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A new anhydrobiotic midge from Malawi, Polypedilum pembai sp.n. (Diptera: Chironomidae), closely related to the desiccation tolerant midge, Polypedilum vanderplanki Hinton

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Abstract

© 2017 The Royal Entomological Society The sleeping chironomid (Polypedilum vanderplanki Hinton) lives on temporary rock pools in the semi-arid tropical regions of Africa. Its larvae are able to survive the dry season in a completely desiccated ametabolic state known as anhydrobiosis. So far, P. vanderplanki was the only species among all insects showing demonstrated anhydrobiotic ability. Here, we show that a new related species originating from Malawi, Polypedilum pembai sp.n., is also anhydrobiotic and that its desiccation tolerance mechanism is probably similar to what is observed in P. vanderplanki. The new species, P. pembai sp.n., is described with special attention to the common and different morphological features, compared with P. vanderplanki. Phylogenetic analysis showed that both species are closely related, suggesting that anhydrobiosis evolved only once in their common ancestor about 49 Ma somewhere in Africa, before the divergence of two species, one in the sub-Saharan area and another in southeastern Africa.

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