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Pontarachnid mites from marine interstitial, with a description of three new species from South Korea (Acari: Hydrachnidia: Pontarachnidae)

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Abstract

Most of the known pontarachnid species (Acari, Hydrachnidia) live in the marine littoral zone; a few species have been described from freshwaters, but these species were found to occur in estuaries or locations near the sea. Occasionally some specimens of the surface dwelling species were taken from marine interstitial. During a recent survey on marine interstitial fauna along the coast of South Korea, some pontarachnid mites were collected. Three species, i.e., *Pontarachna ivonae* sp. nov. (Yellow Sea and East Sea), *Litarachna lukai* sp. nov. (Yellow Sea) and *L. gracilis* sp. nov. (East Sea) are described as new to science. Two latter species have reduced eye pigmentation indicating that they can be the first representatives of the interstitial pontarachnid mites.

Key words: Acari, mites, new species, biodiversity, marine interstitial

Introduction

Many studies on the freshwater interstitial demonstrated that water mites (Acari, Hydrachnidia) represent an abundant and diverse group with a high number of taxonomically isolated clades living in hyporheic waters (Smith and Cook 1999). However, the marine component of water mite interstitial fauna remains almost unknown. A number of halacarid mites (Halacaridae or marine mites) has been described from the marine interstitial, where they can be very abundant (Bartsch 2006).

The water mite family Pontarachnidae Koenike, 1910, is the only family of Hydrachnidia occurring in the marine environment. Most of the presently known 43 species are species live in the marine littoral zone; a few species have been described from freshwaters, but these species were found to occur in estuaries or locations near the sea (Smit 2009). Occasionally water mites have been recorded from marine interstitial, usually as single specimen and as representatives of surface dwelling species. So far, no representatives of pontarachnid mites are known as dwellers of marine interstitial. *Litarachna amnicola* was taken from interstitial water of the George River in Tasmania, less than 15 miles from the sea (Cook 1986), and later on collected from a muddy bottom of a marsh around a lagoon (Pešić and Smit 2009). *Pontarachna valkanovi* was described from the interstitial zone of the marine littoral (0.6–1.2 m depth) of the Bulgarian Black Sea coast (Petrova 1978), but later on collected from the littoral of Turkish Black Sea coast (Pešić *et al.* 2013a). Both species have well-developed eye pigment, suggesting that the surface habitat may prove to be the more typical one.

During a recent survey made by Tomislav Karanović (Seoul, South Korea) (Fig. 1A) on marine interstitial copepod fauna of South Korea, some pontarachnid mites were collected from the marine interstitial. Three species are identified, two of them with reduced eye pigmentation (see Figure 2) indicating that they can be first representatives of the true interstitial pontarachnid mites. Compared with their surface dwelling relatives, interstitial water mite species are generally smaller and more slender and have eye pigmentation reduced or absent (Davids *et al.* 2007).

In the present paper I will describe three new species, increasing the number of Pontarachnidae species worldwide to a total of 48 (see Pešić *et al.* 2012 and papers published thereafter, Pešić 2013, Pešić *et al.* 2013a,