial plate excepted the margins that are ferrugineous; all sterna except the margins of those sclerites that are ferrugineous; yellow-- ferrugineous are also the legs; except articulations that are pure yellow as well as external surface of basitarsus. The other tarsi pale-ferrugineous.

**PILOSITY** — Labrum with somewhat decumbent yellow setae (0.6 mm) and shorter hairs (less than 0.1 mm); clypeus laterally with long decumbent brownish setae (of about 0.6 mm) and shorter ones (0.1 mm or less); disc almost bare; in paraocular area shorter dark brownish plumous hairs; in the front long dark ferrugineous hairs a little longer; in vertex longer (about 0.7 mm long) and ramified; gena inferiorly with copious yellowish-ferrugineous hairs; mesonotum uniformly covered with ferrugineous ramified hairs; pale yellow very fine erect setae are found in the scutellar surface; pilosity of metanotum similar that of mesonotum as is in the propodeal flanks where they are copious as in basal area of propodeum and in mesepisternum where no hooked setae are observed; as in female; metasomal terga uniformly covered with short decumbent brownish setae, in T1 the hairs are ramified; metasomal sterna S2 to S6 (base) with long (about 1.0-1.2 mm long) semidecumbent setae and shorter golden-yellow hairs, uniformly distributed; apex of S7 almost bare.

**SCULTURING (PUNCTUATION)** — Clypeus in the disc brilliant, fine punctuation scattered distributed, interspaces variables, in the disc median region surface almost smooth polished; laterally denser punctuation, interspaces variable (1 to 3 puncture diameter); in the face regular punctuation with interspace with one half to two diameters of the punctures, in the yellow area, in which punctures are more sparsely distributed and piliferous. Mesonotum as in female, i. e., minute punctures regularly distributed, in which the interspaces are reduced to minute carenas with also a punctuation rougher distributed sparsely all over the surface; the same punctuation is observed in the scutellum surface; mesepisternum with a rough punctuation uniformly distributed with interspace equivalent to 1.5-2.0 diameters of punctures; metasomal terga uniformly covered with a very fine punctuation with also larger piliferous



Fig.6. Flowers of *Duranta erecta* Linnaeus possibly one of the most visited species by females and males of *Epicharis (Epicharoides) decellii* at vicinities of Penedo (Itatiaia, RJ).

punctures; yellow bands only with piliferous punctures also regularly distributed, interspaces 3-5 diameters of punctures; rougher punctures (0.1 mm) more or less uniformly distributed.

MEASURES AND PROPORTIONS — Head approximately 1.8 times wider than longer (4.7: 2.7 mm); compound eyes paralel, lower interorbital distance equals upper (2.0: 2.0 mm); clypeus 1.4 wider than longer (2.0: 1.4 mm); eyes almost twice times as longer as wider (3.1: 1.6 mm); malar area length 1.5 times less than diameter of scape (0.2: 0.3 mm); interocellar distante 1.3 times the diameter of medium ocellus and this less than 0.6 times ocello-orbital distance (0.4: 0.3: 0.5 mm); interalveolar distance 1.3 times the alveolar diameter and equal alveolo-orbital distance (0.5: 0.4: 0.5); scape length nearly equal to its maximum diameter (0.5: 0.45 mm); pedicel diameter approximately 1.7 times its length

(0.3: 0.2 mm); length of first flagellomere almost equal length of third (0.35: 0.4: 0.5 mm); hind basitarsus 2.8 times longer than its width (2.5: 0.9 mm); discal cell length of hind wing 1.3 times greater than jugal lobe length and 1.8 times the vanal lobe length (3.0: 2.3: 1.7 mm).

TYPES — HOLOTYPE: female from Penedo, Itatiaia, RJ/ Brasil 16-30-II-2012/ Laroca & Hohenthal leg. Collected on *Duranta erecta* Linnaeus. ALLOTYPE: male from Itatiaia, Penedo, RJ/ Brasil 15 a 30-XI-2012. Collected on flowers of *Duranta erecta* Linnaeus. Deposited at *Coleção Entomológica da Fundação Oswaldo Cruz*. PARATYPES: Thirty females e 15 males collected in the same locality, deposited at *Entomológica da Fundação Oswaldo Cruz* (Rio de Janeiro, RJ). Ten females e 5 males deposited at *Museu de Zoologia da Universidade de São Paulo* (USP), São Paulo (SP); 33 females and 51 males in the senior author (SL) own collection in Curitiba (PR).

### Comments

Present species is similar to *Epicharis* (*Epicharoides*) *picta* (Smith). However, comparing the holotype female of *Epicharis* (*Epicharoides*) *decellii* with a female of the above species from Conceição da Barra (ES, Brazil) — S. Laroca leg. (determined by Moure as *Epicharoides grandior*), some differences were found as follow: *first*, on scutellum of *decellii* there are two yellow dots separated each other by a relatively large distance, while the ones on the scutellum in *picta* constitute an almost continuous yellow area occupying practically the entire surface, leaving only a straight dark median line — similar to the one observed in male of *decellii* (Fig. 4 B); *second*, the labrum of *picta* is black with only a median stripe dilated basally and narrowed apically; *third*, the yellow areas of paraocular regions as well in the clypeus in *picta* are more reduced and interrupted; *fourth*, abdomen of *picta* is darker than the ones in *decellii*, specially in the apical terga, as well as sterna; *fifth*, the hooked setae of mesepisternum in *picta* is not so evident as in *decellii*.

In order to show size variations in *decellii*, head width and length of marginal cells of forewings of 10 females and 10 males taken randomly were measured. The results are as follow: mean head width: 5.32 mm, sd: 0.108 mm; range: 5.1-5.4 mm. coefficient of variability: 2.0 %; mean length of marginal cell: 2.82 mm; sd: 0.108 mm, range: 2.65 - 2.90 mm; coefficient of variability: 3.8 %.

## FLOWER VISITS & AND BIONOMIC REMARKS

The specimens were collected on flowers of *Duranta erecta* Linnaeus (Fig. 7) from november through april. The climate of the region is the *Cwa* of Köppen, characterized by a relatively dry winter and rainy summer. From May through August the quantity of rain stays below 70 mm per month, whereas in January the amount of rain reaches its peak (about 270 mm). As characteristic in this type of climate, in the coldest month (July) the mean temperature is 17.7° C and the warmest month is February when mean temperature reaches 24.4° C. Therefore the activity of the bees reaches its maximum during the more rainy and warm months (November through April), reaching its maximum in January-February when approximately 50 % of the females were caught and 41 % of the males. The visited species reaches its bloom peak also in January-February. It seems that the visits to this plant species is for nectar, since very little pollen was found on the bee bodies. Phenologic trend of *decellii* is similar to the one for *picta* in the vicinity of Viçosa (MG, Brazil), after WERNECK (2012) in which adults are more active at the nest site from January to May.

ETYMOLOGY — This species is dedicated by senior author in honour to his colleague Dr. Paul Decelles, Professor of Biology at *Johnson County Community College* (Kansas).

### SUMÁRIO

*Epicharis (Epicharoides) decellii* sp. n. (Anthophila, Centridini) é descrita. Os exemplares foram coletados em Penedo (Itatiaia, RJ). A similaridade com *Epicharis (Epicharoides) picta* é comentada. São apresentadas notas sobre a visita às flores de *Duranta erecta* Linnaeus, bem como dados sobre a sua fenologia na área.

PALAVRAS-CHAVE: *decellii*; neotropical; abelha silvestre; Centridini; Apidae

### SUMMARY

*Epicharis (Epicharoides) decellii* sp. n. (Anthophila, Centridini) is described. Specimens were collected in Penedo (Itatiaia, RJ). The similarity with *Epicharis (Epicharoides) picta* is briefly discussed. Notes on plant visits (*Duranta erecta* Linnaeus), as well as data on phenology of this species in the area are presented.

KEYWORDS: *decellii*; neotropics; wild bee; Centridini; Apidae

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#### REFERENCES

WERNECK, H. DE A. 2012. *Biologia de nidificação, sazonalidade e inimigos naturais de Epicharis (Epicharoides) picta (Smith, 1874) (Apidae: Centridini) no município de Viçosa, MG, Brasil*. Dissertação de mestrado Pós-Graduação em Entomologia, Universidade Federal de Viçosa (MG, Brasil). 104 pp.

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