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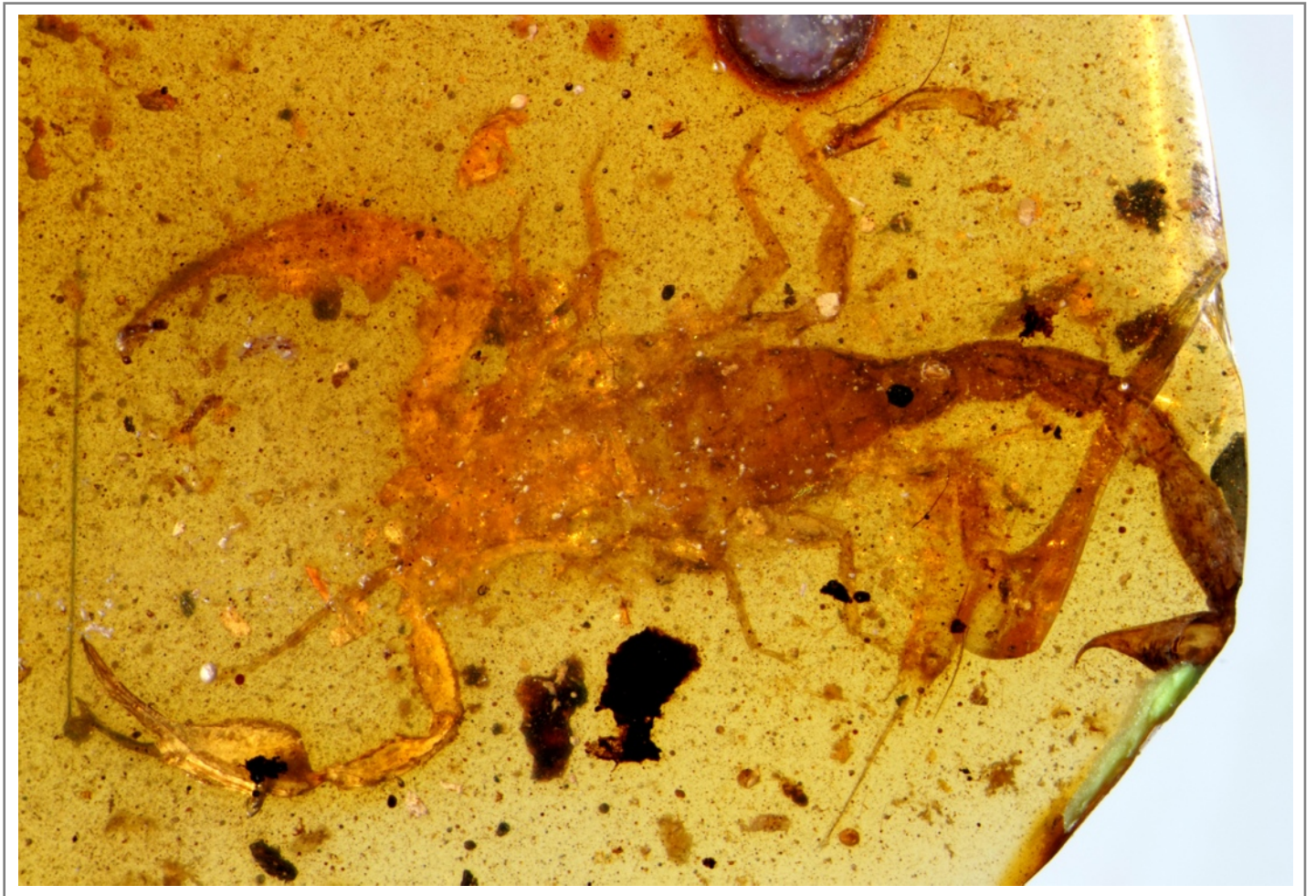
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A new scorpion species for the genus *Burmesescorpiops* Lourenço, 2016 from Cretaceous Burmese amber (Scorpiones: Palaeoscorpionidae: Archaeoscorpioninae)

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Keywords:

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Burmesescorpiops;
velteni;
taxonomy;
new species;
description;
fossil;
Burmese amber.

Abstract. – In this contribution one new species of the rare genus *Burmesescorpiops* Lourenço, 2016 is described. The discovery of this new element of the family Palaeoscorpionidae Lourenço, 2003 and subfamily Archaeoscorpioninae Lourenço, 2015 further confirms the validity of the genus *Burmesescorpiops* which however, remains poorly speciose. The remarkable degree of diversity in the Burmese amber-producing forests is once again highlighted.

Lourenço W. R., 2024. – A new scorpion species for the genus *Burmesescorpiops* Lourenço, 2016 from Cretaceous Burmese amber (Scorpiones: Palaeoscorpionidae: Archaeoscorpioninae). *Faunitaxys*, 12(4): 1 – 5.

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Introduction

As already commented in previous papers (e. g. Lourenço & Velten, 2023a), since the ground-breaking description of the first scorpion trapped in Cretaceous Burmese amber by Lourenço (2002), the number of new taxa described from this type of amber knew an extraordinary progress; see the recent synopsis proposed by Lourenço (2023). Among the different scorpion lineages defined for Burmite, some proved to be rather common; e.g. families Palaeoburmesebuthidae Lourenço, 2015 and Chaerilobuthidae Lourenço & Beigel, 2011. For these speciose groups, a multiplication of new descriptions was observed what certainly brings problems for future identifications, mainly due to the very similar morphologies of most species. Consequently, only markedly distinct elements of these two families can now allow the descriptions of new species without the risk of producing synonymies (Lourenço & Velten, 2023b). Contrarily, other groups remain confidential and rare, such as those of the family Palaeoscorpionidae Lourenço, 2003 with the subfamily Archaeoscorpioninae Lourenço, 2015 to which only three genera and four species were described, namely *Archaeoscorpion cretacicus* Lourenço, 2015, *Archaeoscorpion grossei* Lourenço, 2023, *Burmesescorpiops groehni* Lourenço, 2016 and *Chaeriloscorpion bautschi* Lourenço, 2020 (Lourenço, 2015, 2016; Lourenço & Velten, 2020, 2023a). In the present study a new species is described for the genus *Burmesescorpiops* Lourenço, 2016, adding further compelling evidence to support the validity of the subfamily and genus.

Material and methods

The specimen investigated is preserved in a rather dark piece of reddish to reddish-yellow amber which measures 28 x 25 x 3 mm. The scorpion representing the new species is almost totally complete but some structures cannot be clearly observed due to the presence of many inclusions such as plant debris and in particular a sort of blackish dust which prevent an optimal observation. Nevertheless, a majority of the characters were finally observed thanks to the use of a Leica M205C Stereomicroscope which belongs to the Entomology Laboratory of the Muséum, Paris. Photos were produced with this same Leica M205C coupled with a Sony ILCE 7RM4A Camera. The schematic drawings provided are an interpretation of what was observable. Line drawings and measurements were produced with the aid of a Wild M5 Stereomicroscope 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) while Cheliceral nomenclature follows Vachon (1963). 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 pecten the scorpion is most certainly a male and probably represents a juvenile or pre-adult.

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



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Taxonomic treatment

Palaeoescorpiidae Lourenço, 2003

Archaeoscorpioninae Lourenço, 2015

Burmesescorpiops Lourenço, 2016

***Burmesescorpiops velteni* sp. n.**

(Fig. 1-16)

ZooBank: <https://zoobank.org/D2A6A3F0-C9B9-4539-B586-5F7DA9A63FF6>

Holotype. A possible juvenile or pre-adult. Sex cannot be clearly determined, however, according to the morphology of pedipalps and pecten it most certainly corresponds to a male. Type locality and horizon: Myanmar (Burma), Kachin; precise locality unknown; Lower Cretaceous.

Diagnosis for the new species. – Scorpion with an average size; total length 15.75 mm. General coloration reddish to reddish-brown. Carapace strongly elongated with a marked median concavity; median ocular tubercle anterior to the centre of the carapace; two lateral eyes can be observed. Furrows strongly marked and deep, in special the posterior one. Pectines poorly observable with a possible number of 7-8 teeth. Spiracles with an oval shape, more or less elongated. Telson with a pear-shaped vesicle not flattened laterally; annular ring on the telson not observed. The general morphology of the pedipalps is similar to that of extant Scorpionidae; fixed and movable fingers with 8-9 rows of small rounded granules, with inconspicuous accessory granules. Chelicera with a dentition similar to that of extant scorpionids (Vachon, 1963). Tarsi of legs with small spines. Trichobothrial pattern similar to type C of Vachon (1974), also defined for the family Euscorpionidae (Vachon, 1980). On the chela hand, trichobothria **Esb**, **Est**, **Dt**, **Et₄**, **Eb₁**, **Et₁** and 7-8 **V** can be observed. On the chela fixed finger, trichobothria **eb**, **db**, **dsb**, **dt**, **dst**, **est** can be observed. Patella shows **d₁** and **d₂** on dorsal face; **i** is slightly displaced to the dorsal face; on the ventral face 9 **V** trichobothria are observed. A number of external trichobothria (8-9) can be indirectly observed on the patella by the presence of several transverse hairs; this number is most certainly higher, corresponding to the territories **et**, **em**, **est**, **esb** and **eb**. Femur shows trichobothria **d**, **i** and **e**. The presence of a second trichobothrium **e**, previously suggested by Lourenço (2016) is confirmed.

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

Patronym. – Specific name honours Mr. Jürgen Velten (Kirchheimbolanden, Germany) who supported our amber studies for almost 10 years now and who never limited his efforts to locate many of the most interesting described taxa.

Depository. – The type specimen is deposited in the Collections of Mr. Jürgen Velten (Kirchheimbolanden, Germany).

Description

Coloration. – The scorpion presents a coloration that ranges from reddish to reddish-brown. Body, pedipalps and legs of a uniform coloration; only metasomal segments and telson are slightly darker. The ventral aspect of the specimen is slightly paler.

Morphology. – Carapace without granulations, almost smooth; anterior margin with a marked median concavity. Carinae absent; furrows strongly marked and deep, in special the posterior one. Median ocular tubercle anterior to the centre of carapace; median eyes moderate in size. Two lateral eyes can be observed in both sides of the carapace. Sternum pentagonal to subpentagonal; higher than large. Mesosomal tergites weakly granular, almost smooth with one median

carina; VII with five weakly marked carinae. One pecten partially observable with 7 or 8 teeth. Sternites smooth with oval-shaped spiracles, more or less elongated. Metasomal segment I to III with 10 carinae; segment IV with 8 carinae; segment V slender with seven inconspicuous carinae; dorsal carinae of segments I to IV without spinoid granules; dorsal aspect of segments I to V weakly depressed; setation on all segments weakly marked. Telson with a long pear-shaped vesicle not flattened laterally; smooth; aculeus moderately curved; annular ring on the telson not observed. Cheliceral dentition similar to that of extant scorpionids (Vachon, 1963). Pedipalp femur with 4-5 carinae; patella with dorso-internal, ventro-internal, dorso-external and external carinae; internal face with some minor spinoid granules and a moderate apophysis. Chela with moderately marked carinae; all faces weakly granular to smooth. Fixed and movable fingers each with 8-9 rows of small rounded granules; only inconspicuous accessory granules are observable; extremity of fingers with moderate spinoid granules; setation of pedipalps inconspicuous. Trichobothriotaxy recalling type C (Vachon, 1974) of extants Scorpionidae (see diagnosis).

Morphometric values (mm), holotype of *Burmesescorpiops velteni* sp. n.

– **Total length** 15.75 (including telson).

– **Carapace**
length 2.14;
anterior width 1.61;
posterior width 1.82.

– **Mesosoma:** length 4.10.

– **Metasomal segments**

I: length 1.07, width 1.14;
II: length 1.14, width 1.07;
III: length 1.14, depth 0.95;
IV: length 1.21, depth 0.95;
V: length 2.41, depth 1.02.

– **Telson:** length 2.54.

– **Vesicle:** depth 0.95.

– **Pedipalp**

femur length 1.74, width 0.67;
patella length 2.07, width 0.63;
chela length 4.22, width 1.14.

– **Movable finger:** length 1.94.

– **Chelicera:** length 0.94.

Relationships. – The presence of an accessory external trichobothrium on femur clearly associates the new species to the genus *Burmesescorpiops*.

The new species can, however be distinguished from *Burmesescorpiops groehni* Lourenço, 2016, by a number of characters:

- (i) a carapace very elongated with a marked median concavity and strongly marked furrows,
- (ii) pectines with 7 or 8 teeth; the values cited by Lourenço (2016) for *B. groehni*, 8-9 are incorrect; the true values observed for this last species are 13-12, as showed in figures 2 and 4 of Lourenço (2016),
- (iii) more elongated spiracles,
- (iv) fixed and movable fingers of pedipalps with 8-9 rows of granules.

Final remarks. – As previously stated (Lourenço & Velten, 2023a), each new contribution to the already remarkable list of scorpion taxa found in Burmite, highlights its major significance for paleontological research. The present discovery rather reinforces the validity of the subfamily Archaeoscorpioninae and the genus *Burmesescorpiops* within the family Palaeoescorpiidae and confirms once again the very rich diversity present within the Burmese amber fauna, providing invaluable insights into the ancient scorpion fauna of the Cretaceous period.

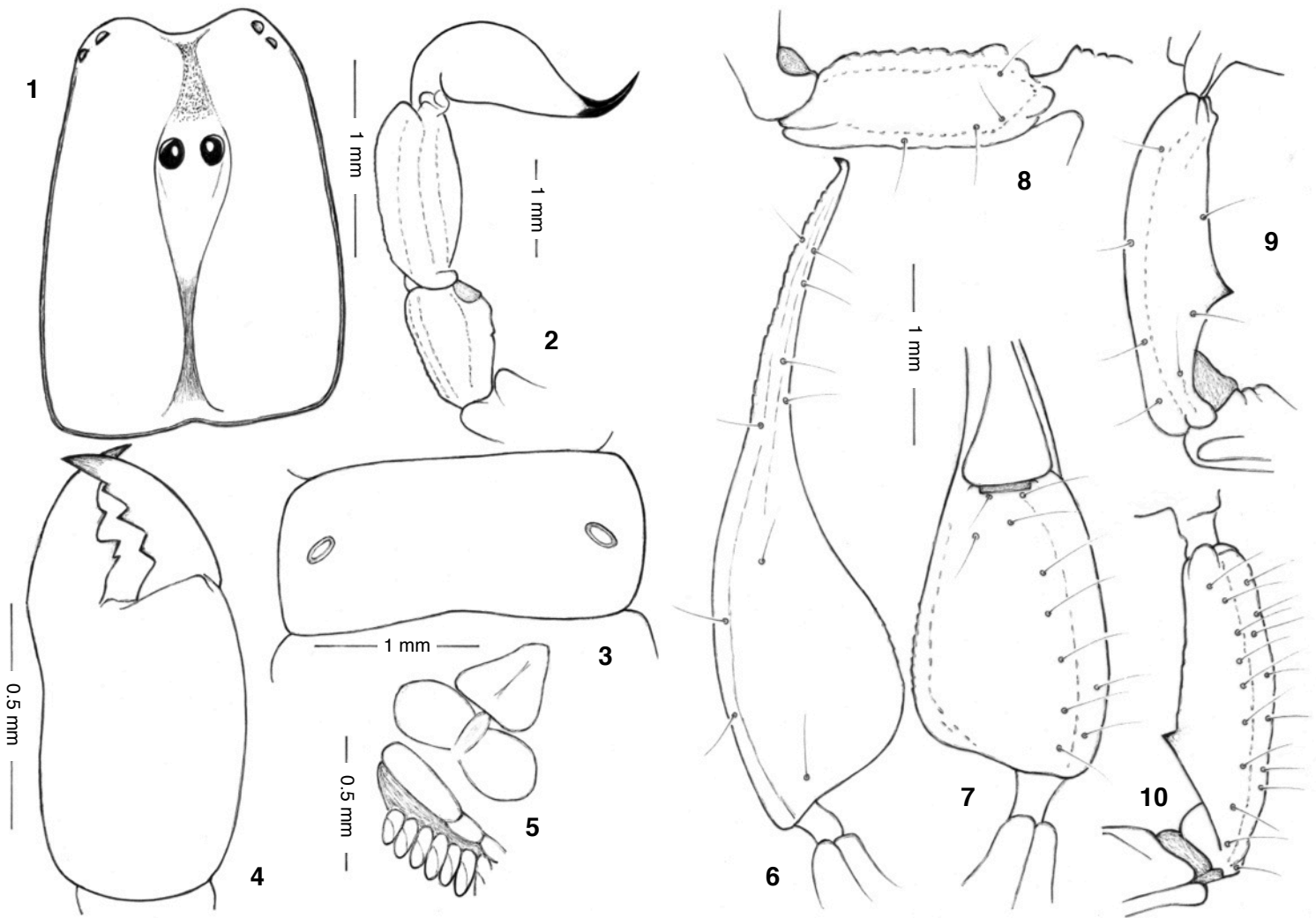


Fig. 1-10. *Burmesescorpiops velteni* sp. n.

1. Carapace, dorsal aspect. 2. Metasomal segments IV-V and telson, lateral aspect. 3. Sternite V with spiracles. 4. Chelicera, dorsal aspect. 5. Part of ventral aspect, showing sternum, genital operculum and left pecten, in part. 6-10. Trichobothrial pattern. 6-7. Chela dorso-external and ventral aspects. 8. Femur, dorsal aspect. 9-10. Patella, dorsal and ventral aspects.

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We are most grateful to Dr Valérie Ngô-Muller (Paris Cité University - ISYEB-MNHN) for her assistance in the preparation of the photos which illustrated the new species.

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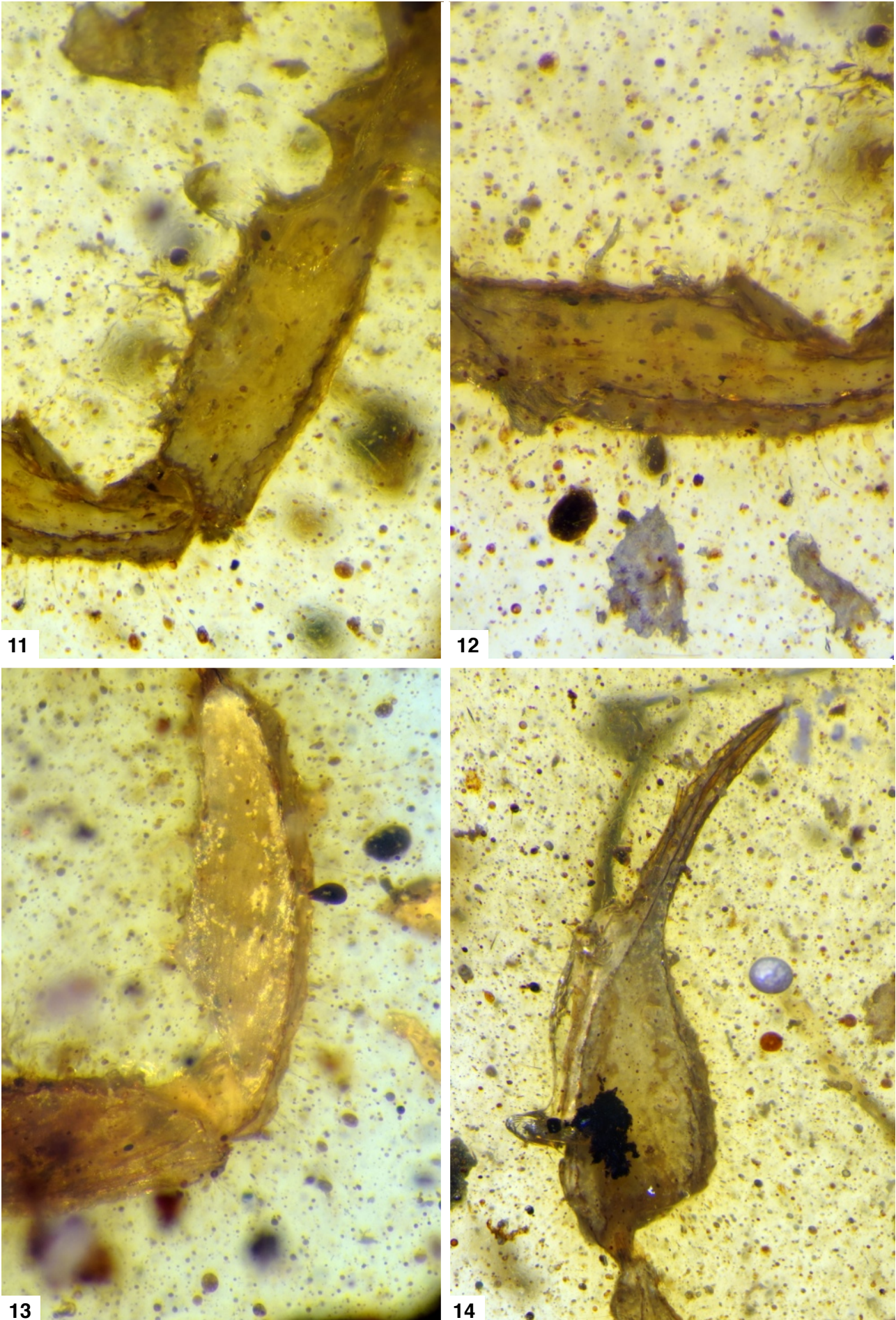


Fig. 11-14. *Burmesescorpiops velteni* sp. n.

11. Femur, dorsal aspect. 12. Patella, dorsal aspect. 13. Patella, ventral aspect. 14. Chela, dorsal aspect.

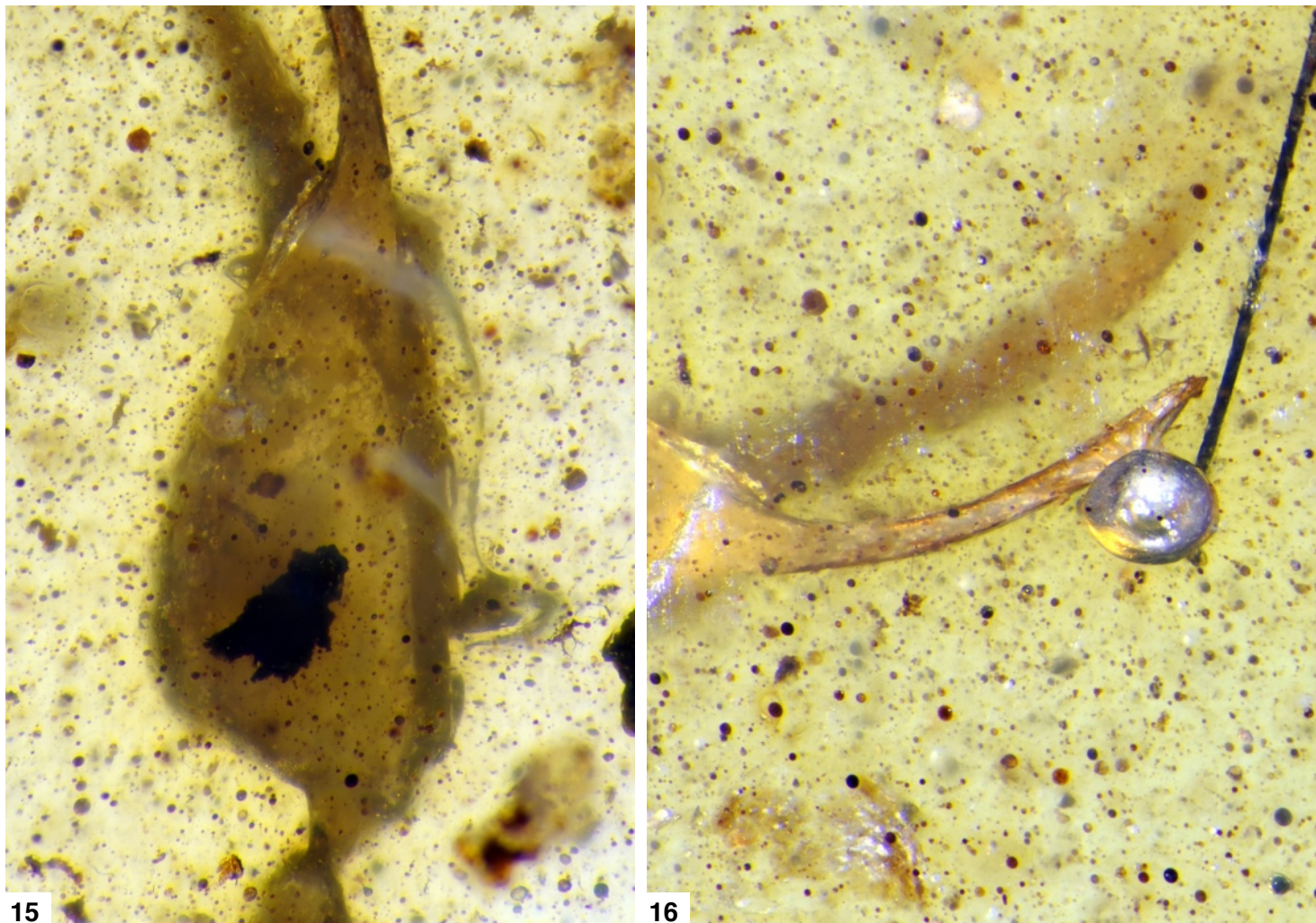


Fig. 15-16. *Burmesescorpiops velteni* sp. n.

15. Chela-hand, ventral aspect. 16. Chela-fingers, ventral aspect.

Résumé

Lourenço W. R., 2024. – Une nouvelle espèce de scorpion pour le genre *Burmesescorpiops* Lourenço, 2016 de l'ambre Crétacé du Myanmar (Scorpiones : Palaeoscorpionidae : Archaeoscorpioninae). *Faunitaxys*, 12(4): 1 – 5.

Dans la présente contribution une nouvelle espèce du rare genre *Burmesescorpiops* Lourenço, 2016 est décrite. La découverte de ce nouvel élément appartenant à la famille des Palaeoscorpionidae Lourenço, 2003, sous-famille des Archaeoscorpioninae Lourenço, 2015 vient conforter la validité du genre *Burmesescorpiops*, lequel, cependant demeure peu nombreux en espèces. La remarquable diversité des forêts productrices d'ambre Crétacé du Myanmar est une fois de plus mise en évidence.

Mots-clés. – Scorpiones, Palaeoscorpionidae, *Burmesescorpiops*, *velteni*, taxonomie, nouvelle espèce, description, fossile, ambre birman.

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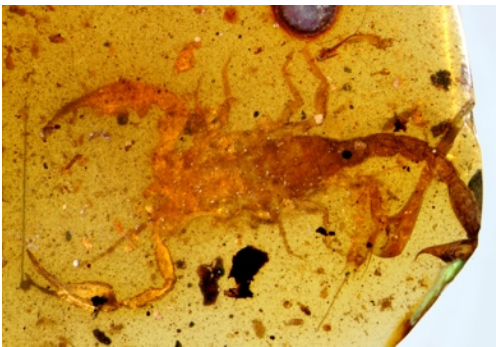


Illustration de la couverture :

Burmesescorpiops velteni **sp. n.** in the stone (piece of amber).

Crédits:

Wilson R. Lourenço : Fig. 1-10.

Valérie Ngô-Muller : Fig. 11-16 & couverture.