A New Species of Leucopholis zollantans sp. n. (Coleoptera: Scarabaeidae: Melolonthinae) from Bengkulu City, Sumatera Island, Indonesia

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ABSTRACT

Leucopholis zollantans, a new species of the genus Leucopholis is described from Bengkulu, Sumatera Island, Indonesia. The adult beetle captured while it was eating the mango flowers during early hours of the night at Padang Harapan Village, Bengkulu City. Diagnostic character illustrations included.

Key words: Coleptera, Melolonthinae, *Leucopholis,* Bengkulu, a new species.

INTRODUCTION

At first, an adult beetle was found while it was eating the mango flowers at Padang Harapan Village, Bengkulu City in 1989. Since then, it has been known as a major pest of mangoes in Bengkulu Province (Suparno, 2000). Their eating extensively on the flowers, leaving only the stalks, but never eating the leaf of mangoes which could be found or emerge from August 2012 to May 2013 or ten months (Suparno, 2003). Reduction in yield due to infestation ranged from 40% to 100%. Bengkulu is the smallest province of Sumatra, Indonesia which is located on the southwest coast of Sumatra Island and it occupies of 1999, 831 sq. km area. The province isolated and protected by a stretch of mountains of the mighty Bukit Barisan.

The adult beetles life span in 10 month per year from August to May and its may be depend on rainfall more than 175 mm rainy per month in Bengkulu City. Extremely, when El Nino 1997 occurs in May to early November without rainfall are not found the beetle emerge. However, in 2013 rainfall occurs thoroughout the year with range 175.2 to 539.9 mm (BMKG Bengkulu City, 2014) both mangoes flowering and the adult beetles emerge. May be the rainy had highly significant to adults emerge. The Biology of beetles larvae unknown.

The beetle was identified as a genus *Leucopholis* Chevrolate, by use the generic keys from Barrion and Litsinger 1994 (Suparno, 2003). These morphological characteristics: lamellate antennae, antenna 10-segmented, with 3-segmented club, front coxae prominent, pygidium exposed, tarsal claw of leg III equal size, toothed, foretibiae with 3 outer tubercle. Currently the members of the genus *Leucopholis* (Coleoptera: Scarabaeidae: Melolonthinae) the world were recorded about 50 species (Coleoptera of The World, 2011).

Barrion and Litsinger (1994) are grouping the species members of the Leucopholis: 1) Body black and slightly shiny, surfaces covered with spherical to ovoid witish yellow spots, clypeus partly cleft anteriorly and broadly angled posteriorly, lateral end of pronotum lobed behind midhalf and posterior tip pointed, body length barely 30 mm (*Leucopholis irrorata* Chevrolat), and 2) Body brownish red, not glossy, uniformly clothed with spike like setae, clypeus broadly margined and raised medio-apically, not cleft, lateral margin of pronotum lobed a little behind median, posterior tip rounded, body length more then 30 cm (*Leucopholis* spp.).

A new species has a posterior tip pointed of abdomen, but could not be incorporated into *L. irrorata* and another species in a group 1. Because the body are brownish red to black, surface body and a pair of elytron covered with ovoid brown and yellow scales, ten yellow ovoid scales on the median of elytron which it arranged in dots S shaped, not glossy, body length more then 30 cm in females. Commonly the members species which has a posterior tip pointed occured in Southeast Asia (Otanes, 1950: Quimio *et al*. 2001; Braza 1991; CABI, 2007) and has a posterior tip rounded occured in South Asia (Kumar, 1997/; Rakesha, 2007**;** CABI, 2007). These S shaped is very typical in a new

species which it could not found in another species of *Leucopholis*. The *L. irrorata* adults are greyish-brown and densely mottled with minute, brownish spots (Natural History Museum, London). Some brownish spots at median elytron are irregular arrangement. In this paper describe for a new species.

MATERIALS AND METHODS

Specimens examined in this study were collected from Padang Harapan Village, Bengkulu City, southwest coast of Sumatera Island, 3° 31' 0" S and 102° 16' 0" E. In this specimen localities were translated using GoogleEarth. Specimens have been collected by shaken and touhed by paralon pipe 1.0 inh in diameter and 2-4 m in length, at early hours of the night, from August 2012 to May 2013. Paratype were deposited at University of Bengkulu Collection of Arthropods, Bengkulu, Indonesia (UBCB); and Museum Zoologicum Bogoriense, Bogor, Indonesia.

The preparation of specimens and morphological terms used in this paper follow Li *et al*. (2010) were modified. Specimens and characters were examined by a Model type S111Z stereomicroscope (England). The body length (BL) was measured from the apex of the clypeus to the apex of the elytra, and the body width (BW) was measured at the widest distance across the elytra. The abbreviations CL and BsL refer to the length of antennal club and basal segments, respectively, while PgW/L denote the ratio of pygidial width and length.

RESULTS AND DISCUSSION

***Leucopholis zollantans* T. Suparno, a new species.**

Description. Holotype Male. Body length: 29.1 mm. Body width: 15 mm. ***BODY***: brownish black, covered with brown ovoid scales and few of ovoid yellow scales. Labrum bilobed at middle, symmetrical, each lobe rounded apically. Clypeus rectangular, 3.1 times wider than long, clypeus partly cleft anteriorly, and covered with ovoid brown scales. Frons has 1.6 times wider than long convex, covered with brown ovoid scales. ***ELYTRON***: widest at middle, dorsal with brownish black color, dorsal surface covered by brown ovoid scales (in diameter 100 µ x length 260 µ) and yellow ovoid scales in diamater (230 µ x length 650 µ). Ten yellow ovoid scales on the median of left elytron which it arranged in dots S shaped, bisymmatrically.

SCUTELLUM has 1.2 times wider than long, surface covered with brown scales, and posterior angles rounded Metathoracic wings completely developed. Ventral surface of thorax densely covered with long, recumbent setae. Metasternal spine is smooth, apex roundish and slightly raised above the surface. Prosternal process sligtly raised, sub-rectangular, surface smooth interspersed with few scales and hairs. Visible abdominal sternites 2° to 5° slightly depressed at middle, 5th sternite widely convex, slightly shiny; anal plate moderately long, with a central and moderate prominence. Antennae lamellate, with ten segments, with 3-segmented club, and antennal club 2½ times the length of first antennal segment, all antennal club segments are equal size. ***PRONOTUM:*** wider than long, two times wider than frons, widest at base, moderately convex when viewed laterally; uniformly covered with brown ovoid scales. Pronotal disk no glossy, ovoid scale, lateral borders angulate; anterior angles obtuse, slightly prominent; posterior angles obtuse, and clearly prominent. ***PYGIDIUM***: exposed, roader than long and broadly triangular, covered with ovoid brownish scales.

GENETALIA: spiculum gastrale with two slightly sclerotised areas, one on each side, sometimes connected, between the two arms. Dorsal apophyses as long as the width of the stem at the base. ***LEGS***: coxae and femur of proleg covered with setae and withish brownovoid yellow scales. Protibia tridentate with basal tooth weakly developed; covered with whitish brown scales, slightly shorter than protarsus, preapical spur acute, straight, longer than 2nd protarsomeres. Mesotibia with well marked, short spines along dorsal border; upper apical spur slender, with acute apex, longer than lower slender spur, with acute apex. Metatibia slightly longer than metatarsus, short spines along dorsal border; upper apical spur articulated, spurs spine like and pointed. Tarsomeres semicylindrical, elongate, some setae apically, and one line of short setae along ventral side, especially on metatarsomeres. Metafemur and metatibia covered with whitish brown short setae. Tarsal claws similar in all legs, deeply cleft, upper tooth.

Allotype Female. Females: Lager than males on an average. Males externally similar to females. Total body length: 33.1 mm. Humeral width: 17.5 mm. Antennal club 1 times the length of first antennal segment. Hind tibial spurs broad and spatula like. Elytra surface coverd with brownish and a few ovoid scales similar to males. Abdominal sternites convex 2° to 5°, anal plate longer than in males, strongly convex, with scattered long setae near the basal border and row of brown slender setae on apical border. Pygidium has broader than long and broadly triangular, covered with ovoid yellow scales. Ten yellow ovoid scales on the median of left elytron which it arranged in dots S shaped, bisymmetrically.

Variation. Male paratypes (n = 23). Length: 28.0-30.2 mm/29.1 mm. Width: 14.0-16.3 mm/15.1 mm. Female paratypes (n = 15). Length: 28.5-33.1 mm/30.7 mm. Width: 16.2-17.5 mm/16.9 mm. Body color: reddish black in younger to brownish black in eldest of adults. Where adults stage about 10-12 months. Body are still completely covered with scales in younger and so partially lost due to abraded gradually up to 15 per cent in one year old.

Diagnosis. Brownish black in body color, not glossy, body large (length surpass 33 mm), covered with ovoid scales. Antenna 10-segmented, with 3-segmented club, antennal club 2½ times the length of first antennal segment in males, all antennal club segments are equal size, and posterior tip pointed. But in females: Antennal club 1 times the length of first antennal segment. Anterior tibia tridentate. Tibial spur on the hind legs: the females having broad and the males having pointed, slender spines. The median elytron has a dot S shaped which composed by 10 yellow scales, bisymmetrically.

Type material. Holotype males and allotype females, from Padang Harapan: Bengkulu: Padang Harapan Village, Bengkulu City, southwest coast of Sumatera Island, 3° 31' 0" S and 102° 16' 0" E. Paratype (23 males and 15 females) same data as holotype males and allotype females excepted in tibial spurs and antennal clubs. Specimens have been collected by shaken and touhed by paralon pipe 1.0 inh in diameter and 2-4 m in length, at early hours of the night, from August to May, 20.V.2013. Paratype are deposited at University of Bengkulu Collection of Arthropods, Bengkulu, Indonesia (UBCB); and Museum Zoologicum Bogoriense, Bogor, Indonesia.

(1)

(2)

Figures 1-2. *Leucopholis zollantans*, a new **species**. 1) Tibial spur on male. 2) Tibial spur of female. Sexuals differences: male has hind tibial spurs spine like and pointed instead of spatula broad in female.

Remarks. The combination of a dot S shaped in median elytron, body large and brownish black color, covered with brown ovoid scales, posterior tip pointed, antenna 10-segmented, with 3-segmented club, all antennal club segments are equal size, tibial spur on the hind legs in the females having broad

and in the males having pointed, slender spines, make this species easily identifiable. **Etymology.** The species is named "zollantans", because its activity of eating the mango flowers by greedily, leaving only the stalks and a lot of inflicted a loss upon the farmers.

Distribution. *Leucopholis zollantans* is knows first, an adult beetle was found while it was eating the mango flowers at Padang Harapan Village, Bengkulu City in 1989. Now has been known the distribution in all areas of Bengkulu Province. It occupies of of 19,831 sq. km area. Bengkulu is isolated areas in the southwest coast of Sumatra Island that protected by a stretch of mountains of the mighty Bukit Barisan in northeastern border. The distribution of the beetles could be easily to know by the symptom of attacks. Its eating extensively of the flowers, leaving only the stalks, and no eating the leaf of mango trees.

Key to the species of *Leucopholis* (modified from Barrion and Litsinger, 1994):

1 Antenna lamellate (at least three) with a ten or few segment; front coxae prominent, pygidium exposed in most species (Scarabaeidae) 2

1' Antennae not lamellate 6

2(1) Tarsal claws of leg III unequal in length, inner claw smaller, tibiae III with 2 longth spurs at apex 3

2' Tarsal claws of leg III equal in size, toothed or bifid, foretibiae with 2-3 outer tubercles .... 3'

4(3') Body black and slightly shiny, surfaces covered with spherical to ovoid witish yellow spots, clypeus partly cleft anteriorly and broadly angled posteriorly, lateral end of pronotum lobed behind midhalf and posterior tip pointed, body length barely 30 mm ..... (*Leucopholis irrorata* Chevrolat).

4' Body brown, not glossy, uniformly clothed with spike-setae, clypeus broadly margined and raised medio-apically 5

5(4') Body brown, not glossy, uniformly clothed with spike-setae, clypeus broadly margined and raised medio-apically, body length in range 29.1-33,0 cm. Ten ovoid yellow scales at median surface of the elytron which arranged in a **dot S shaped** ..... (*Leucopholis zollantans* T.Suparno n.sp.).

5' Body brownish red, not glossy, uniformly clothed with spike like setae, clypeus broadly margined and raised medio-apically, not cleft, lateral margin of pronotum lobed a little behind median, posterior tip rounded, body length more then 30 cm .... (*Leucopholis* spp.).

(3)

(4)

Figures 3-4. Distribution of *Leucopholis zollantans* limited in Bengkulu Province, Southwest of Sumatra Island, Indonesia. 3) Outline map with major feature (courtesy of Wikipidea), 4) Aerial view of the Bengkulu Area from setellite imegery (courtesy of Google).

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