Phylogeography of high Andean killifishes Orestias (Teleostei: Cyprinodontidae) in Caquena and Lauca sub-basins of the Altiplano (Chile): mitochondrial and nuclear analysis of an endangered fish

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Abstract
From the early Miocene, the uplift of the Andes Mountains, intense volcanic activity and the occurrence of successive periods of dryness and humidity would have differentially influenced the modification of Altiplano watersheds, and consequently the evolutionary history of the taxa that live there. We analyzed Orestias populations from the Caquena and Lauca Altiplanic sub-basins of northern Chile to determine their genetic differentiation and relationship to their geographical distribution using mitochondrial (D-loop) and nuclear (microsatellite) molecular markers and to reconstruct its biogeographic history on these sub-basins. The results allowed reconstructing and reevaluating the evolutionary history of the genus in the area; genic diversity and differentiation together with different founding genetic groups suggest that Orestias have been spread homogeneously in the study area and would have experienced local disturbances that promoted isolation and diversification in restricted zones of their distribution. Copyright 2021 Cárcamo-Tejer et al.

Author keywords
Altiplano; D-loop; Endangered; Fish; Freshwater ecosystem; Killifishes; Microsatellite; Orestias; Phylogeography