

RESUMO - PROTOZOOLOGIA E PATÓGENOS TRANSMITIDOS POR VETORES

MAPPING ORIENTIA SPP. IN CHILE: DIVERSITY AND VECTOR ASSOCIATIONS

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Chigger mites (Trombidiformes: Trombiculidae s.l.) have a cosmopolitan distribution and represent an important public health concern due to their ability to cause dermatitis and transmit microorganism. The larval stage parasitizes all terrestrial vertebrates, including humans, who serve as accidental hosts. For many years, the genus *Orientia* was considered monotypic, comprising only *Orientia tsutsugamushi*, and this distribution was thought to be restricted to the so-called “Tsutsugamushi Triangle.” This view was changed by reports of scrub

typhus cases outside of this area, including the southern Chile, in Chiloé Island. Following these initial detections, it was assumed that *Orientia* circulation was restricted to the Chiloé region. Therefore, the objective of this study was to conduct a comprehensive *Orientia* surveillance in mites collected across the Chilean territory. Mite samples used in this study were collected from wild rodents across Chile, encompassing the Big North, Small North, Central, and Southern regions. The samples were processed either individually or in pools of up to 40 mites originating from the same host. DNA was extracted from absolute ethanol-preserved specimens using the DNeasy Blood & Tissue Kit (Qiagen). Conventional PCR assays targeting endogenous mite genes (18S rRNA and *cox1*) were first performed to assess sample viability. Samples that tested positive for one or both endogenous markers were considered viable and were subsequently screened by qPCR for bacteria of the genus *Orientia*, using genus-specific primers targeting the 16S rDNA gene. A total of 126 samples were evaluated, of which 75 were analyzed individually and 51 as mite pools. Voucher specimens were slide-mounted and morphologically identified as unidentified *Carebareia* Goff and Brennan; unidentified *Morelacarus* Vercammen-Grandjean; *Paratrombicula chilensis* Stekolnikov and González-Acuña; *Quadrasetta chiloensis* Stekolnikov and Silva-de la Fuente; and unidentified *Quadrasetta* Brennan. Among the tested samples, 19 were positive for *Orientia*. These detections originated from mites identified as *Quadrasetta* sp. and *Carebareia* sp. Notably, this is the first report of *Orientia* DNA in a mite of the genus *Carebareia*. One of the positive samples corresponded to a protonymph originally collected as a larva in Cochamó, Los Lagos, and reared under laboratory conditions until the protonymph stage. This finding may indicate that chigger mites are capable of maintaining *Orientia* across transstadial developmental stages.

Palavras-chave: diversity; taxonomy; infectious diseases; trombiculidae; scrub typhus.