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Moina hemanti sp. nov., a new species of the genus *Moina* s.l. (Branchiopoda: Anomopoda) from Pune, India

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Abstract

We describe and figure *Moina hemanti* **sp. nov**. from ephemeral pools on the campus of Pune University, India. Although the pools flood during the monsoon, the moinid only appears irregularly and for a short period of time. In morphology, it is extremely close to *Moina dumonti* from Mexico and Cuba. This geographic gap remains unexplained for the time being, although more similar cases among cladocerans are on record. Molecular analysis has suggested that *M. hemanti* is relatively close to *Moinodaphnia*, and might form a genus in its own right, presumably together with *M. dumonti*. The latter, however, remains to be analyzed. Further candidates for this clade are *Moina oryzae* and *M. rostrata,* if the presence of an ocellus and/or a rostrum can be shown to be apomorphies.

Key words: Cladocera, Ephemeral water, India, Moinidae, Taxonomy, Western Ghats

Introduction

The Moinidae are a speciose family of anomopods, close relatives of the Daphniidae. The number of named species is currently around 25 but many cryptic species and species living in extreme habitats remain to be discovered. The former are part of complexes that may have a wide, often subcosmopolitan distribution. The latter, conversely, are often point-endemics of extremely specific environments. Examples of the first category are the *Moina micrura*-group (Petrusek *et al.* 2004), of the second, *Moina diksamensis* Van Damme & Dumont, 2008, known only from few semi-terrestrial crab-burrows on the island of Socotra (Van Damme & Dumont 2008) and *Micromoina arboricola* Dumont *et al*. 2013 from tree-hole aquaria in regenerated tropical forest in Brazil (Dumont *et al.* 2013). Some species live in saline environments, others in ephemeral freshwater, and the combination of both (*Moina salina* Daday, 1888) also occurs.

Eight species of Moindae have been reported from India (Chatterjee *et al.* 2013) with one endemic species, *M. oryzae* Hudec, 1987 (Hudec, 1987) known from South Tamil Nadu, India. Here, we describe an additional, endemic *Moina* of the type found in ephemeral water with a putative small geographic range, and discuss its status.

Material and methods

Site description. The type and so far only locality of the new taxon is situated in the city of Pune, located on the slopes of Western Ghats of Maharashtra, India, more specifically on Pune University campus. It consists of series of muddy pools under tree canopy (Fig. 1: A, B). The pools are fed by precipitation during monsoon. Pools dry out after few days if no additional rain falls. Only one cladoceran species was found here, along with the ostracod species *Clamydotheca* sp. (Shinde 2012) and high numbers of odonate nymphs, presumably of *Pantala flavescens* (Fabricius, 1798). Tadpoles of *Duttaphrynus melanostictus* (Schneider, 1799) also occur here.

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effect on tadpoles of the frog species *Microhyla ornata* has been well documented (Ghate & Padhye 1988). Since this species is only known from a single temporary pool, it thus becomes extremely important to conserve this habitat from these threats.

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References

Brendonck, L., Rogers, D.C., Olesen, J., Weeks, S. & Hoeh, W.R. (2008) Global diversity of large branchiopods (Crustacea: Branchiopoda) in freshwater. *Hydrobiologia*, 595, 167–176.
http://dx.doi.org/10.1007/s10750-007-9119-9

Chatterjee, T., Kotov, A.A., Van Damme, K., Chandrasekhar, S.V.A. & Padhye, S. (2013) An annotated checklist of the Cladocera (Crustacea: Branchiopoda) from India. *Zootaxa*, 3667 (1), 1–89.
http://dx.doi.org/10.11646/zootaxa.3667.1.1

Chiambeng, G.Y. & Dumont, H.J. (2005) The Branchiopoda (Crustacea: Anomopoda, Ctenopoda and Cyclestherida) of the rain forests of Cameroon, West Africa: low abundances, few endemics and a boreal-tropical disjunction. *Journal of Biogeography*, 32, 1611–1620.
http://dx.doi.org/10.1111/j.1365-2699.2005.01280.x

Dumont, H., Rietzler, A.R. & Kalapothakis, E. (2013) *Micromoina arboricola* n. gen., n. spec. (Crustacea: Cladocera), a new moinid living in a forest tree-hole in Minas Gerais, Brazil. *Zootaxa*, 3652 (5), 533–546.
http://dx.doi.org/10.11646/zootaxa.3652.5.3

Ghate, H.V. & Padhye, A.D. (1988) Predation of *Microhyla* tadpoles by *Gambusia*. *Journal of Bombay Natural History Society*, 85, 200–201.

Goulden, C.E. (1968) *The Systematics and Evolution of the Moinidae*. Transactions of the American Philosophical Society, Philadelphia, N.S., 101 pp. [58 (6)]

Hudec, I. (1987) *Moina oryzae* n. sp. (Cladocera, Moinidae) from Tamil Nadu (South India) *Hydrobiologia*, 145, 147–150.
http://dx.doi.org/10.1007/BF02530274

Hudec, I. (2010) *Fauna Slovenska. Anomopoda, Ctenopoda, Haplopoda, Onychopoda (Crustacea: Branchiopoda)*. Veda, Bratislava, 496 pp.

Kotov, A.A., Elías-Gutierrez, M. & Granados-Ramírez, J.G. (2005) *Moina dumonti* sp. nov. (Cladocera, Anomopoda, Moinidae) from southern Mexico and Cuba, with comments on moinid limbs. *Crustaceana*, 78 (1), 41–57.
http://dx.doi.org/10.1163/1568540054024565

Korovchinsky, N.M. (2006) The Cladocera (Crustacea: Branchiopoda) as a relict group. *Zoological Journal of the Linnean Society*, 147, 109–124.
http://dx.doi.org/10.1111/j.1096-3642.2006.00217.x

Martínez-Jeronimo, F., Elias-Gutierrez, M. & Suarez-Morales, E. (2004) A re-description of *Moina hutchinsoni*, A rare Cladoceran (Branchiopoda: Anomopoda) found in remnants of a Mexican saline lake, with notes on its life history. *Journal of Crustacean Biology*, 24 (2), 232–245.
http://dx.doi.org/10.1651/C-2450

Petrusek, A., Cerny, M. & Audenaert, E. (2004) Large intercontinental differentiation of *Moina micrura* (Crustacea: Anomopoda): one less cosmopolitan cladoceran? *Hydrobiologia*, 526, 73–81.
http://dx.doi.org/10.1023/B:HYDR.0000041612.08425.f0

Shinde, Y.S. (2012) *Studies on freshwater Ostracoda (Crustacea) of Pune district, Maharashtra.* PhD thesis, Dept. of Zoology, University of Pune, 304 pp.

Van Damme, K. & Dumont, H.J. (2008) A new species of *Moina* Baird, 1850 (Crustacea: Anomopoda) from Socotra Island, Yemen. *Zootaxa*, 1721, 24–34.

Van Damme, K. & Sinev, A. (2013) Tropical Amphi-Pacific disjunctions in the Cladocera (Crustacea: Branchiopoda). *Journal of Limnology*, 72 (Supplement 2), 209–244.
http://dx.doi.org/10.4081/jlimnol.2013.s2.e11

Victor, R. & Fernando, C.H. (1982) Distribution of Freshwater Ostracoda (Crustacea) in Southeast Asia. *Journal of Biogeography*, 9 (4), 281–288.
http://dx.doi.org/10.2307/2844715