

# TO THE KNOWLEDGE OF *PACHYRHYNCHUS CROESUS* OBERTHUR, 1879 (COLEOPTERA: CURCULIONIDAE) SPECIES DISTRIBUTION AND BIOGEOGRAPHY

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This article presents new distribution and faunistic data for *Pachyrhynchus croesus* Oberthur, 1879 species. New distribution data are compared with previous records. The habitus photographs and distribution maps are included.

Key words: *Pachyrhynchus*, Curculionidae, Philippines, distribution, biogeography, fauna.

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## INTRODUCTION

*Pachyrhynchus croesus* Oberthur, 1879 is one of the six species distributed in Indonesia (*P. cingulatus* Pascoe, 1873; *P. forsteni* Snellen van Vollenhoven, 1864; *P. morotainensis* Snellen van Vollenhoven, 1864; *P. obhayashii* Yoshitake, 2017; *P. viridis* Chevrolat, 1879). Species is briefly described by R. Obenhur (Obenhur 1879), where author gives description of species in order with note, that current species is unique and differs from any other species of genus *Pachyrhynchus*. Yet, there is neither distribution data nor any further studies of this species.

Number of specimens available for studies in museums like SMTD and MNHN are limited, but after careful examination of material from various museums and private collections (see material and method part), new and additional information about distribution and appearance are provided herein.

## MATERIAL AND METHODS

The material from following collections has been examined:

DUBC – Beetles Collection of Coleopterological Research Center, Institute of Life Sciences and Technology, Daugavpils University (Daugavpils, Latvia);

MNHN – National Museum of Natural History, (Paris, France);

SMTD - Senckenberg Natural History Collections of Dresden, (Dresden, Germany).

The laboratory research and measurements have been performed using Nikon AZ100, Nikon SMZ745T and Zeiss Stereo Lumar V12 digital stereomicroscopes, NIS-Elements 6D software, and Canon 60D and Canon 1 Ds Mark II cameras. The map of Philippine archipelago have been drawn using the software ArcGis 10.

## RESULTS

### *Pachyrhynchus croesus* (Oberthur, 1879)

(Fig. 1A, B)

**Material examined:** DUBC – Indonesia, Kepulauan Talaud Regency, Pulau Kabaruang, Kabaruang Island, 16. VII. 1981 (2 ♂); Talaud Island, NE coast, X. 2014 (1 ♀); Lurung, Musi, II. 2018 (5♂, 4 ♀);

MNHN - Indonesia, Sangihe Island (3 ♂, 2 ♀); SMTD – Indonesia, Sangihe Island (1 ♂, 1 ♀);

**Specimens examined:** 19 specimens (11 ♂, 8 ♀).

**Distribution:** Indonesia, Sangihe and Talaud Islands (Fig.2). New material from DUBC revealed wider distribution range, as previously, according to material available in MNHN and SMTD, species was abundant only on Sangihe Island.

## DISCUSSION

With main distribution range of Philippine archipelago, species distributed beside the archipelago remain under studied, with exception on species from Taiwan (Chen & Lin 2017), and while new ecological and faunistic data about species from Philippine archipelago are published every year (Cabras, Cortico, Mohaga & Rukmane 2017), there is almost no new data on species from Indonesia, respectively.

Up to now, tribe Pachyrhynchini comprises 15 genera with more than 400 species described mainly in 19<sup>th</sup> and 20<sup>th</sup> century with majority of species abundant in Philippine archipelago. As for tribe Pachyrhynchini, 74 species from genus *Pantorhytes* Faust, 1892 and 13 species of *Sphenomorpha* Behrens, 1887 tend to occur in the Indonesia (Setliff 2007), for comparison, only six species of genus *Pachyrhynchus* are recorded from same region.

According to Oberthur (Oberthur 1879) *P. croesus* is not similar to any other species of genus *Pachyrhynchus*, but after careful examination of various material of genus *Pachyrhynchus* it is eventual to conclude, that



Fig.1. Dorsal habitus of: A – Male of *P. croesus*; B – Female of *P. croesus*.

*P. croesus* show high similarity of appearance and shape of male aedeagus to *P. smaragdinus* Behrens, 1871 which is distributed in Mindanao PAIC – Mindanao, Samar and Leyte Islands, respectively. Nevertheless, only cautious genetic analyses such as DNA barcoding can reveal direct lineage, relationship and predict distribution pathways.

According to appearance of *P. croesus* abundant in Sangihe Island, new material from Talaud shows insufficient morphological differences such as: 1) colour of spots – spots of *P. croesus* from Sangihe are navy blue and spots of *P. croesus* from Talaud are rather emerald colour; 2) size and position of spots on prothorax – *P. croesus* from Sangihe have bigger, elongated spots while spots on prothorax of *P. croesus* from Talaud are smaller, roundish, deployed at medial part of pronotum. It is possible to embrace, that both populations of *P. croesus* from Sangihe and Talaud are isolated, as many authors admitted in their previous studies, that beetles from genus

*Pachyrhynchus* are highly endemic and with extremely low distribution capacity which is because of their flightless ability and attraction to mountain ecosystems. It is possible, that *P. croesus* from Talaud will form new species in future.

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Fig.2. Distribution map of *P. croesus*.

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