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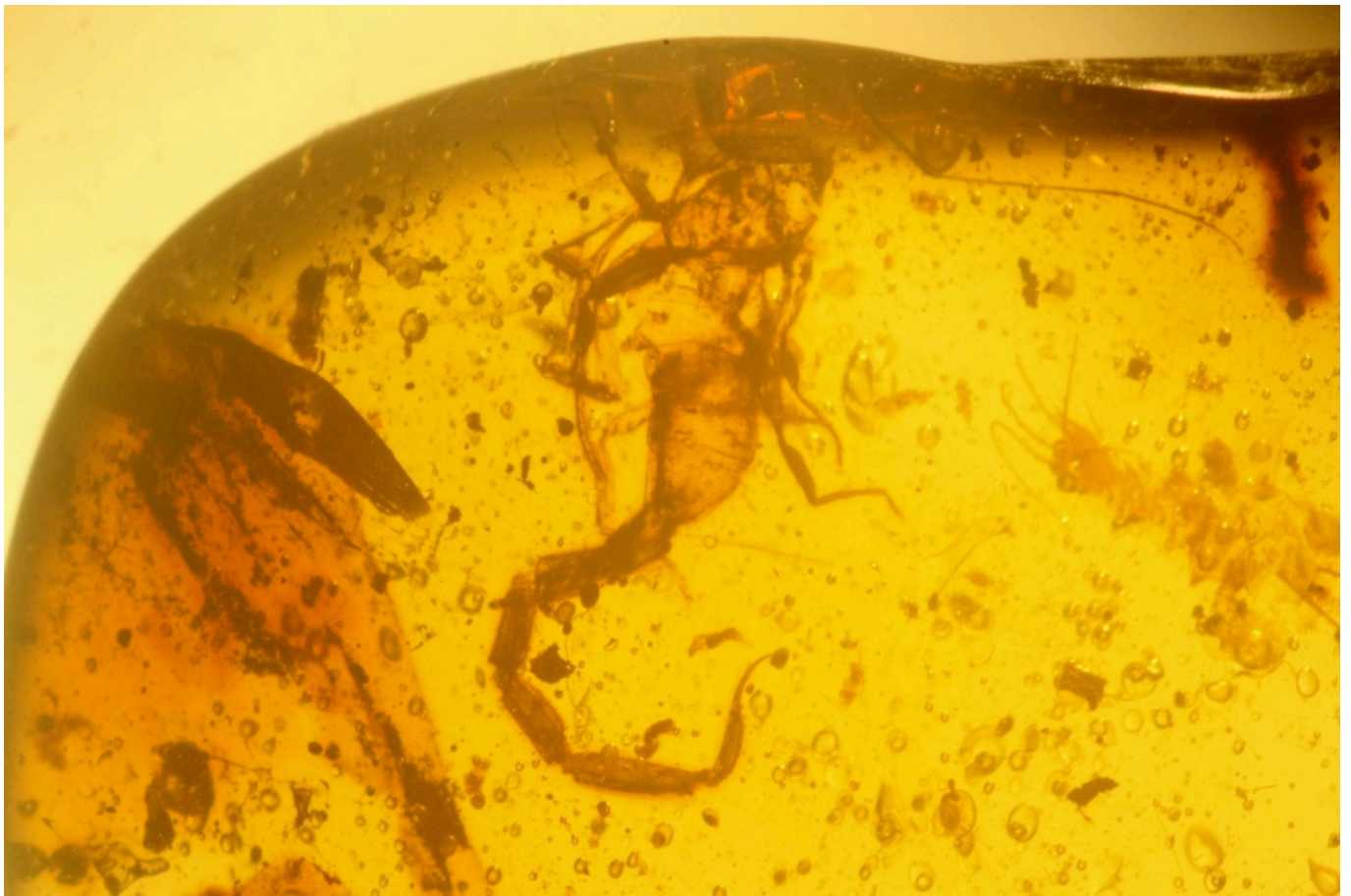
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A remarkable new species of *Betaburmesebuthus* Lourenço, 2015 from Burmite (Scorpiones: Palaeoburmesebuthidae)

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taxonomy;
new species;
description;
variability;
fossil;
Burmite.

Abstract. – The study of one new Palaeoburmesebuthidae scorpion from Cretaceous Burmite leads to the description of a new species belonging to the genus *Betaburmesebuthus* Lourenço, 2015. Although the number of species in this genus was greatly improved in recent years, the new species can be defined based on quite distinct characters. The discovery of this new element confirms, once again, the existence of an important diversity within the Burmite fauna.

Lourenço W. R. & Velten J., 2023. – A remarkable new species of *Betaburmesebuthus* Lourenço, 2015 from Burmite (Scorpiones: Palaeoburmesebuthidae). *Faunitaxys*, 11(78): 1 – 5.

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Introduction

Among the fossil arthropods found in amber, scorpions can still be considered as rare. Nevertheless, in the last 30 years a continuous number of amber pieces containing scorpions have become available for study. This is particularly true for those found in Burmite. A recent synopsis of all taxa described from amber was provided by Lourenço (2023) and will not be further listed here. It is however clear that if some taxonomic groups remain extremely discrete others proved to be particularly speciose such as the members of the families Palaeoburmesebuthidae Lourenço, 2015 and Chaerilobuthidae Lourenço & Beigel, 2011. The multiplication of new descriptions, in special when produced by weakly-qualified scorpion taxonomists, certainly bring an addition of problems for future identifications, since many species found in Burmese amber show very close morphologies. The elements of the family Palaeoburmesebuthidae represent on themselves a major challenge for precise identifications. This type of impasse led the senior author not to describe news species in both genera *Palaeoburmesebuthus* and *Betaburmesebuthus* since several years (Lourenço, 2018; Lourenço & Rossi, 2017), even if during this same period he was able to examine a consequent number of specimens belonging to the family Palaeoburmesebuthidae (Lourenço, 2023).

In the present contribution one almost complete specimen, presenting quite unique characters is studied, authorising therefore the description of a new species. Once again, the considerable degree of scorpion diversity in the Burmese amber-producing forests is confirmed.

Material and methods

The specimen investigated is preserved in a clear piece of pale yellow to reddish-yellow resin. More details are proposed in the taxonomic treatment section. The scorpion representing the new species is not totally complete; some structures have been destroyed and most others have been twisted and dislocated during the process of recovering by the resin. Nevertheless, the resin is rather pale and largely translucent, therefore many characters are clearly visible, even by transparency. The schematic drawings provided are an interpretation of what was observable. Illustrations and measurements were produced with the aid of a Wild M5 stereomicroscope and a Leica microscope DMLB, both equipped with a drawing tube (camera lucida) and an ocular micrometre. Measurements follow Stahnke (1970) and are given in mm. Trichobothrial notations are those of Vachon (1974, 1975). Other morphological terminologies mostly follow Hjelle (1990). Trichobothria are definitely recorded when their bothria (areoles) can be observed; nevertheless, some trichobothria can be deduced through the observation of thin hairs. Considering the morphologies of pedipalp and pectines the scorpion is most certainly a male and probably represents a juvenile or pre-adult.

Taxonomic treatment

Buthoidea C. L. Koch, 1837

Palaeoburmesebuthidae Lourenço, 2015

Betaburmesebuthus Lourenço, 2015

Reviewer: Eric Ythier (*BYG Taxa, France*) - ZooBank: <http://zoobank.org/06FD0852-A88E-49E5-B8E6-E1494B86C4E1>



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***Betaburmesebuthus vinzentschmidti* Lourenço sp. n.**

(Fig. 1-13)

ZooBank: <https://zoobank.org/D5A4D6C6-F9DC-4018-AD63-25DEB212256B>

Holotype. A juvenile, or possible pre-adult; most certainly a male. Very clear block of pale-yellow amber which measures 33.0 x 21.0 x 5 mm. A number of inclusions and bubbles prevent a 100% observation of all characters. Moreover, the specimen is twisted and several structures are dislocated.

Diagnosis. – General morphology is globally similar to that of other species of the genus *Betaburmesebuthus* Lourenço, 2015. The following combination of characters can, however be used to diagnose the new species: carapace weakly granulated, almost smooth; anterior margin with a weakly marked median concavity. Sternum subpentagonal. Tergites with one weak median carina, the lateral carinae are totally inconspicuous. Sternites with small semi-oval spiracles. Metasomal segments I and II with 10 carinae; III and IV with 8 carinae; dorsal carinae on segments III and IV with spinoid granules forming serrulas; setation on all metasomal segments weakly marked; telson elongated with several ventral spinoid granules. Internal faces of femur and patella with conspicuous spinoid granules; on patella four spinoid granules are particularly strong. Fixed and movable fingers of pedipalp chela with a series of small rounded granules and a few conspicuous spinoid accessory granules. Trichobothrial pattern conforming with the extant buthid type A (Vachon, 1974): at least 3 internal, 5 dorsal and 2 external trichobothria on the femur; dorsal trichobothria disposed in beta (β) configuration (Vachon, 1975); 1 internal and 5 dorsal trichobothria on patella; several external trichobothria can be suggested on patella by the presence of fine setae; 4-5 dorso-external and 2 ventral on chelal hand; 6 on fixed finger. Tibial spurs present on leg IV, reduced or absent on III.

Type locality and horizon. – Myanmar (Burma), Kachin; precise locality unknown; Lower Cretaceous.

Patronym. – The specific name honors Vinzent Schmidt†, a Godchild of Mr. André Schmidt, Schulgasse 3,4800 Zofingen, Switzerland who supported the present study.

Depository. – The type specimen is deposited in the Collection of Mr André Schmidt, Schulgasse 3,4800 Zofingen, Switzerland.

Description

Coloration. – The scorpion is yellow to reddish-yellow; carapace and tergites yellow; metasomal segments reddish-yellow; telson reddish-yellow; pedipalps reddish-yellow; legs yellow. Ventral aspect yellow.

Morphology. – Carapace weakly granular, almost smooth; anterior margin with a weakly marked median concavity. Carinae inconspicuous; furrows weak. Median ocular tubercle clearly anterior to the centre of carapace; median eyes moderate in size and separated by a little more than one ocular diameter. Three pairs of lateral eyes of moderate size. Sternum subpentagonal. Mesosomal tergites weakly granular, with one weak median carina; lateral carinae totally inconspicuous; VII with five weakly marked carinae. Pectines totally dislocated; probably with a total number of 15-16 teeth. Sternites smooth, with small oval spiracles. Metasomal segment I to IV with 10-10-8-8 carinae; dorsal on III and IV with spinoid granules forming serrulas; segment V slender with five carinae; ventral formed by small spinoid granules; dorsal aspect of segments I to V weakly depressed; setation on all segments weakly marked. Telson with a very long pear-shaped vesicle; presence of latero-ventral carinae and a series of ventral strong spinoid granules; aculeus extremely long and strongly curved at the extremity; setation weakly marked. Cheliceral dentition only partially visible; fixed and movable fingers with one basal tooth observable; distal teeth moderately long (Vachon, 1963). Pedipalp femur pentacarinata; patella with 6-7 carinae; internal face of femur and patella with spinoid granules; four are strongly developed on

patella. Chela with moderately marked carinae; all faces not granular. Fixed and movable fingers each with one series of small rounded granules and a few conspicuous spinoid accessory granules; extremity of fingers with stronger spinoid granules; setation of pedipalps weakly marked. Trichobothriotaxy of type A (Vachon, 1974), as for extant buthids: at least 3 internal, 5 dorsal and 2 external trichobothria on the femur; dorsal trichobothria disposed in beta (β) configuration (Vachon, 1975); 1 internal, 5 dorsal and no ventral trichobothria on patella; 4-5 external trichobothria can be suggested on patella by the presence of fine setae; 4-5 dorso-external and 2 ventral on chelal hand; 6 on fixed finger. Tibial spurs present on leg IV, moderately marked; reduced or absent on leg III.

Morphometric values (mm), holotype of *Betaburmesebuthus vinzentschmidti* Lourenço sp. n.

– **Total length** 13.69 (including telson).

– **Carapace**
length 1.62;
anterior width 1.39;
posterior width 1.81.

– **Mesosoma:** length 3.18.

– **Metasomal segments**

I: length 1.02, width 0.77;
II: length 1.07, width 0.74;
III: length 1.24, depth 0.54;
IV: length 1.41, depth 0.57;
V: length 1.96, depth 0.61.

– **Telson:** length 2.19.

– **Vesicle:** depth 0.34.

– **Pedipalp**

femur length 1.32, width 0.41;
patella length 1.57, width 0.54;
chela length 2.77, width 0.37;
movable finger length 1.97.

Relationships. – The presence of very conspicuous spiniform granules on the internal face of femur and patella and that of spinoid granules forming serrulas on the dorsal carinae of metasomal segments III and IV places the new species in a very isolated position. Only *Betaburmesebuthus bidentatus* Lourenço, 2015, showed some strong spinoid granules in the internal face of patella (Lourenço, 2015). The knowledge of this last species is however incomplete.

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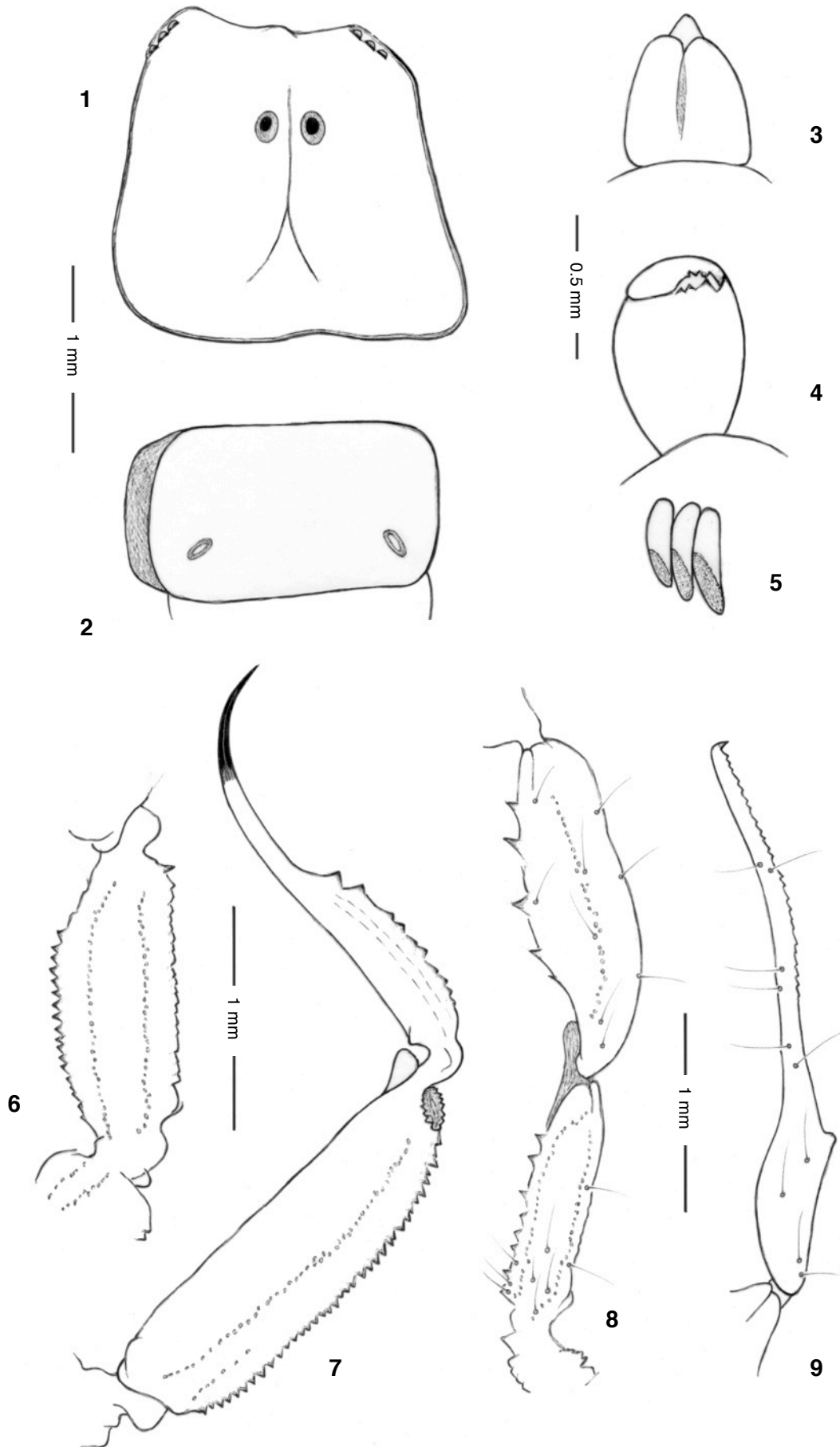
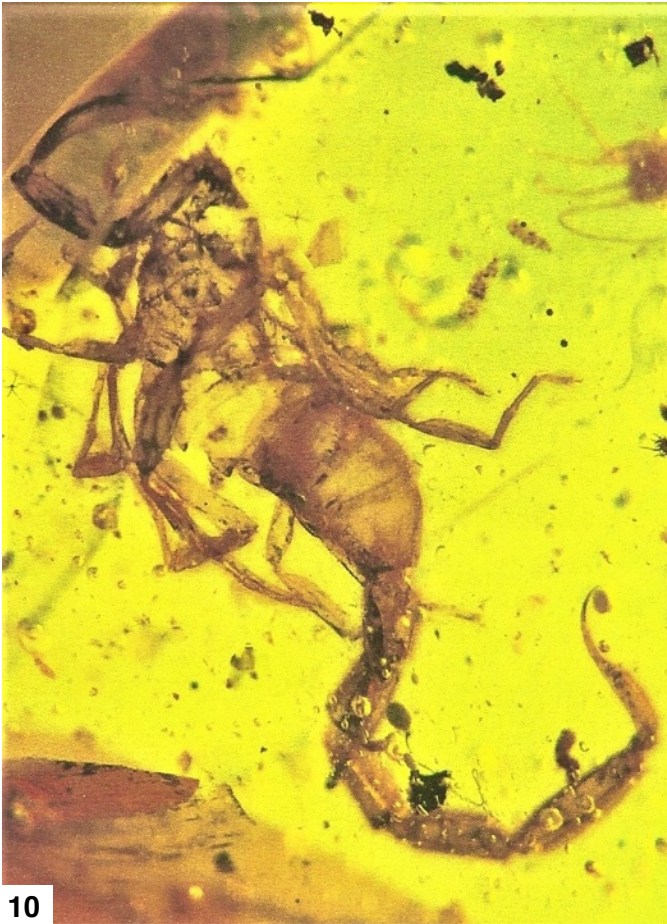
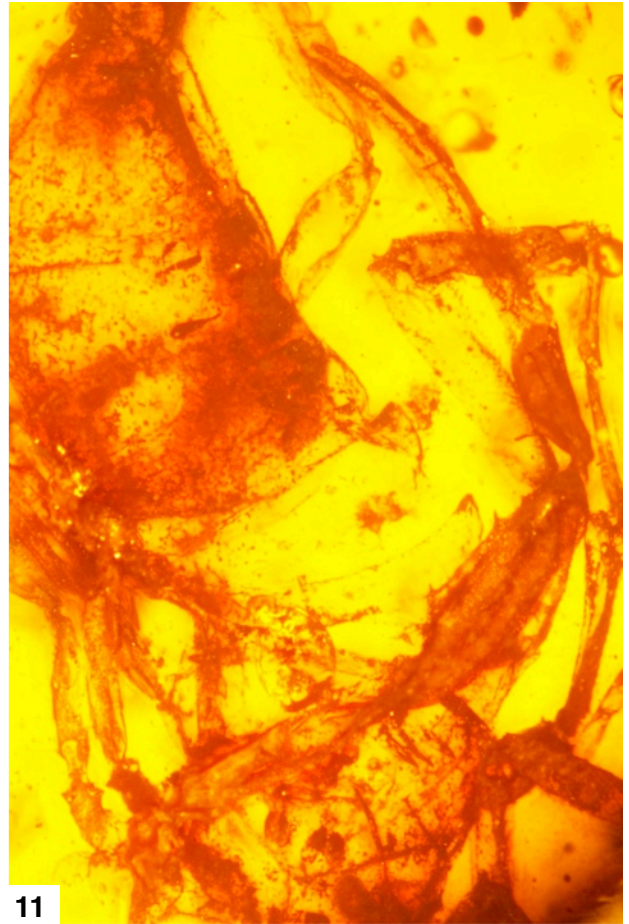


Fig. 1-9. *Betaburmesebuthus vinzentschmidti* Lourenço sp. n., ♂ holotype.

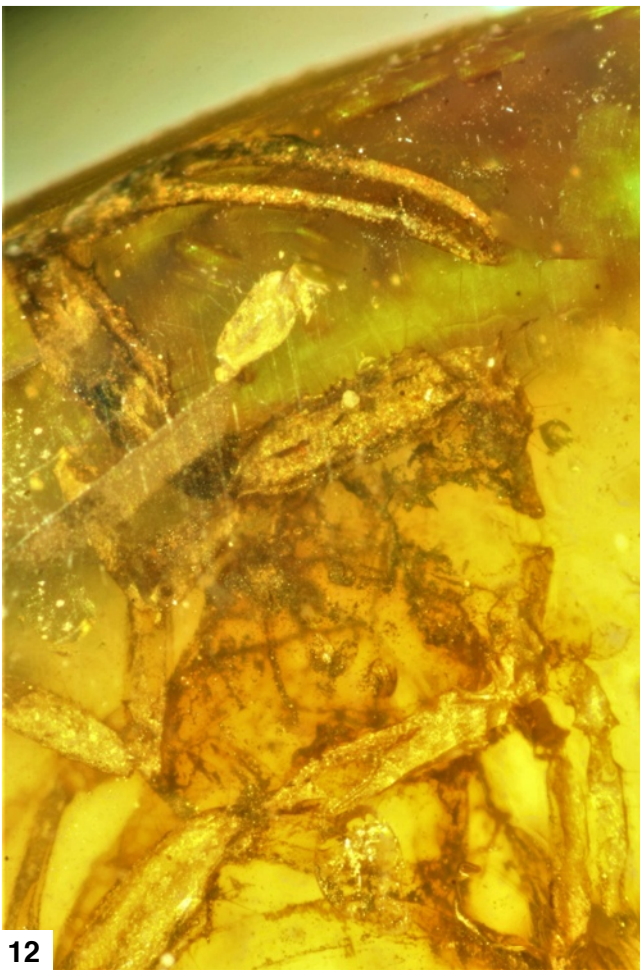
1. Carapace. 2. Sternite VI with spiracles. 3. Sternum. 4. Chelicera, ventral aspect. 5. Some teeth of pecten. 6-7. Metasomal segments IV-V and telson, lateral aspect, showing serrulas. 8-9. Trichobothrial pattern of right pedipalp. 8. Femur and patella, dorsal aspect. 9. Chela manus and finger, dorso-external aspect.



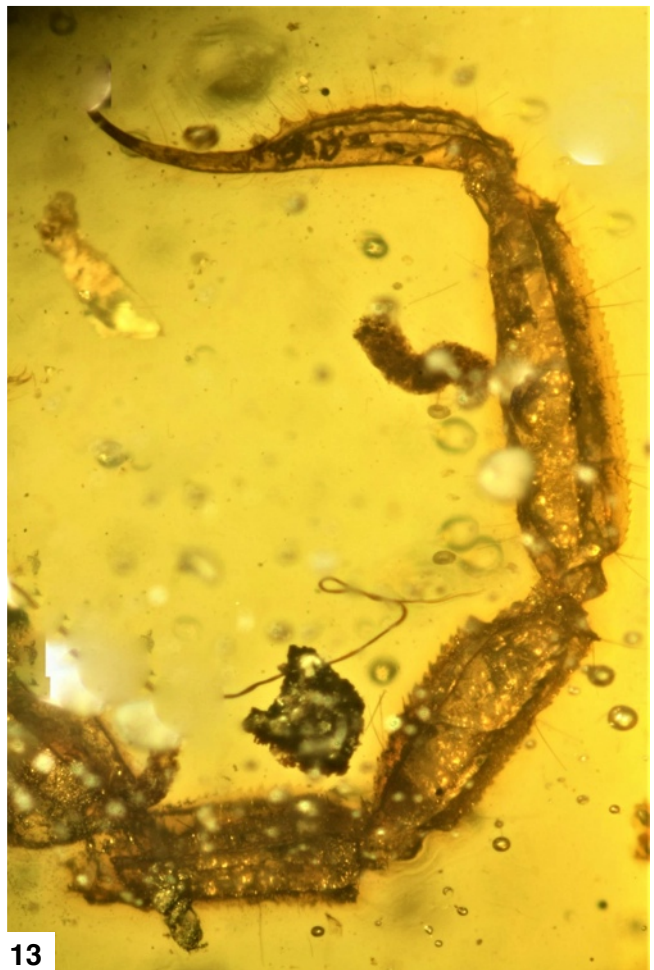
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11



12



13

Fig. 10-13. *Betaburmesebuthus vinzentschmidti* Lourenço **sp. n.**, ♂ holotype.

10. Habitus, dorsal aspect. **11.** Right pedipalp in detail, dorsal aspect. **12.** Left pedipalp in detail and carapace, dorsal aspect. **13.** Metasomal segments II to V and telson, lateral aspect.

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Authors contribution ¹

Publisher Correspondence. – WL

Writing the article. – WL

Description. – WL

Article proofreading. – WL

Bibliographic work. – WL

Material study. – WL & JV

Author of the figures. – WL (Fig. 1–9) & JV (Fig. 10–13 and cover)

¹ WL = Wilson R. Lourenço – JV = Jürgen Velten

Résumé

Lourenço W. R. & Velten J., 2023. – Une remarquable nouvelle espèce de *Betaburmesebuthus* Lourenço, 2015 de l'ambre Crétacé de Myanmar (Scorpiones : Palaeoburmesebuthidae). *Faunitaxys*, 11(78): 1 – 5.

L'étude d'un nouveau spécimen de Palaeoburmesebuthidae, scorpion de l'ambre du Crétacé inférieur du Myanmar, conduit à la description d'une nouvelle espèce de *Betaburmesebuthus* Lourenço, 2015. Malgré le nombre croissant d'espèces décrites pour ce genre dans les années récentes, la nouvelle espèce peut être définie à partir de caractères très distincts. La découverte de ce nouvel élément confirme une fois de plus l'existence d'une importante diversité au sein de la faune trouvée dans l'ambre Crétacé de Myanmar.

Mots-clés. – Scorpiones, Palaeoburmesebuthidae, *Betaburmesebuthus*, *vinzentschmidti*, taxonomie, nouvelle espèce, description, variabilité, fossile, ambre birman.

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SOMMAIRE

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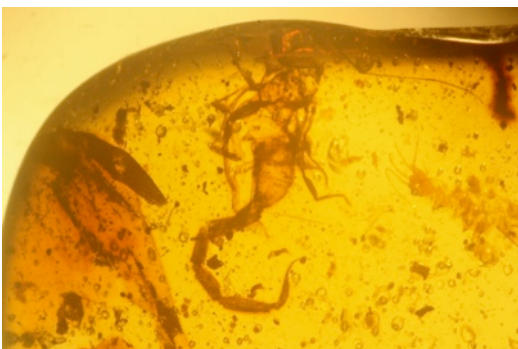


Illustration de la couverture :

Betaburmesebuthus vinzentschmidti Lourenço **sp. n.** in the stone (piece of amber).

Crédits:

Wilson R. Lourenço: Fig. 1-9.

Jürgen Velten: Fig. 10-13 & couverture.