



Evolutionary history of the colonization of the Chilean Altiplano by the genus *Psectrascelis* (Coleoptera, Tenebrionidae)

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Geological and climatological events had a particularly great impact on the evolution of life in extremely water limited environments, such as the Atacama Desert in northern Chile. The evolutionary history in this region has been poorly studied. Within the CRC 1211 (Earth - Evolution at the dry limit), we focus on the evolution of darkling beetles of the genus *Psectrascelis*. These beetles belong to the most conspicuous biotic components in Altiplano (or Puna) and represent a hyperdiverse genus with small areas of distribution. To elucidate the evolutionary pattern we analyzed genetic markers and additionally analyzed, by MALDI-TOF mass fingerprinting, the structural diversity of neuropeptides. The phylogenetics results suggest a deep separation between western and eastern lineages about 4,5 Myrs ago, during the Pliocene. Then a secondary split by the colonization of the Puna and Prepuna region occurred about 3 Myrs ago and separated the coquimbean lineage from the Puna-Prepuna lineages. Finally, the Puna lineage with three species colonized the Altiplano in the last 700 kyrs from the prepuna region in the south. The other two species from the eastern lineage colonized the Altiplano in a completely independent history just in the last 200 Kyrs. The evolution of *Psectrascelis* in the Altiplano shows a complex history related with uplift of the Andes and climatological changes in the Plio-Pleistocene periods.