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A new marine mite of the genus *Litarachna* Walter, 1925 (Pontarachnidae, Hydrachnidia, Acari) from Brunei Darussalam

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Abstract

A new species of the marine water mite family Pontarachnidae Koenike, 1910, is described from Brunei Darussalam. *Litarachna poliacarus* sp. nov. represents the fourth species of the family in the country to date.

Key words water mites, taxonomy, Brunei Darussalam, marine environments.

Introduction

The Pontarachnidae Koenike, 1910, the only family of Hydrachnidia inhabiting marine environments, comprises of two genera: *Pontarachna* Philippi, 1840, and *Litarachna* Walter, 1925. Recently, Pešić *et al.* (2026) reported 34 *Litarachna* and 24 *Pontarachna* species known worldwide; a comprehensive list of Pontarachnidae is maintained in the World Register of Marine Species (WoRMS). As noted by Pešić *et al.* (2026), most species in these genera were described in the 21st century, with the highest diversity concentrated in the tropical central Indo-Pacific (Pešić 2013; Pešić *et al.* 2012; Chatterjee *et al.* 2019).

The pontarachnid fauna of Brunei Darussalam currently includes three species: *Litarachna bruneiensis* Pešić, Chatterjee, Marshall & Pavićević, 2011, known only from the Brunei River estuary and Brunei Bay (Pešić *et al.* 2011, 2013); *L. bartschae* Smit, 2003, also recorded from Western Australia (Smit 2003) and Singapore (Bartsch 2015); and *L. minuta* Pešić, Chatterjee & Marshall, 2013, a species described from a single female collected in Brunei Bay (Pešić *et al.* 2013). To date, no species of the genus *Pontarachna* has been reported from Brunei Darussalam, suggesting that further faunistic sampling is required to fully document the diversity of the country's pontarachnid mites. In the present study, a new species of the genus *Litarachna* is described.

Material and Methods

Specimens of pontarachnid mites were collected by the second author (D.J.M.) from an artificial breakwater constructed around thirty years ago at Pantai Tungku (southwest bay; 4.971299°N, 114.864833°E; Figure 1). The mites were sampled from algal turf in the low-shore zone on the sheltered, landward side of the breakwater (Fig 1). In the laboratory, the collected material was washed through a stack of coarse sieves (~2 mm and 0.5 mm mesh) into a fine net (180 µm mesh) and sorted while the mites were still alive. Specimens were individually picked using fine tweezers and immediately preserved in 96% ethanol.

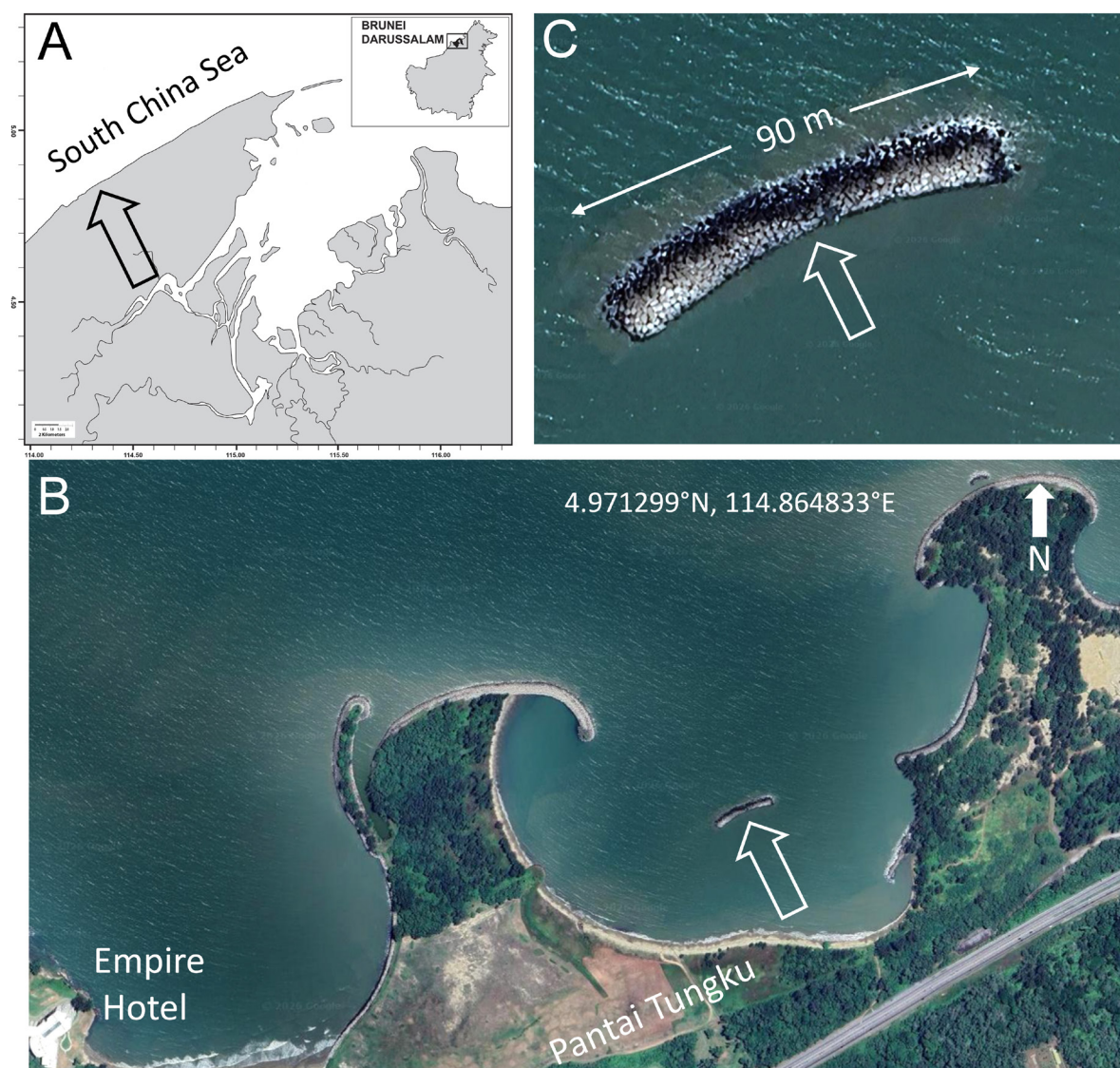


Figure 1. Map showing the location of collection of the mites on an artificial breakwater at Pantai Tungku (arrow).

Selected specimens were subsequently dissected and slide-mounted (Hoyer's mounting medium). Morphological nomenclature follows Wiles *et al.* (2002) and Pešić *et al.* (2019). All measurements are provided in micrometers (µm). Photographs were taken with a DP28 Olympus digital camera mounted on Olympus BX51 microscope with a differential interference contrast (DIC) facility, and images were retrieved using Olympus cellSens digital software.

The following abbreviations are used: Cx-I to -IV – first to fourth coxae; Cxgl-4 – coxoglandulare 4 (E4 *sensu* Wiles *et al.* 2002); dL – dorsal length; H – height; I-Leg-1 to -6 – first to

sixth segments of first leg; L – length; P-1 to -5 – palp segments 1 to 5; V3 gland – ventral glandularium *sensu* Wiles *et al.* (2002); W – width; W1 to W3 – first to third wheel-like acetabula.

Systematics

Family Pontarachnidae Koenike, 1910

Genus *Litarachna* Walter, 1925

***Litarachna poliacarus* Pešić & Marshall sp. nov.**

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Figure 2-4

Material examined — Holotype ♂, Brunei Darussalam, Pantai Tungku (south bay), 4.971299° N, 114.864833° E, collected from the algal turf, 4th December 2024, leg. D. Marshall, slide mounted (RMNH). Paratypes: 1♂, 1♀, 1 deutonymph, same data as holotype, slide mounted (RMNH).

Diagnosis — Posteromedial apodemes of Cx-IV extending beyond the anterior margin of the genital field but not exceeding the halfway point of the sclerotized genital ring in the male; sclerotized ring with two pairs of setae; male genital field with 50–54 pairs of perigenital setae.

Description. Male — Idiosoma 316 long and 297 wide. First coxal plates separated medially; suture line Cx-I/II complete, suture line Cx-II/III and Cx-III/IV incomplete; coxal field 138 long and 232 wide. Lateral apodemes of Cx-IV shorter than medial apodemes, the latter extending beyond anterior margin of genital field (Figure 2A). Genital field consisting of a sclerotized ring, 28 long and 24 wide, with two pairs of setae (Figure 2B), about 50–54 pairs of perigenital setae free in integument around the sclerotized ring. A pair of small platelets with Cxgl-4 (E4 according to Wiles *et al.* 2002) and associated setae, and a pair of the large glandularia-like structure (V3 gland according to Wiles *et al.* 2002), both placed between the posterior lateral and medial apodemes of Cx-IV. Posterior to the genital field a pair of platelets with three pores and two pairs of wheel-like acetabula, with few radiating spokes. Excretory pore unsclerotized, at the posterior idiosoma margin.

Dorsal length of palp segments: P-1, 13; P-2, 59; P-3, 25; P-4, 71; P-5, 23; dorsal length P-5/P-4 ratio; P-2 without extension; ventral margin of P-4 with well-developed setal tubercle (Figure 2C). Dorsal lengths of I-Leg-2-6: 32, 34, 38, 58, 78; dorsal lengths of IV-Leg-2-6: 42, 45, 77, 94, 101. Number of swimming setae: III-Leg-5, 1; IV-Leg-4, 1; IV-Leg-5, 2.

Female — Similar to male, except for the shape of the genital field and postgenital area (Figure 3). Idiosoma 338 long and 300 wide; coxal field 134 long and 244 wide. Medial apodemes of Cx-IV exceeding the posterior margin of genital field; genital field 50 long, pre- and post-genital sclerites bowed, pre-genital sclerite 36 wide, post-genital sclerite 33 wide. Posterior to the genital field three pairs of wheel-like acetabula as indicated in Figure 3. Dorsal length of palp segments: P-1, 16; P-2, 59; P-3, 25; P-4, 71; P-5, 27. Chelicera 141 long. Gnathosoma 103 long. Dorsal lengths of I-Leg-2-6: 29, 34, 36, 58, 77; dorsal lengths of IV-Leg-2-6: 50, 50, 82, 98, 106. Swimming setae as in male.

Deutonymph — As in adult but lacking a genital field (Figure 4D). Idiosoma 227 long and 200 wide; coxal field 89 long and 172 wide. Dorsal length of palp segments: P-2, 39; P-3, 21; P-4, 52; P-5, 18.

Etymology — The specific epithet is a concatenation of *poli*, the ancestral name of Brunei, and *acar* referring to mite.

Remarks — The new species from Brunei closely resembles *Litarachna guadeloupensis* Pešić, Chatterjee & Schizas, 2020, a species originally described from Guadeloupe in the Caribbean Sea (Pešić *et al.* 2020). The males of both species possess a sclerotized genital ring with two pairs of setae and a similar palp morphology, characterized by the absence of a ventral extension on P-2 and the presence of ventral setal tubercles on P-4. The male of *L. guadeloupensis* can be distinguished from the new species by having comparatively longer medial apodemes on Cx-IV, which clearly exceed the halfway point of the sclerotized ring, and a slightly lower number of perigenital setae (43–44 pairs; data from Pešić *et al.* 2020).

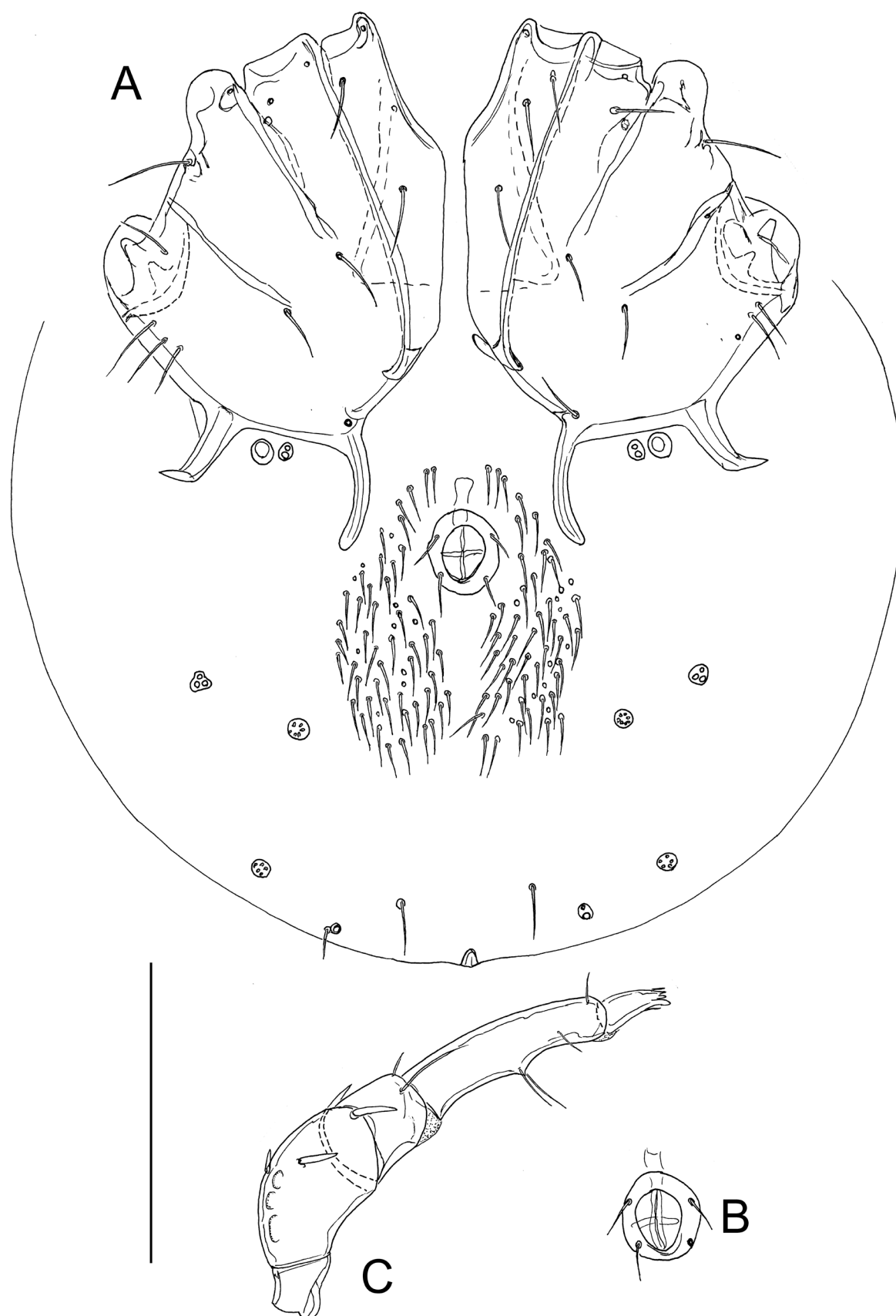


Figure 2. *Litarachna poliacarus* sp. nov., ♂ (A, C holotype, B, paratype), Pantai Tungku, Brunei Darussalam: A – idiosoma, ventral view; B – sclerotized ring of genital field; C – palp. Scale bar – 100 μ m.

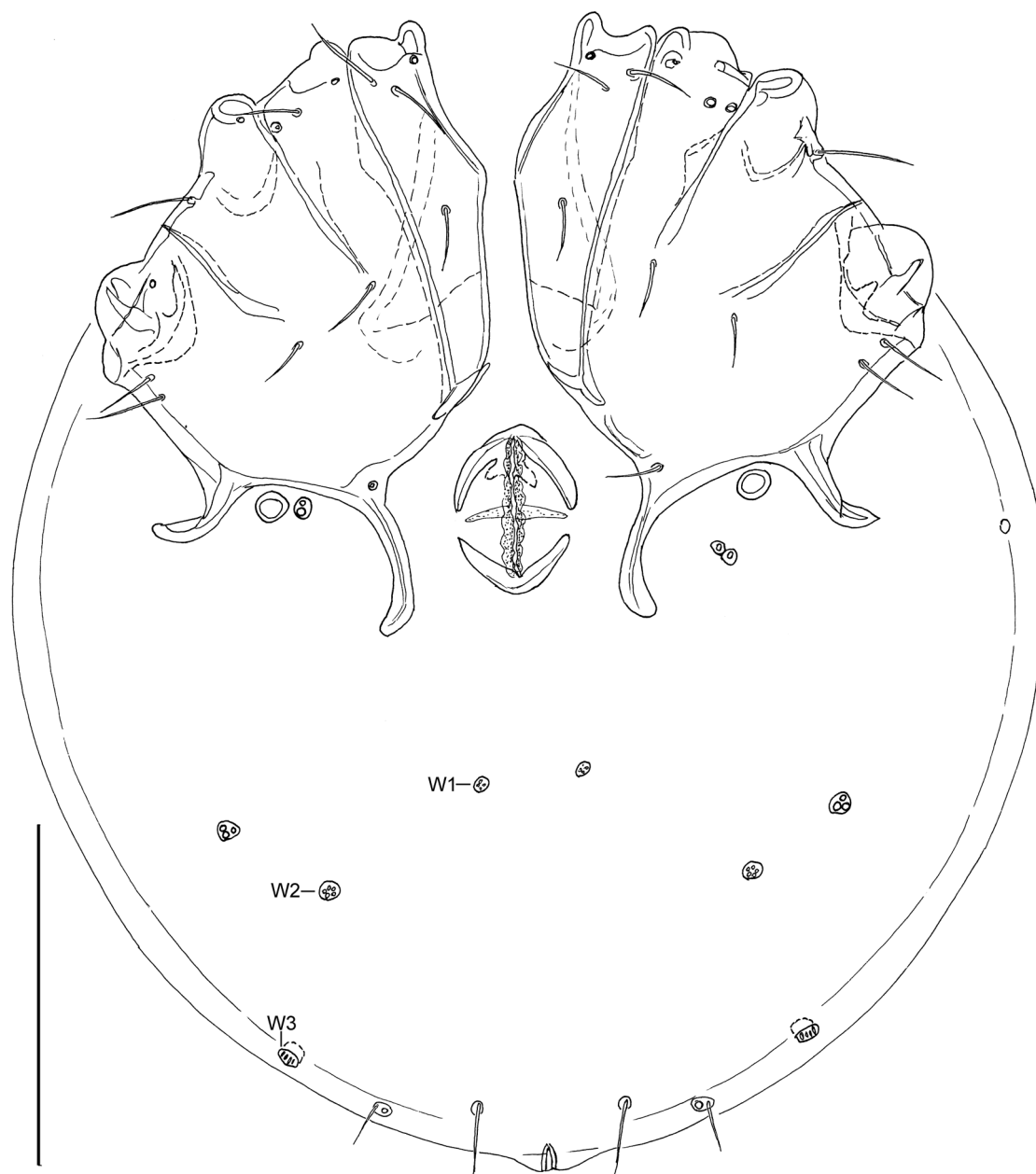


Figure 3. *Litarachna poliacarus* **sp. nov.**, ♀ paratype, Pantai Tungku, Brunei Darussalam: idiosoma, ventral view. Scale bar – 100 µm. W1, W2 and W3 are “wheel-like acetabula”.

Habitat — Ecologically, this is the first pontarachnid mite from the region occurring in an open oceanic setting and interacting with full strength seawater. The previously known species inhabited estuarine environments of lowered salinity (Pešić *et al.* 2011, 2013; Proum *et al.* 2018).

Distribution — Brunei Darussalam; known only from the type locality.

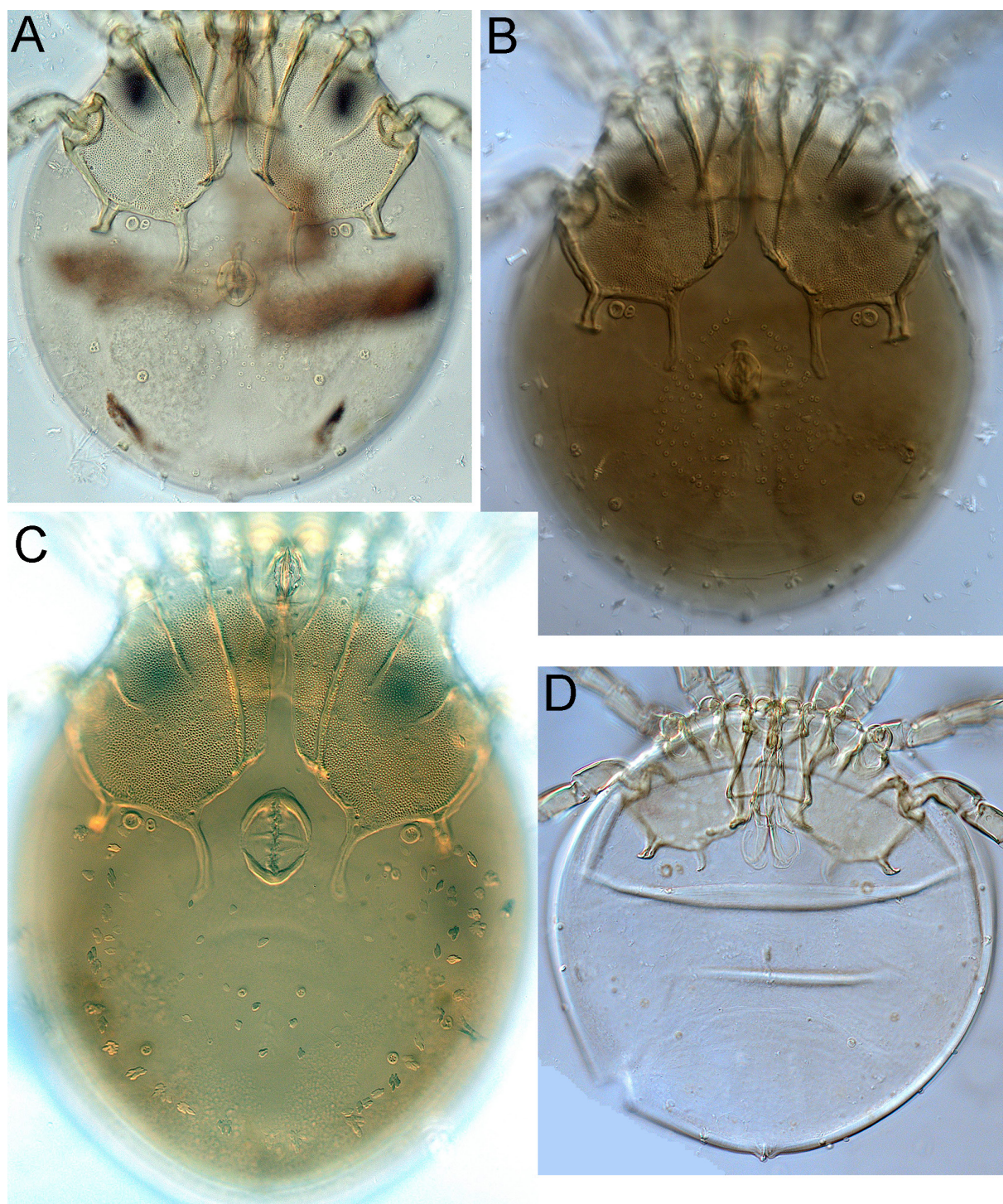


Figure 4. Photographs of ventrum of *Litarachna poliacarus* **sp. nov.**, Pantai Tungku, Brunei Darussalam: A – male, holotype; B – male, paratype; C – female, paratype; D – deutonymph. Photos by D.J. Marshall.

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References

- Chatterjee, T., Schizas, N.V. & Pešić V. (2019) A checklist of Pontarachnidae (Acari: Hydrachnidia) and notes on distributional patterns of the species. *Zootaxa*, 4619 (3), 527–544.
- Bartsch, I. (2015) Halacaridae (Acari) amongst the epiflora and fauna on trunks, branches, roots, and pneumatophores on the coast of Singapore: A survey. *Raffles Bulletin of Zoology*, Supplement 31, 96–138.
- Pešić, V. (2013) A new marine water mite species (Acari, Hydrachnidia, Pontarachnidae) from a coastal lake in Southeast Madagascar. *Marine Biology Research*, 9 (3), 312–315.
<http://dx.doi.org/10.1080/17451000.2012.739697>
- Pešić, V., Chatterjee, T., Marshall, D. & Pavičević, A. (2011) New records of water mites (Acari: Hydrachnidia) from Brunei Darussalam, Borneo, with descriptions of two new species. *Zootaxa*, 3018 (1), 50–58. <https://doi.org/10.11646/zootaxa.3018.1.5>
- Pešić, V., Chatterjee, T., Ingole, B., Velip, D. & Pavičević, A. (2012) A new species of *Litarachna* Walter, 1925 (Acari: Hydrachnidia) from the West Indian Coast, with a discussion on the diversity of the family Pontarachnidae Koenike, 1910. *Cahiers de Biologie Marine*, 53, 547–553.
- Pešić, V., Chatterjee, T. & Marshall, D. (2013) Marine water mites (Acari: Hydrachnidia: Pontarachnidae) from the Brunei Bay, with a description of one new species. *Cahiers de Biologie Marine*, 54 (3), 405–410.
- Pešić, V., Durucan, F. & Zawal, A. (2019) Marine mites (Acari: Hydrachnidia) of the Mediterranean Sea: Descriptions of two new species, key for identification and future prospects. *Zootaxa*, 4585 (3), 501–516. <https://doi.org/10.11646/zootaxa.4585.3.6>
- Pešić, V., Chatterjee, T., Schizas, N.V. (2020) A new marine mite of the genus *Litarachna* Walter, 1925 from Guadeloupe, Caribbean Sea (Acari, Hydrachnidia, Pontarachnidae). *Ecologica Montenegrina*, 38, 205–209. <https://doi.org/10.37828/em.2020.38.28>
- Pešić, V., Batista-Ribeiro, D., Pepato, A. & Smit, H. (2026) First records of the marine water mite family Pontarachnidae Koenike, 1910 from New Zealand (Acari: Hydrachnidia), with the description of one new species. *Acarologia*, 66 (1), 134–148.
<https://doi.org/10.24349/rje7-i3ne>
- Proum, S. Santos, J.H., Lim, L.H. & Marshall, D.J. (2018) Tidal and seasonal variation in carbonate chemistry, pH and salinity for a mineral-acidified tropical estuarine system. *Regional Studies in Marine Science*, 17, 17–27.
- Smit, H. (2003) Five new species of the water mite family Pontarachnidae from Western Australia (Acari: Hydrachnidia). In: Wells, F.E., Walker, D.I. & Jones, D.S. (Eds), *The Marine Flora and Fauna of Dampier, Western Australia 2*. Western Australian Museum, Perth, 547–562.
- Wiles, P.R., Chatterjee, T. & De Troch, M. (2002) Two new and one known marine water mite (Acari: Hydrachnidia: Pontarachnidae) from South-East Africa. *Journal of Natural History*, 36, 1987–1994. <https://doi.org/10.1080/00222930110068583>