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*Notosacantha pakistanica*, a new species from Pakistan  
(Coleoptera: Chrysomelidae: Cassidinae: Notosacanthini)

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ABSTRACT. *Notosacantha pakistanica* close to *N. jammuensis* BOR. et TAK. is described from Pakistan. It feeds on *Alnus nitida* (Betulaceae), an unique host for the subfamily Cassidinae.

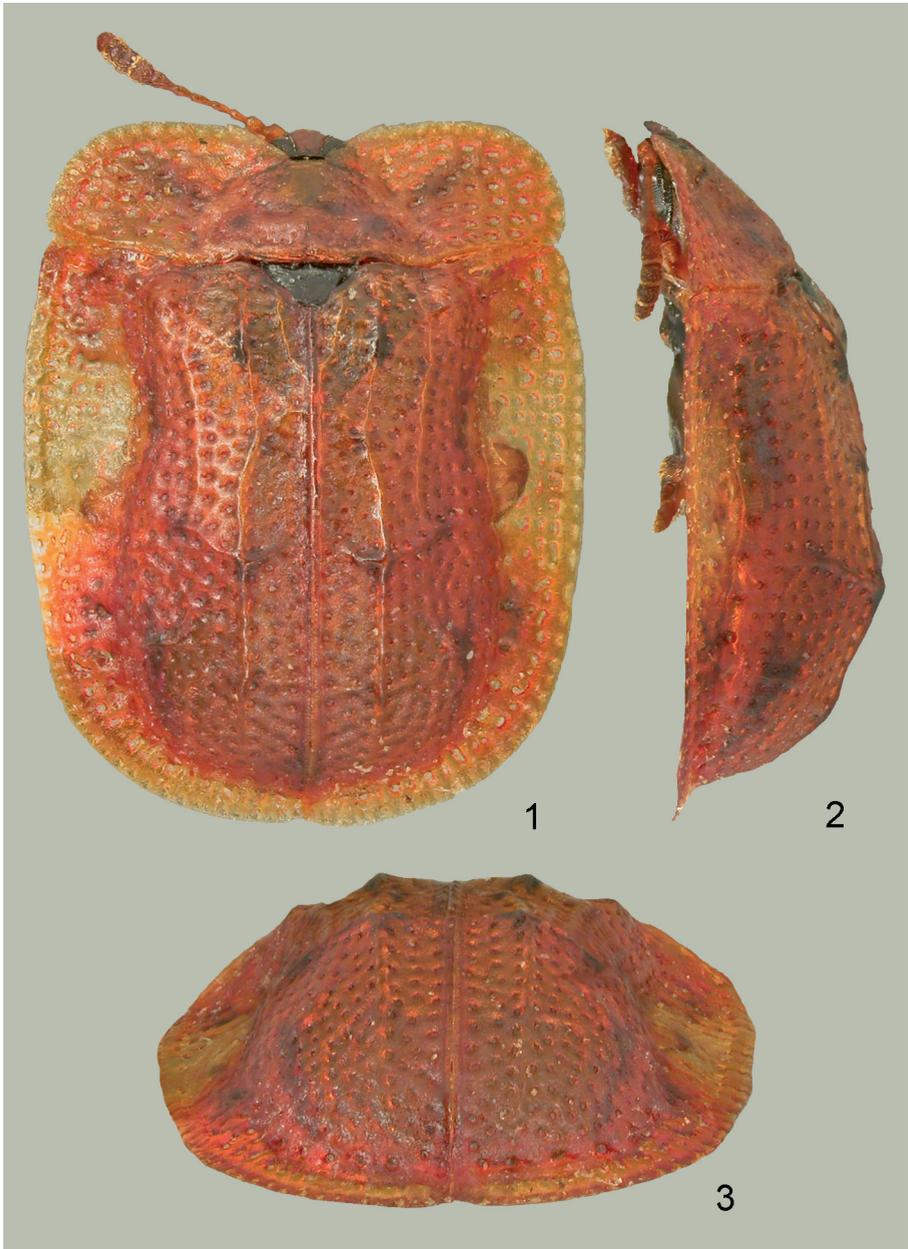
Key words: entomology, taxonomy, new species, Coleoptera, Chrysomelidae, Cassidinae, *Notosacantha*, Pakistan.

#### INTRODUCTION

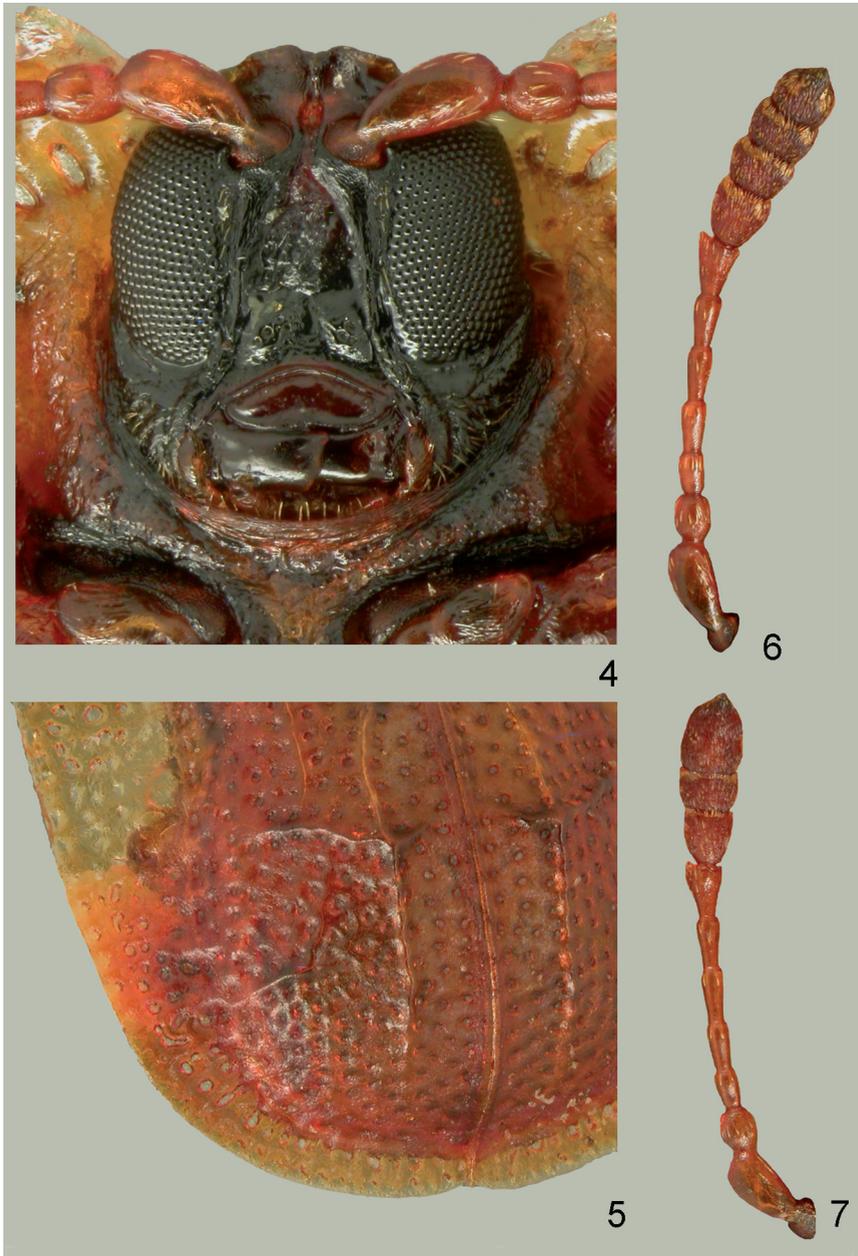
The genus *Notosacantha* CHEVROLAT, 1837 is one of the most speciose within tortoise beetles. Currently 259 species are known from various tropical and subtropical parts of the Old World (BOROWIEC 1999; BOROWIEC and ŚWIĘTOJAŃSKA 2008), 112 of them were recorded from the Oriental Region, but only 51 from its continental part (ŚWIĘTOJAŃSKA 2006). Most species have small distribution ranges and especially in insular part of Oriental Region many endemic taxa occur. North-Western part of the Oriental Region is rather poor in species and only few were recorded from Nepal, NW India and Pakistan (BOROWIEC and ŚWIĘTOJAŃSKA 2008).

Below, a new species of *Notosacantha* is described from Pakistan. It is very interesting in respect of host plant preferences, as it feeds on *Alnus nitida* (Betulaceae). *Notosacantha pakistanica* is the only member of the tortoise beetles associated with Betulaceae family. This species was reported earlier under name *Notosacantha* cf. *jammuensis* by SULTAN et al. (2008).

Colour photos were prepared using Helicon Focus software.



1-3. *Notosacantha pakistanica*: 1 – dorsal view, 2 – lateral view, 3 – hind view



4-7. *Notosacantha pakistanica*: 4 – head, 5 – postero-lateral part of elytra showing rudiments of costa terminalis and furca interna, 6 – antenna of male, 7 – antenna of female

***Notosacantha pakistanica* BOROWIEC, SULTAN et RAFI, new species**

## ETYMOLOGY

Named after its terra typica.

## DIAGNOSIS

*Notosacantha pakistanica* belongs to the group of species with partly reduced elytral costae. The new species is characterized by the following characters: body stout, elytra at least with one costa, principal tubercle with more than two branches, dorsal costa complete, basal tubercle without connection with humeral costa, apical costa reduced, sides of pronotum broadly rounded, and elytra without or with rudimental costae in posterolateral part of disc. The group comprises hitherto only two recently described species, close geographically to *N. pakistanica* – *N. darjeelingensis* BOROWIEC et TAKIZAWA, 1991 from Darjeeling in NE India and *N. jammuensis* BOROWIEC et TAKIZAWA, 1991 from Jammu in NW India. *N. darjeelingensis* distinctly differs from both congeners in elytral costae reduced only to dorsal costa with short sutural branch in principal point (thus principal tubercle has three branches), with no rudiments of costae in posterolateral part of disc while *N. pakistanica* and *N. jammuensis* have distinct lateral branch of principal tubercle (thus the tubercle has four branches) and rudiments of costae in posterolateral part of disc. *N. jammuensis* is very similar to *N. pakistanica* but differs in lower costae, elytral marginalia uniformly yellow (with reddish humeral and posterolateral spots on marginalia in *N. pakistanica*), rudimental costae in posterolateral part of disc forming very small tubercle (short costa in *N. pakistanica*), coarser elytral puncturation with intervals narrower than punctures (finer puncturation with intervals as wide as punctures in *N. pakistanica*), and impression on clypeus in shape of pointed arch (rather triangle in *N. pakistanica*). Common Himalayan *N. maculipennis* (BOHEMAN, 1856) at first glance also looks similar but differs in more complete costae in apex of disc with at least costa ultima well visible, costa terminalis and rudiment of costa apicalis. *N. maculipennis* is usually darker coloured than *N. pakistanica* and its relatives with tops of tubercles marked with black spots, sometimes coalescent and forming bands, and distinct black spots on pronotal disc.

## DESCRIPTION

Length 4.5-5.0 mm, width 3.75-4.0 mm, length of pronotum 1.3-1.4 mm, width of pronotum 3.5-3.7 mm, length/width ratio 1.20-1.25, width/length ratio of pronotum 2.64-2.77. Body stout, rectangular (fig. 1).

Pronotum yellowish-red, only extreme margin paler, yellow. Disc at base with two indistinct, small, round brownish spots. Scutellum black. Disc of elytra yellowish-red, three of four examined specimens have bases of tubercles marked with very small brownish to black spots. Explanate margin yellow with yellowish-red, broad humeral and posterolateral spots indistinctly bordered from yellow background (fig. 1). Clypeus yellowish-brown to black. Prosternum yellow to brown, sides of prosternal process infuscate, meso- and metasternum brown to black. Abdomen uniformly yellow. Legs

yellow, only coxae partly infusate. Antennae yellow, club only slightly darker than pedicel.

Pronotum broad, 2.64-2.77 times as wide as long, sides broadly rounded, basal angles placed at basal line of pronotum. Anterior margin from emargination to half length minutely serrate then only slightly irregular. Pronotal disc with two transverse impressions at base and two oblique impressions at top, impressions distinctly punctate. Pores on explanate margin of pronotum large, round slightly transverse, distance between pores mostly slightly larger than diameter of pore.

Elytra slightly longer than wide, base of elytra as wide as base of pronotum, sides of elytra only slightly convex, thus body outline looks rectangular. Disc with complete dorsal costa but broken between basal and subbasal tubercle. Basal, subbasal and principal tubercle well marked but very low (fig. 2). Apical tubercle hardly marked. Principal tubercle with four branches, sutural branch distinct, runs obliquely from the top of tubercle to first row of punctures; lateral branch long, runs obliquely from the top of tubercle to 7<sup>th</sup> row of punctures. No humeral costa, no elevated connection between basal tubercle and humerus. Humeral costa marked only as slightly elevated fifth interval. In posterior part of disc no apical costa (fig. 3), posterolateral costae mostly absent, only rudiments of costa terminalis and furca interna occur in the shape of oblique fold (fig. 5). Puncturation of elytra moderately coarse, first interval as wide as diameter of punctures. On sides of disc intervals mostly as wide as or only slightly narrower than rows. Pores on explanate margin moderately coarse, mostly round to oval, only on reddish spots partly coalescent or elongate. No transverse rows or folds on explanate margin.

Clypeus slightly longer than wide, clypeal grooves deep, converging in regular triangle or with only slightly convex sides. Triangular clypeal plate in female flat, in male impressed but at base with two oval, oblique elevated plates (fig. 4). Antennae dimorphic, in male 11- in female 10-segmented (this phenomenon was observed only in few Oriental species). Club in male 4-segmented, stout, pedicel 1.7 times as long as club; in female club 3-segmented, pedicel approximately twice longer than club (figs 6, 7).

#### HOST PLANT

Betulaceae: *Alnus nitida* (SPACH) ENDL.

#### DISTRIBUTION

Pakistan, North West Frontier Province, District Mansehra.

#### TYPE MATERIAL

Holotype male: "L[ocality]: Shankiari Mansehra, D[ate]: 30-viii-2007, C[ollector]: Falak Naz" and "[Host:]*Alnus nitida*"; two paratypes male and one paratype female: the same data (holotype and one paratype preserved at Department of Biodiversity and Evolutionary Taxonomy, University of Wrocław, Poland, two paratypes at National Insect Museum, National Agricultural Research Centre, Islamabad, Pakistan).

ACKNOWLEDGEMENTS

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