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Phylogenetic exploration on the genetic diversity of giant silverfish Maindronia (Insecta, Thysanura) - an enigmatic Gondwana relict from the Atacama Desert

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The genus Maindronia currently consists of only three described species from desert biomes in Sudan, Arabian Peninsula and Chile. The distribution range of these bizarre insects is unique for closely related arthropods and suggests the presence of a Gondwanean relict group. In Chile, Maindronia neotropicalis inhabits only the Atacama Desert. Previously published collecting data indicated that M. neotropicalis is a silverfish adapted to live in hyperarid areas but the distribution and genetic diversity of this taxon is poorly studied. Extensive sampling in the Atacama Desert revealed a considerable number of populations of Maindronia. Analyses of COI sequences allowed for the first time insights into the evolutionary history of Maindronia in the Atacama. In fact, the data suggest the presence of three well separated lineages in Chile which possibly represent valid species. The deep divergence of the three extremophile lineages suggests a rather old origin of these clades and could results from long lasting separation of population during the existence of an marine introgression in the coast in the past. This genetic differentiation is corroborated by distinct morphological features.