



A new genus and species of the tribe Potamocypridini (Crustacea: Ostracoda) from Thailand



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Introduction

A key character of the subfamily Cypridopsinae Kaufmann, 1900 is the reduced caudal ramus appearing flagellum-like. To date, the Cypridopsinae consists of 25 genera which are grouped into 7 tribes, namely Cypridopsini, Paranadopsini, Plesiocypridopsini, Potamocypridini, Songkhramodopsini and Zonocypridini (Meisch et al. 2019; Jacobs & Martens 2022; Savatnalinton 2023). *Potamocypris* which shows high endemism. (Meisch et al. 2019) is the second largest genus in the subfamily (with 46 species - Meisch et al. 2019; Smith et al. 2023; Szwarc et al. 2021), after *Cypridopsis* (with about 77 species). One of the important diagnostic characters of *Potamocypris* is the presence of a spatula-shaped terminal segment of the Mx1-palp, which is different from the other genera of the subfamily (Meisch 2000; Karanovic 2012; Horne et al. 2019) and also delimits it in the tribe. In the Oriental region, only one identified *Potamocypris* species, *P. narayanani* George & Martens, 2002, has been reported from India (George & Martens 2002) and it is endemic to the region. In Southeast Asia, only one species of *Potamocypris* was reported from Thailand, but it was not identified to the species level (Savatnalinton & Suttajit 2016). This species is examined and described in the present work.

Material and Methods

Material used for the present work was collected between the years 2005 and 2022. Samples were taken with a hand net (mesh size 200 µm) and immediately preserved with 70% ethanol in the field. Ostracods were picked and, subsequently, soft body parts were separated from valves under a stereo-microscope (Olympus SZ40). Morphological examination was performed via the following processes. Valves and carapaces were stored dry on micropalaeontological slides and then illustrated using a Scanning Electron Microscope (JEOL JSM6460LV). Soft parts were dissected in glycerine on a glass slide which were later sealed. The illustrations of soft parts were made with the aid of a camera lucida attached to a compound lens microscope (Olympus BX-50).

Results and Discussion

Following the key to the tribes of the Cypridopsinae provided by Savatnalinton (2023), the new taxon is undoubtedly placed in the tribe Potamocypridini due to its spatula-shaped terminal segment of the Mx1-palp. A new genus and species is the first identified species of the tribe in Southeast Asia and Thailand (Savatnalinton & Suttajit 2016).

Based only on the external view of the valves and carapace, this Thai species (Figs 1–4) could be identified as a *Potamocypris* representative. Also, its spatula-shaped terminal segment of the Mx1-palp which is a key character of the genus, additionally emphasizes the position in *Potamocypris*. However, the examination of the soft parts shows many differences and thus the question arises as to which taxonomic position should it be lodged: a new species of *Potamocypris* or a new genus of Potamocypridini. As such differences are significantly weighted in taxonomic value, especially the characters of T2, T3, Md-palp, Mx1 and female genital hook, it is decided to erect a separate genus in the tribe Potamocypridini.

The outstanding feature of the new genus is the undivided penultimate segment of the T2 which makes it significantly different from *Potamocypris* and also from other genera of the Cypridopsinae, except for the members of Cypridopsini (Savatnalinton 2020; Savatnalinton et al. 2022). It has been long known that the number of segments of limbs provides taxonomic value for ostracod classification at the genus or even subfamily level. In the Cypridopsinae, all genera have an A1 with 7 segments, except for *Songkhramodopsis* which has an exceptional 6-segmented A1 as an indicative character of the genus and also the tribe Songkhramodopsini (see Savatnalinton 2023). Thus, the number of A1 segments is a generic character of this subfamily. Most genera of Cypridopsinae have a divided penultimate segment of the T2 and the number of segments is 5, whereas the undivided penultimate segment, resulting in the 4-segmented T2, is only known in 3 genera, namely *Cypridopsis*, *Pseudocypridopsis* (Savatnalinton 2020; Savatnalinton et al. 2022) and the new genus. The number of T2 segments is thus a diagnostic feature at the genus level in Cypridopsinae. In addition, the absence of the d1 seta on the T3 is also an indicative character of the new genus which has not been reported before in the Cypridopsinae.

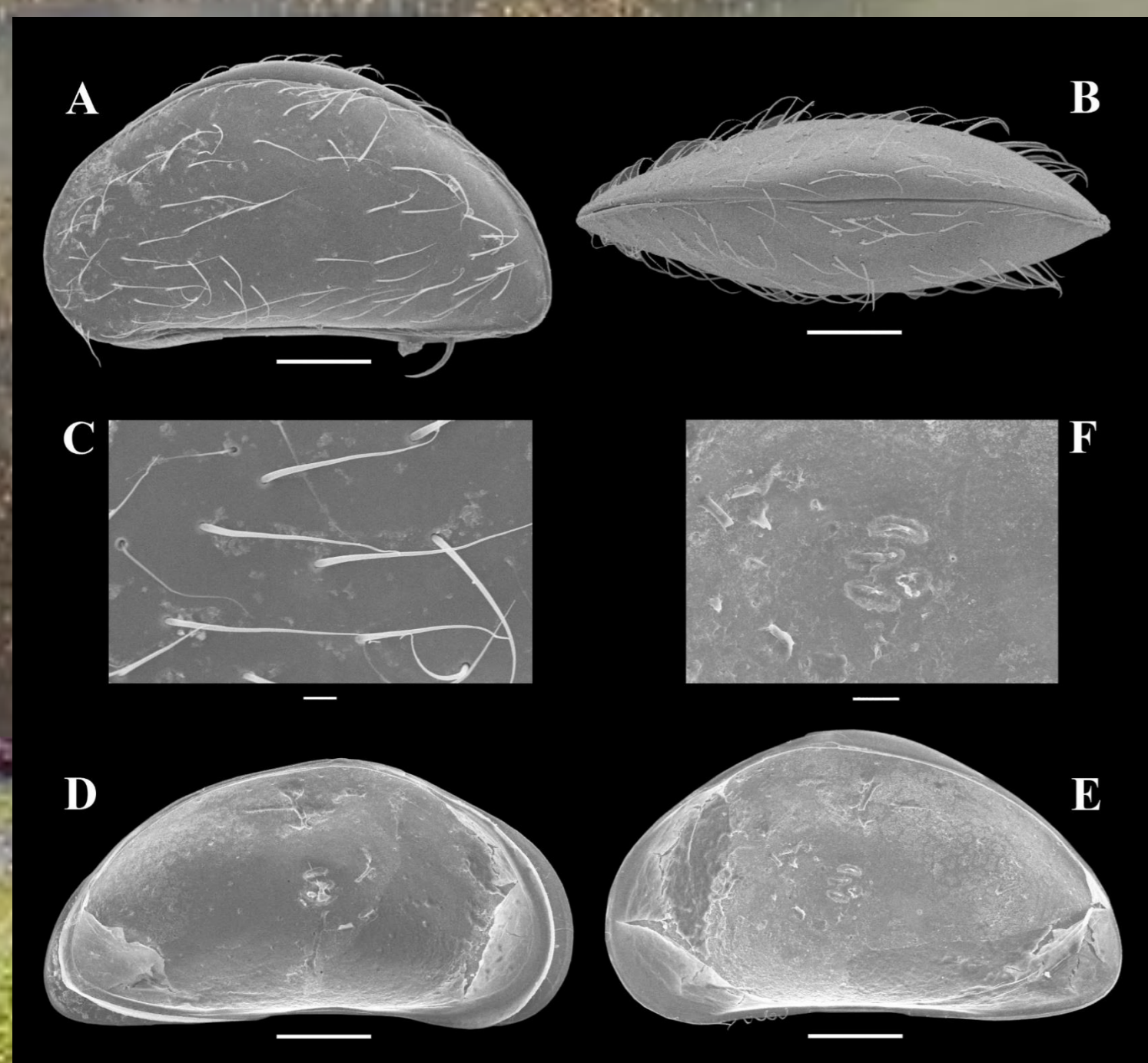


Fig. 1 A new genus and species. A. Carapace (left side). B. Carapace (dorsal side). C. Detail of surface of external left valve. D. Left valve (internal side). E. Right valve (internal side). F. Detail of muscle scars of right valve. Scale bars: A–B, E–F = 100 µm, C = 10 µm, D = 20 µm.

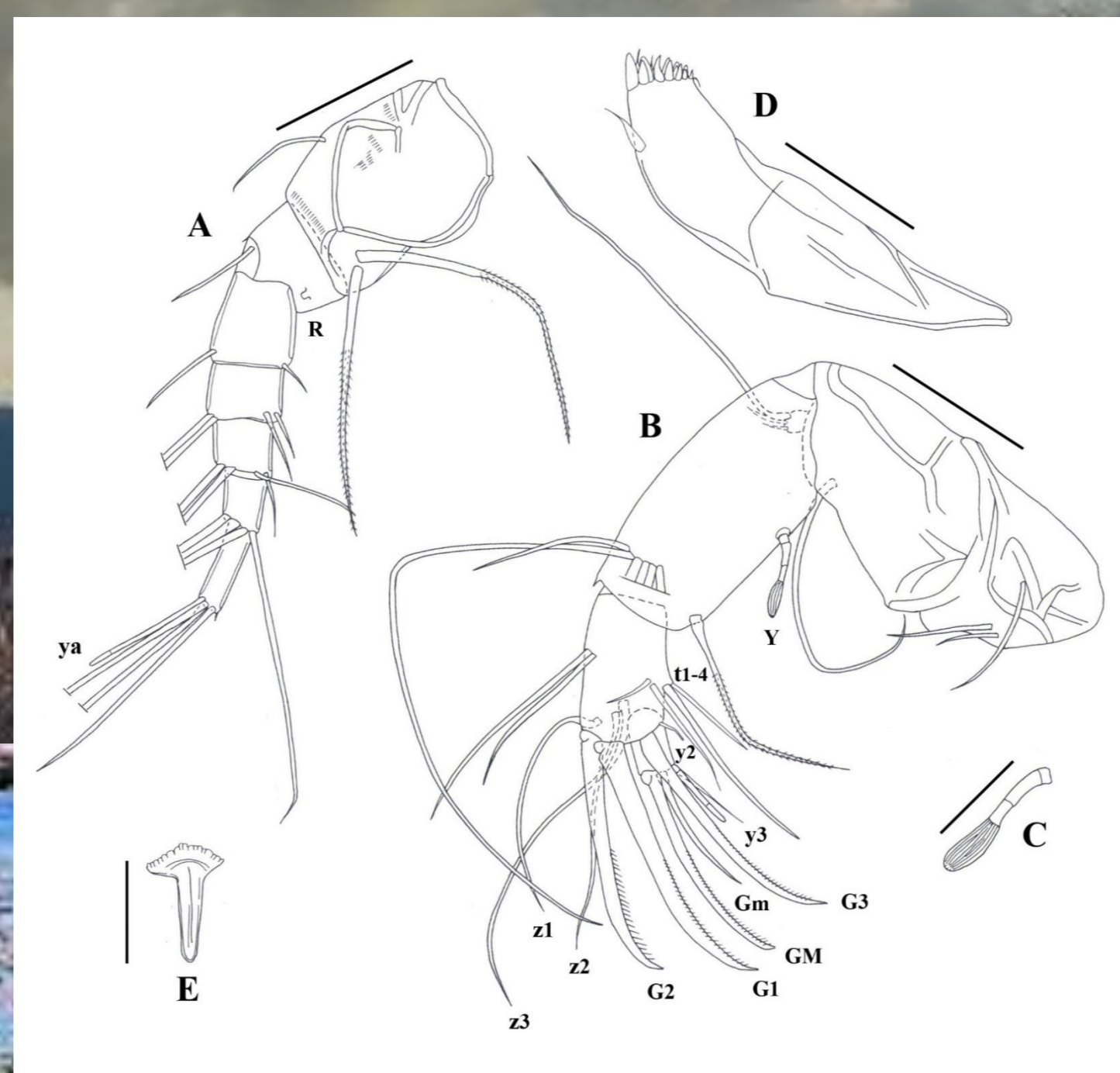


Fig. 2 A new genus and species. A: A1. B: A2. C: Aesthetasc Y of A2. D: Md coxa. E: Rake-like organ. Scale bars: A–B, D = 50 µm, C = 20 µm.

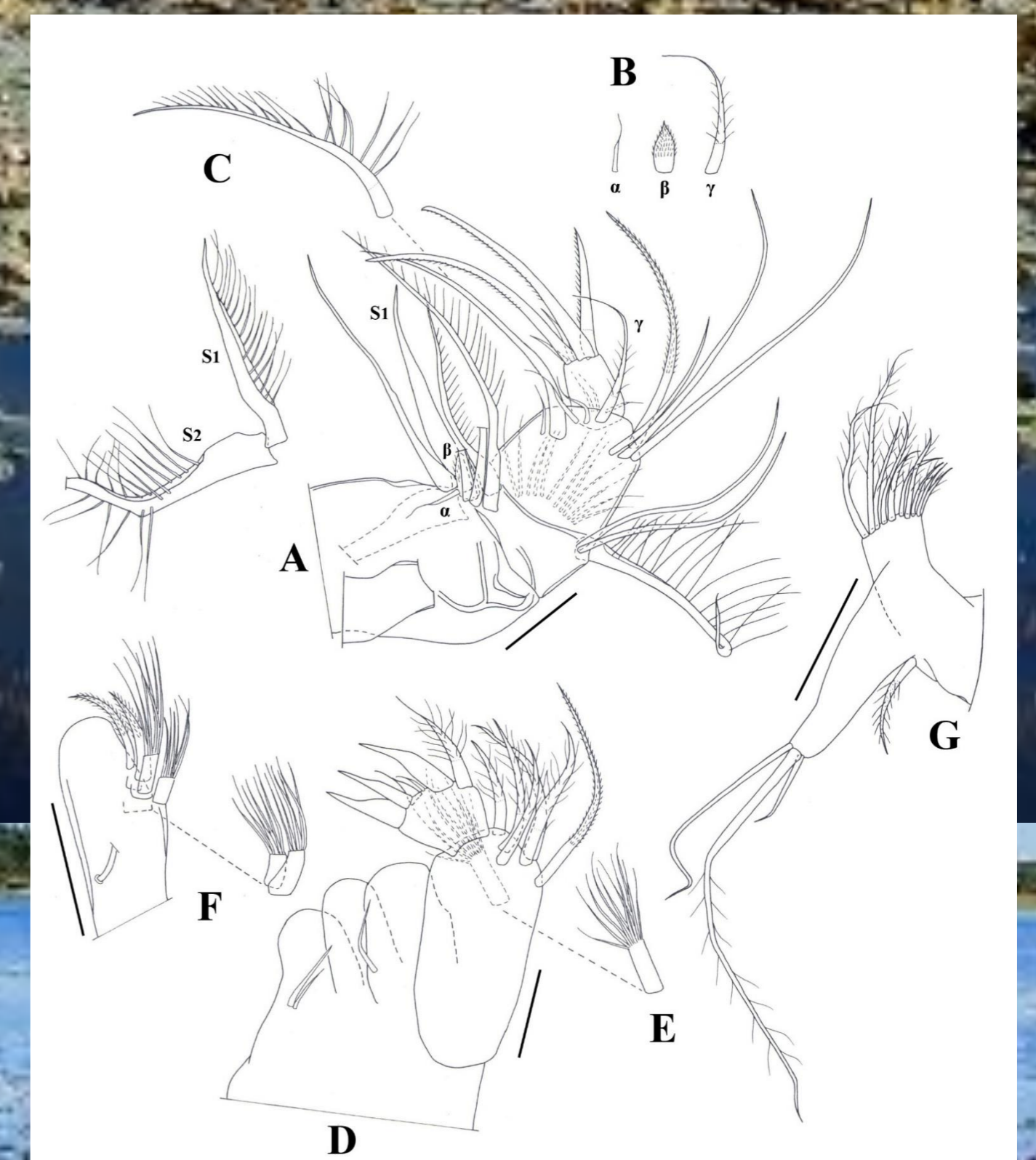


Fig. 3 A new genus and species. A. Md-palp. B. Detail of α , β and γ setae. C. Ventral subapical seta, S1 and S2 setae. D. Mx1. E. Lateral subapical seta on basal segment of the palp. F. 3rd endite with lateral subapical setae. G. T1. Scale bars: A–F = 20 µm, G = 50 µm.

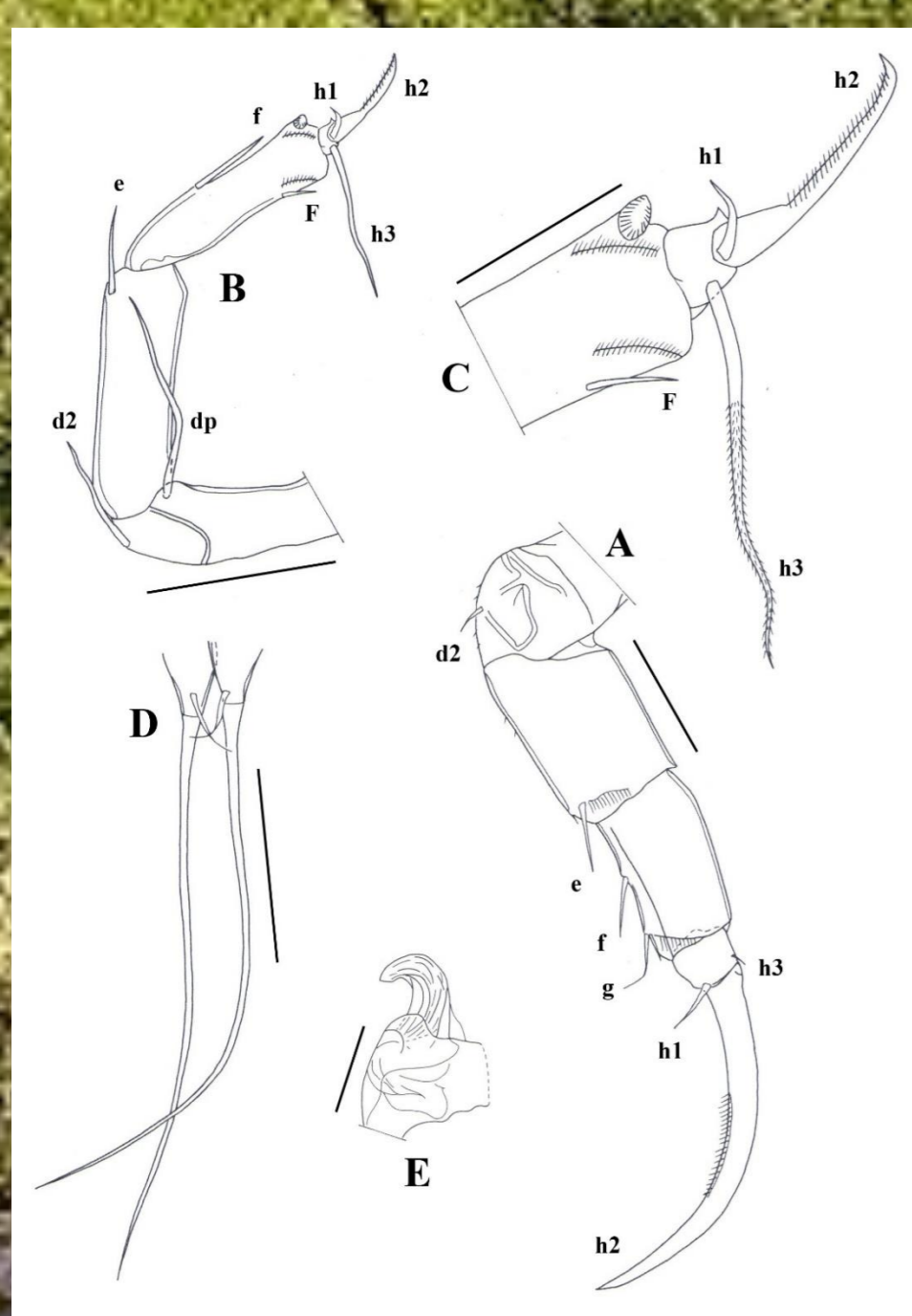


Fig. 4 A new genus and species. A. T2. B. T3. C. Terminal part of T3. D. Caudal ramus. E. Female genital hook. Scale bars: A–B, D = 50 µm, C, E = 20 µm.



Fig. 5 Distribution map of the new genus and species. (Modified from NordNordWest, Thailand adm location map.svg - <https://commons.wikimedia.org/wiki/File:BlankMap-Thailand-provinces.svg>)

It should be noted that, like in the situation of most cypridopsine genera, many *Potamocypris* species have incomplete descriptions with few illustrations. Most illustrated soft body parts are male prehensile palps, reproductive organs and the caudal ramus (see, for example, Klie 1933, 1940; Furtos 1933) while the T3 is poorly described and partly drawn without the first segment (Margalef 1961; Rome 1970; Ferguson 1967; Furtos 1933). Moreover, several species of *Potamocypris* lack the information and drawings of both the T2 and T3 (Hartmann 1964; Furtos 1933; Klie 1940). These suggest that, to clarify the actual taxonomic position of such taxa, a revision of the genus *Potamocypris* is needed and could cause further taxonomic adjustments.

The establishment of the new genus is also reinforced with the female genital hook which apparently differs between these 2 genera. In genus *Potamocypris*, it is slender with a slightly curved ending (Meisch 1984, 1985; Horne et al. 2011; Smith 2023). When consider among species, the slightly differences exist in the hook which is gently curved from the base to the tip (as seen in, e.g., *P. variegata* (Brady & Norman, 1889), *P. villosa* (Jurine, 1820) (see Meisch 1985, 2000) or straight and then slightly curved at terminal part (as seen in, e.g., *P. compressa* (Furtos, 1933) (see Horne et al. 2011), *P. humilis* (Sars, 1924) (see Meisch 1985, Horne & Smith 2004), *P. mastigophora* (Methuen, 1910), *P. steueri* Klie, 1935, *P. unicaudata* Schäfer, 1943 (see Meisch 1985, 2000), *P. zschokkei* (Kaufmann, 1900) (see Meisch 1984)). Thus, the morphology of the female genital hook of the new genus appearing stubby with a strongly curved tip, can be considered as a generic character.

In the last two decades, extensive surveys of freshwater ostracods in Thailand have been carried out mainly in three parts of the country: northern, northeast and western parts. About 410 water bodies, ranging from various types of habitats in 37 provinces (from a total of 77 provinces) were sampled and ca. 620 samples were obtained. The examination in such a large number of sampled localities unveils that the new genus and species is very rare as it has so far been found only in 10 localities in 8 provinces, namely Nakhon Ratchasima, Chaiyaphume, Lopburi, Phetchabun, Kancharaburi, Ratchaburi, Phetchaburi and Prachuap Khiri Khan (Fig 5).

Conclusion

The new genus and species belonging to the subfamily Cypridopsinae, is described from Thailand. The new genus is the second one of the tribe Potamocypridini. The new genus is similar to *Potamocypris*, but can be distinguished mainly by the undivided penultimate segment of the T2, the absence of the d1 seta on the T3 and the morphology of the Md-palp, Mx1 and the female genital hook. The discovery of the new genus suggests the morphological divergent evolution at generic level within the tribe and also perhaps constitutes an example of convergent evolution in the subfamily.

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