

A new genus and two new species of the tribe Celeuthetini Lacordaire, 1863 (Coleoptera: Curculionidae) from the Philippines

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A new Entiminae weevils genus and two new species of the tribe Celeuthetini from the Palawan Island (Philippines) are described and illustrated: *Excalidiopsis palawanensis* gen. nov. et sp. nov. and *Excalidiopsis bramanti* sp. nov. External morphology analyses is used for generic and species delimitation. New example of mimetic relationship among tribe Celeuthetini, Pachyrhynchini and Polycatini is presented.

Key words: Coleoptera, Curculionidae, Celeuthetini, *Excalidiopsis*, taxonomy, new genus, new species, Palawan, Philippines, mimicry.

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INTRODUCTION

The Tribe Celeuthetini comprises 74 genus, with fair number distributed in New Guinea (28), distribution range spreads from Samoa, Australia, Flores Island, Solomon Island, Java, Indonesia, Malaysia, Philippines and Japan. Philippine Celeuthetini fauna is represented by 11 genera: *Calidiopsis* Heller, 1913, *Eupyrigops* Berg, 1898, *Grammicodes* Marshall, 1956, *Idorhynchus* Faust, 1897, *Neopyrigops* Heller, 1913, *Oedirrhynchus* Marshall, 1956, *Philicoptus* Marshall, 1956, *Pseudotistira* Heller, 1934, *Pteros* Marshall, 1956, *Pyrigops* Schoenherr [1842], *Resites* Alonso-Zarazaga & Lyal, 1999 (Alonso-Zarazaga & Lyal, 1999). Nevertheless, none of the upper mentioned genera are found on Palawan Island, Philippines. Moreover, along the subfamily Entiminae, only three genus with total of five species are present at Palawan Island: *Expachyrhynchus* Yoshitake, 2013, *Evrostopolycatus* Rukmane-

Bārbale, Bramanti & Bramanti, 2020 and *Epi-somus* Schoenherr, 1826 (Yoshitake, 2013, Rukmane, 2019, Rukmane-Bārbale et. all., 2020, Bramanti et. all., 2021).

During my research on Philippine Entiminae, I found several undetermined specimens from Palawan Island, that were similar enough to share same genus, but different enough to be recognised as two different species. Carefull morphological examination revealed relation to tribe Celeuthetini, nevertheless specimens shared several morphological features of generic importance that can not be applied to the classification system of Celeuthetini genera, and are therefore considered as new.

Celeuthetini is currently divided into two subtribes: Celeuthetina s. str. and Isopterina Morimoto & Kojima, 2001. Subtribe Celeuthetina differs from Isopterina by the following features:

rostrum with transverse sulcus at base separating dorsal from head; 8th sternite in female withdrawn inside 7th, with slender spiculum ventrale; 8th tegrite in female partly covered by 7th at base; 9th sternite in male consisting of a sclerite; while subtribe Ispoterina share following features: rostrum without transverse sulcus at base; 8th sternite in female terminal, without spiculum ventrale; 8th tegrite in female also terminal, uncovered; 9th sternite in male subdivided into three sclerites (Morimoto & Kojima, 2001). Considering upper mentioned, the new genus belong to subtribe Celeuthetina by presence of sulcus at base of rostrum that separates rostrum from head, presence of spiculum ventrale on the 8th sternite in female, and subdivided 9th sternite in male. Features of generic importance and generic differential analyses are included therefore in the paper, together with description of the new genus and two new species under their genus *Excalidiopsis* gen. nov.

MATERIAL AND METHODS

The study was based on specimens deposited at the Daugavpils University Beetle Collection (DUBC).

The laboratory research and measurements have been carried out using Nikon SMZ 745T and NIS-Elements 6D software. The illustrations were made using digital camera Canon EOS 6D with Canon MP-E 65mm macro lens, using stack shot system and Helicon Focus auto montage, subsequently was edited using Photoshop.

Label data are cited *verbatim*. In the text the following symbols and abbreviations were used:

/ = different lines;

// = different labels;

LB = body length, from apical margin of pronotum to the apex of elytra;

LE = elytral length;

LP = pronotal length;

LR = length of the rostrum;

WE = maximum width of the elytra;

WP = maximum width of the pronotum;

WR = maximum width of the rostrum.

RESULTS

Excalidiopsis gen. nov.

Type species: *Excalidiopsis palawanensis* sp. nov.

Description. Body medium sized, males and females of nearly same size, last being bigger, with wider elytra; prothorax and elytra strongly rugose except smooth underside; head smooth, rostrum and legs granulated; body covered with round to elliptic bright, shiny scales of various colour forming scally spots, lines and patches.

Forehead straight, separated from rostrum by sulcus; eyes small, slightly prominent to unpronounced from the outline of the head; rostrum longer than wide; dorsal surface with longitudinal medial groove from medial part to base; frontal part straight to slightly widened apically, ventral part widened apically; dorsal contour of forehead and rostrum decreased from widened apex; lateral contour more or less straight; antennal scrobes dorso-lateral position, open posteriorly, narrow triangular, dorsal furrow more or less sharp, wide V-shaped, with peak before the middle, ventral furrow curved downwards, raised to apex, end just before inner margin of eye.

Antennae with scape reaching medial part of prothorax; scape flattened dorsally, widened apically, nearly same length as funicle, mingled with short light hairs; funicle mingled with longer light hairs, club short, more or less equal in length and width; segments I to VII subequal in size, with II being same to 1.5 times longer than rest.

Pronotum with rugose puncture, mingled with short hairs, with longitudinal lines of glossy scales; dorsal contour nearly straight, slightly widened at medial part, lateral contour straight to slightly convex before the medial part.

Coxa and coxal cavities connate. Hind tibiae with semi-enclosed corbel.

Elytra lanceolate, convex dorsally, widest along middle, apex extended; with well expressed in-

tervals of strongly rugose puncture rows; each elytron with seven to ten scally patches and two more sutural patches of shiny scales.

Differential analyses. Among 11 Philippine distributed genera of the tribe Celeuthetini, *Excalidiopsis* gen. nov. is most closely related to *Calidiopsis* Heller, 1913 by the following features: antennal scape long, reaching medial to hind part of prothorax, antennal scape of nearly same length as funicle, prothorax and elytra strongly rugose, prothorax small, slender, nearly straight dorsally, longer than wide, elytra with strongly extended apex dorsally. The new genus can be distinguished from *Calidiopsis* by the following characters: 1) large, strongly prominent eyes in *Calidiopsis*, while small, unimportant or slightly prominent in *Excalidiopsis* gen. nov.; 2) antennal scape of *Calidiopsis* covered with very long, dark hairs while hairs on antennal scape of *Excalidiopsis* gen. nov. short; 3) I and II segment of funicle differ in length from segments III to VII in *Calidiopsis*, I being from 1.5 times longer and III being up to three times longer than segments III to VII, segments of *Excalidiopsis* gen. nov. subequal in size, with II being same or slightly longer than I to VII; 4) club of *Excalidiopsis* gen. nov. short, nearly same length and width while club of *Calidiopsis* long, at least twice as long as wide (Fig. 3).

Distribution. Philippines, Palawan Island.

Etymology. The generic name is derived from similarity with closely related genus *Calidiopsis*.

***Excalidiopsis palawanensis* sp. nov.**

(Fig. 1, 3A, D, 4)

Type material. Holotype. Male. “PHILIPPINES / Palawan / Magara, Roxas / X. 2019 / local collector leg.” (white rectangular label, printed). “HOLOTYPE / Male / *Excalidiopsis palawanensis* Rukmane-Bärbale, 2022” (red rectangular label, printed) (DUBC).

Paratypes (4♂, 8♀): “PHILIPPINES / Palawan / Magara, Roxas / X. 2019 / local collector leg.” (3♂, 6♀) // “PHILIPPINES / Palawan / Magara,

Roxas / I. 2020 / local collector leg.” (1♀) // “PHILIPPINES / Palawan / Magara, Roxas / X. 2021 / local collector leg.” (1♂, 1♀) (all on white rectangular labels, printed). All with additional red label: “PARATYPE / *Excalidiopsis palawanensis* Rukmane-Bärbale, 2022” (DUBC).

Description. Male. Measurements: LB: 6.7-7.2 (holotype 7.1, mean 6.98); LP: 1.7-1.9 (holotype 1.9, mean 1.82); LE: 5.0-5.3 (holotype 5.2, mean 5.16); LR: 1.2-1.3 (holotype 1.3, mean 1.26); WP: 1.7-1.8 (holotype 1.8, mean 1.76); WE: 3.6-3.8 (holotype 3.8, mean 3.7); WR: 1.1 (holotype 1.1, mean 1.1). N=5 for all measurements. Dorsal habitus as shown in Fig. 1A.

Body black, with markings of glossy yellow to goldish, round to recumbent scales.

Forehead nearly three times as wide as eye width; eyes slightly prominent from the outline of the head, widest just after the middle dorsally; LR/WR 1.18; rostrum dorsally covered with round, shiny scales except apical 1/2; frontal part of rostrum slightly widened apically; in lateral contour slightly increased just before the middle, sulcus with impression at base of the eye; lateral parts covered with round shiny scales at basal part and with scales and short light hairs at apical part; dorsal furrow of antennal scrobe sharp, wide V-shaped.

Antennal scape covered with elliptic scales from base to apical 1/2, short light hairs on all length; segments I to VII subequal in length, except segment II of slightly longer length, nearly same length and width, covered with elliptic shiny scales; club short, slightly longer than wide, divided into three parts, first and third part being same width and second narrower; club without shiny scales.

Pronotum nearly as long as wide, LP/WP: 1.05, with the following markings of round to recumbent shiny scales: 1) longitudinal medial line at disc dorsally in all length; 2) wide longitudinal line at each dorso-lateral edge in all length; 3) large patch from one latero-ventral edge to

other; dorsal contour slightly widened just before the middle; lateral contour straight; both basal and apical concavities covered with short, light hairs.

Femora with scaly markings at basal part, bare before the middle, with markings from middle to apical half and bare to apex, mid femora with scaly markings from base to apical half, mingled with light hairs in all length; tarsus covered with scales, mingled with longer light hairs, hairs longer along inner margin.

Elytra longer than wide, LE/WE 1.37, widest just in the middle, each elytron with the following scaly patches: 1) two longitudinal patches at basal 1/2, one along intervals II to III, second along intervals VI to VII; 2) four patches at medial part, one redirected apically, from middle of interval I to middle of interval III, two patches along interval V, one redirected basally, one apically, one medial patch redirected laterally along interval VII; 3) triangular-shaped patch at apical part before apex; 4) two sutural patches, one before the middle, one from apical 1/2;

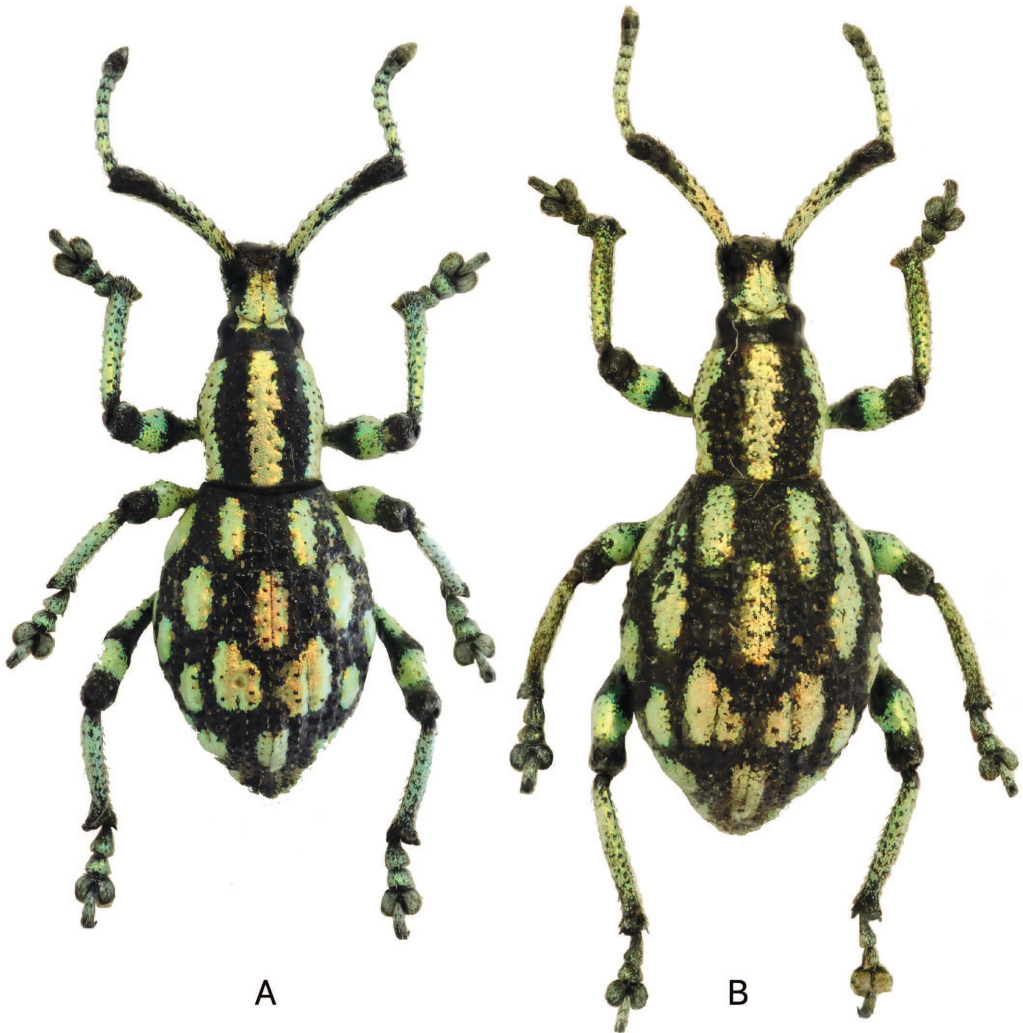


Figure 1. *Excalidiopsis palawanensis* sp. nov. **A** – Holotype male, dorsal view. **B** – paratype female, dorsal view.

5) lateral margin with solid line of scales that in some cases are interrupted and divided in smaller patches; in lateral contour slightly impressed just before the middle, bulged along apical 1/2 and decreased to apex.

Male genitalia as shown in Fig. 4.

Female. Measurements: LB: 7.6-8.0 (mean 7.78); LP: 1.9-2.1 (mean 2); LE: 5.5-5.9 (mean 5.74); LR: 1.3-1.4 (mean 1.36); WP: 1.7-1.9 (mean 1.8); WE: 4.1-4.3 (mean 4.22); WR: 1.1. N=5 for all measurement. Dorsal habitus as shown in Fig. 1B.

Differential analyses. The new species is similar to second species of the genus *Excalidiopsis* gen. nov.: *Excalidiopsis bramanti* sp. nov. Species might be distinguished by the following morphological features: 1) scally markings in *E. palawanensis* sp. nov. of goldish to yellowish colour, while greenish in *E. bramanti* sp. nov.; 2) segment II nearly same size as rest in *E. palawanensis* sp. nov. while at least 1.5 times longer than rest in *E. bramanti* sp. nov.; 3) sulcus laterally with groove at base of the eye in *E. palawanensis* sp. nov. and just before the distal margin of eye in *E. bramanti* sp. nov.; 4) dorsal furrow sharp in *E. palawanensis* sp. nov., but moderate in *E. bramanti* sp. nov.; 5) elytra of *E. bramanti* sp. nov. wider, more strongly rounded, in lateral contour more strongly bulging.

Distribution. Palawan Island.

Etymology. The new species name is latinized name of Island where species is distributed.

Mimicry. The species consist in mimetic relationship with *Expachyrhynchus chloromaculatus* Yoshitake, 2013 and *Evrostopolycatus palawanensis* Rukmane, Bramanti & Bramanti, 2020.

***Excalidiopsis bramanti* sp. nov.**

(Fig. 2, 3B, E)

Type material. Holotype. Male. "PHILIPPINES / Palawan / Brokes Point / X. 2018 /

local collector leg." (white rectangular label, printed) // "HOLOTYPE / Male / *Excalidiopsis bramanti* Rukmane-Bārbale, 2022" (red rectangular label, printed) (DUBC).

Paratypes (3♂, 2♀): "PHILIPPINES / Palawan / Brokes Point / IX. 2018 / local collector leg." (2♂, 2♀) // "PHILIPPINES / Palawan / Brokes Point / X. 2018 / local collector leg." (1♂) (white rectangular labels, printed). With additional red label: "PARATYPE / *Excalidiopsis bramanti* Rukmane-Bārbale, 2022" (DUBC).

Description. Male. Measurements: LB: 7.4-8.3 (holotype 7.8, mean 7.87); LP: 2.0-2.7 (holotype 2.2, mean 2.3); LE: 5.4-5.7 (holotype 5.6, mean 5.57); LR: 1.4-1.5 (holotype 1.4, mean 1.42); WP: 2.1-2.2 (holotype 2.1, mean 2.1); WE: 4.1-4.4 (holotype 4.4, mean 4.22); WR: 1.1-1.2 (holotype 1.2, mean 1.17). N=4 for all measurements. Dorsal habitus as shown in Fig. 2A.

Body rather big, with markings of shiny green scales of round to elliptic shape; prothorax and elytra strongly rugose, head punctured at apical part, rostrum and legs strongly punctured in all length.

Forehead dorsally with longitudinal medial groove, separated from rostrum by sulcus at medial portion between eyes; eyes small, unpronounced from outline of the head dorsally, widest just in the middle; rostrum longer than wide, LR/WR: 1.17; marked with round scales dorsally at basal half; elliptic shape scales at lateral parts along apical half; mingled with short light hairs in all length; antennal scrobes with dorsal furrow less sharp, wide V-shaped, peak rounded, just before the middle. Antennal scape without green scales in all length; segments of funicle I to VII subequal in length except segment II, segment II 1.5 times longer than rest, marked with round green scales; club slightly longer than wide, divided into three equal parts.

Prothorax nearly same length and width, LP/WP: 1.05; with the following markings of shiny green scales: 1) longitudinal medial line medi-

ally at disc in all length; 2) narrow longitudinal line at each dorso-lateral part in all length; 3) ventral part sparsely covered with round scales; dorsal contour widest just before the middle, in lateral contour slightly bulged.

Elytra ovate, bulged, longer than wide: LE/WE: 1.27; apex more or less rounded; finer granulation, intervals less pronounced; each elytron with the following markings of shiny green scales: 1) three elongated patches at basal part, two from subbasal to basal 1/3, one along interval III, second redirected laterally and one just before the middle along intervals IV to V;

2) one medial patch along interval VII; 3) four patches at apical part, two at apical 1/2, one along interval III and one along interval V, two more patches along interval III, one at subapical part, one before apex; 4) two sutural patches, one just before the middle, one at apical 3/4; 5) three small patches along lateral margin scattered in all length.

Female. Measurements: LB: 8.3-8.4 (mean 8.35); LP: 2.5; LW: 5.8-5.9 (mean 5.85); LR: 1.5; WP: 2.3-2.4 (mean 2.35); WE: 4.9-5.0 (mean 4.95); WR: 1.3-1.4 (mean 1.35). N=2 for all measurements. Dorsal habitus as shown in Fig. 2B.

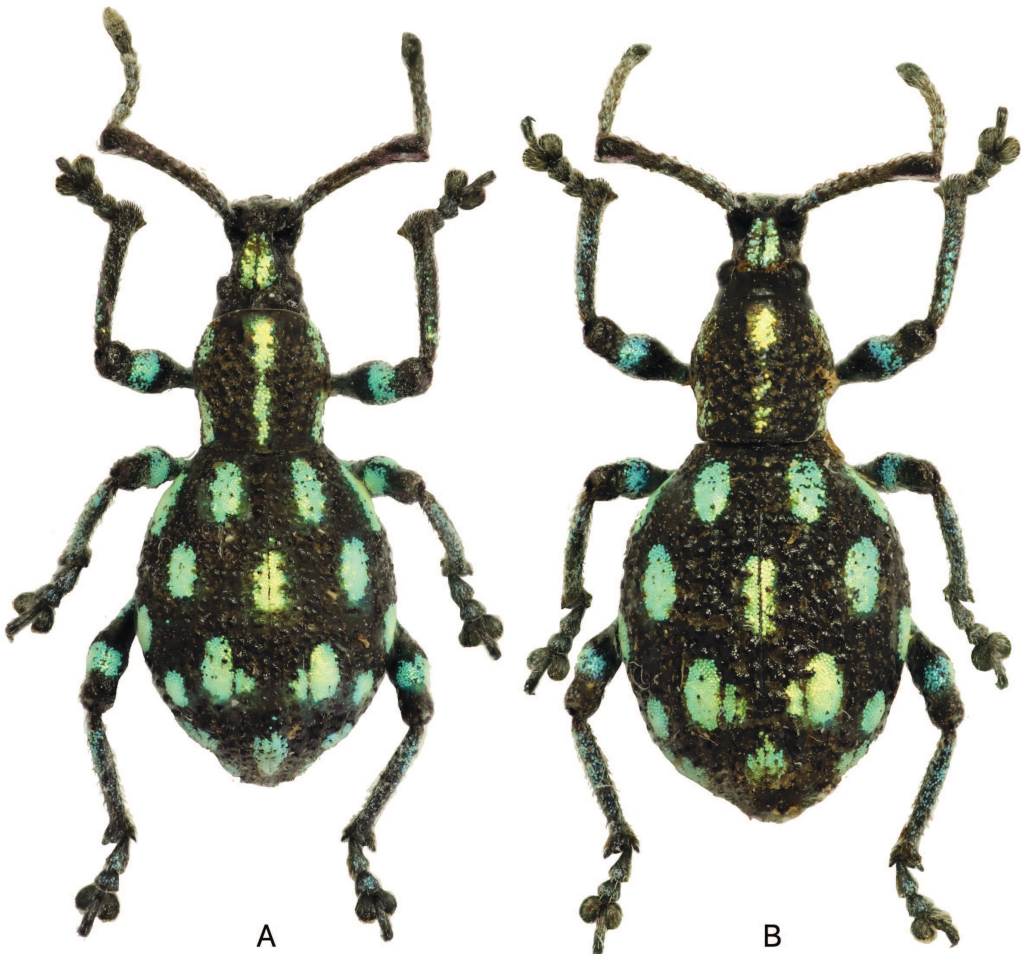


Figure 2. *Excalidiopsis bramanti* sp. nov. **A** – Holotype male, dorsal view. **B** – paratype female, dorsal view.

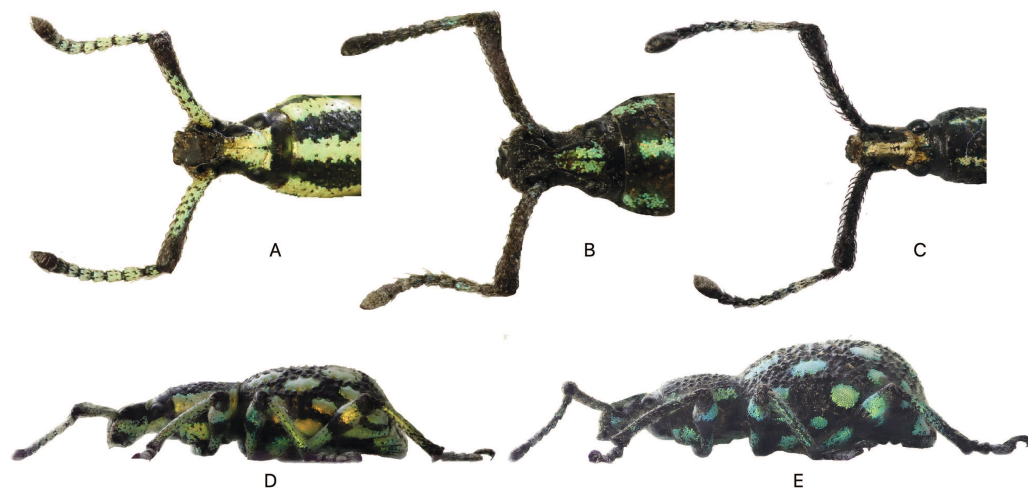


Figure 3. A–C. Dorsal view of head and antennae of selected species. A – *Excalidiopsis palawanensis* sp. nov. B – *Excalidiopsis bramanti* sp. nov. C – *Calidiopsis bilineatus* Rukmane, 2020; D–E. Lateral view of selected species. D – *Excalidiopsis palawanensis* sp. nov. E – *Excalidiopsis bramanti* sp. nov.



Figure 4. A–B. Male genitalia of *Excalidiopsis palawanensis* sp. nov. A – aedeagus in lateral view. B – sternite IX in dorsal view. Scale bar 1 mm.

Differential analyses. The new species is similar to *E. palawanensis* sp. nov., differences between species are listed in description of *E. palawanensis* sp. nov.

Distribution. Palawan Island.

Etymology. The new species is named after enthusiastic entomologists, brothers Bramanti Alessandro and Andrea (Lucca, Italy) in appreciation of their contribution to Curculionid taxonomy, especially to fauna of Palawan Island.

Mimicry. The species consist in mimetic relationship with *Expachyrhynchus granulatus* Yoshitake, 2013.

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