

BACTERIAL MICROBIOTA OF THE SOFT TICK *Argas persicus* IN DURANGO, MEXICO, HIGHLIGHTING POTENTIAL ZONOTIC TAXA

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INTRODUCTION

Argas persicus is a soft tick (family Argasidae) that feeds mainly on birds, although it has also been reported biting sheep and humans. It remains hidden for most of its life in hiding places such as cracks in the bark of trees, barn timbers, or bird nests. Its life cycle involves multiple hosts on which it feeds for short periods of time. The Comarca Lagunera de Durango, Mexico, is one of the most important livestock regions in the country, where many families breed goats.

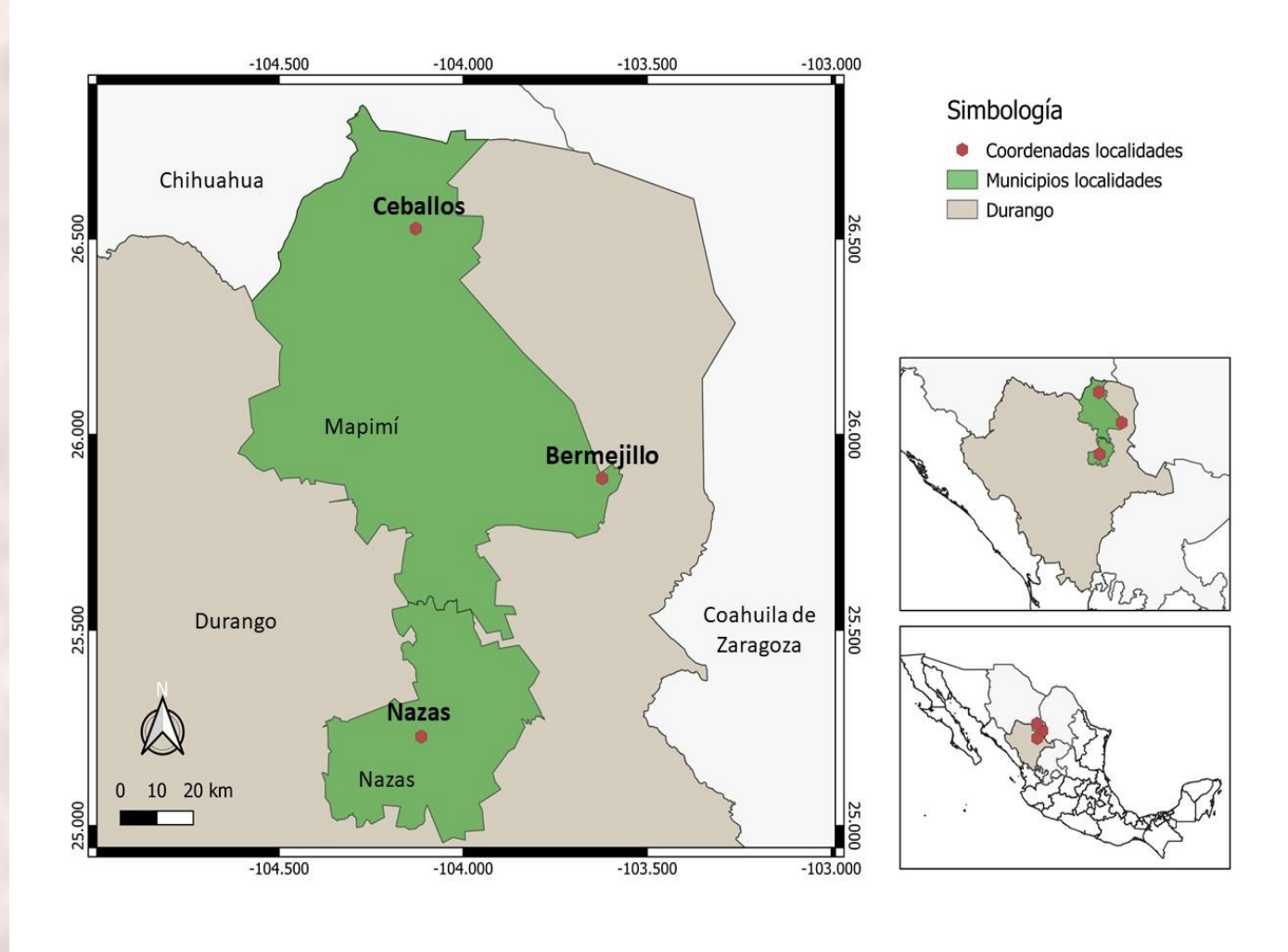
OBJECTIVE

The objective was to determine the taxonomic composition, relative abundance and zoonotic potential of bacterial taxa present in the viscera of *A. persicus*.

METHODS

In 2021, *A. persicus* ticks were collected from cracks in the bark of goat stables at Ceballos, Bermejillo and Nazas, Durango, Mexico. DNA was extracted from ten pools (eight ticks each) and the V3-V4 region of the 16S rRNA gene was amplified. Next-generation massive sequencing was performed in Illumina.

Study areas



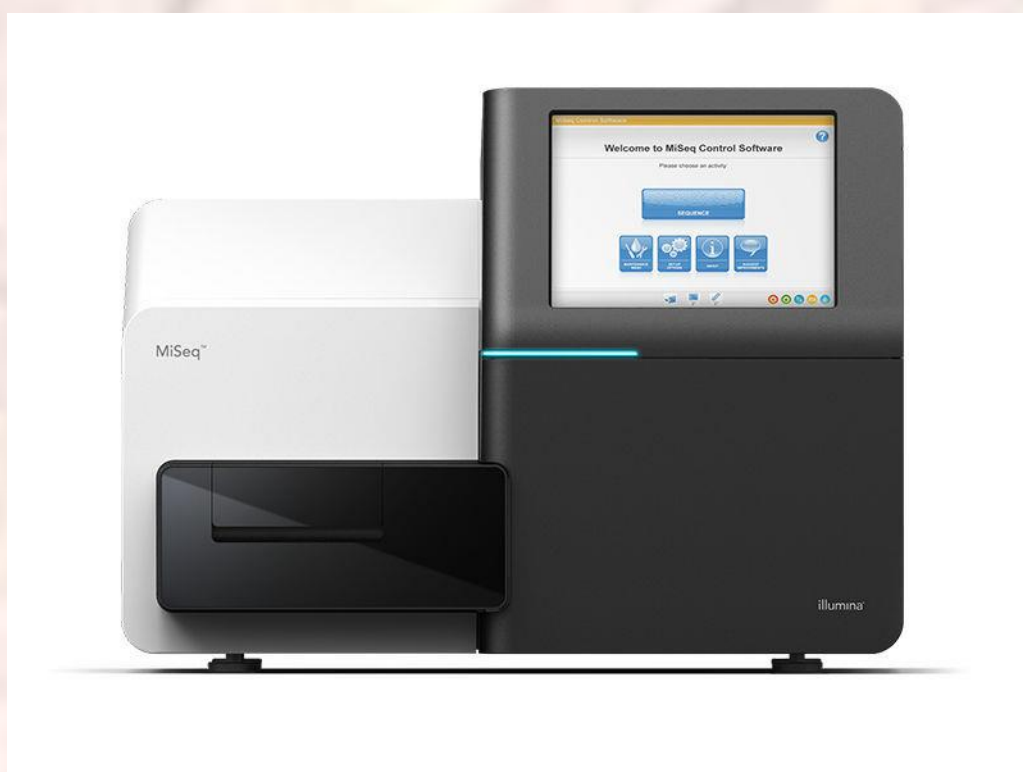
Argas persicus in wood logs



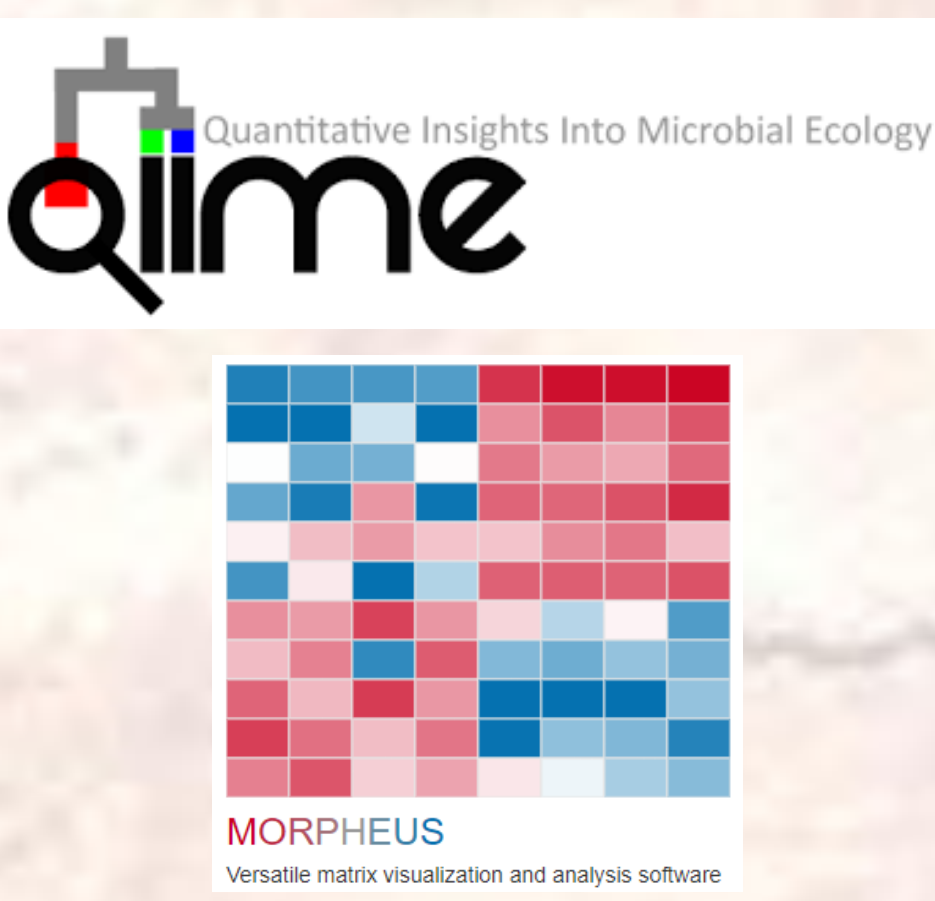
DNA extraction kit



MiSeq Illumina



Bioinformatic software



RESULTS AND DISCUSSION

An average of 24,928 operational taxonomic units (OTUs) was obtained.

A total of 21 bacterial phyla were recorded (Proteobacteria, 95.2%), 53 classes (Gammaproteobacteria, 92.7%), 115 orders (Legionellales, 85.3%), 265 families (Coxiellaceae, 85.3%), 751 genera (*Coxiella*, 85.3%; *Arsenophonus*, 6.05%), and 982 species (157 known, 128 non-cultivable and 697 unknown).

The dominant genera *Coxiella* and *Arsenophonus* are likely to be endosymbionts, and their high abundance could be related to its role in nutrient supply and pathogen transmission, which in turn benefits the host tick.

Four potentially zoonotic taxa were detected: *Anaplasma phagocytophilum*, *Coxiella burnetii*, *Ehrlichia* sp., and *Rickettsia* sp.

It will be important to determine if *A. persicus* is a competent vector of these bacteria, causing possible illnesses in humans in the event of an accidental bite. This information increases the bacteriological knowledge of *A. persicus* and provides a baseline reference to improve human diagnostics.

Figure 1. Heatmaps representing the relative abundance (%) of the bacterial taxa recorded for the soft tick (*Argas persicus*) pools in the Comarca Lagunera de Durango, México (phylum, family, and genus levels).

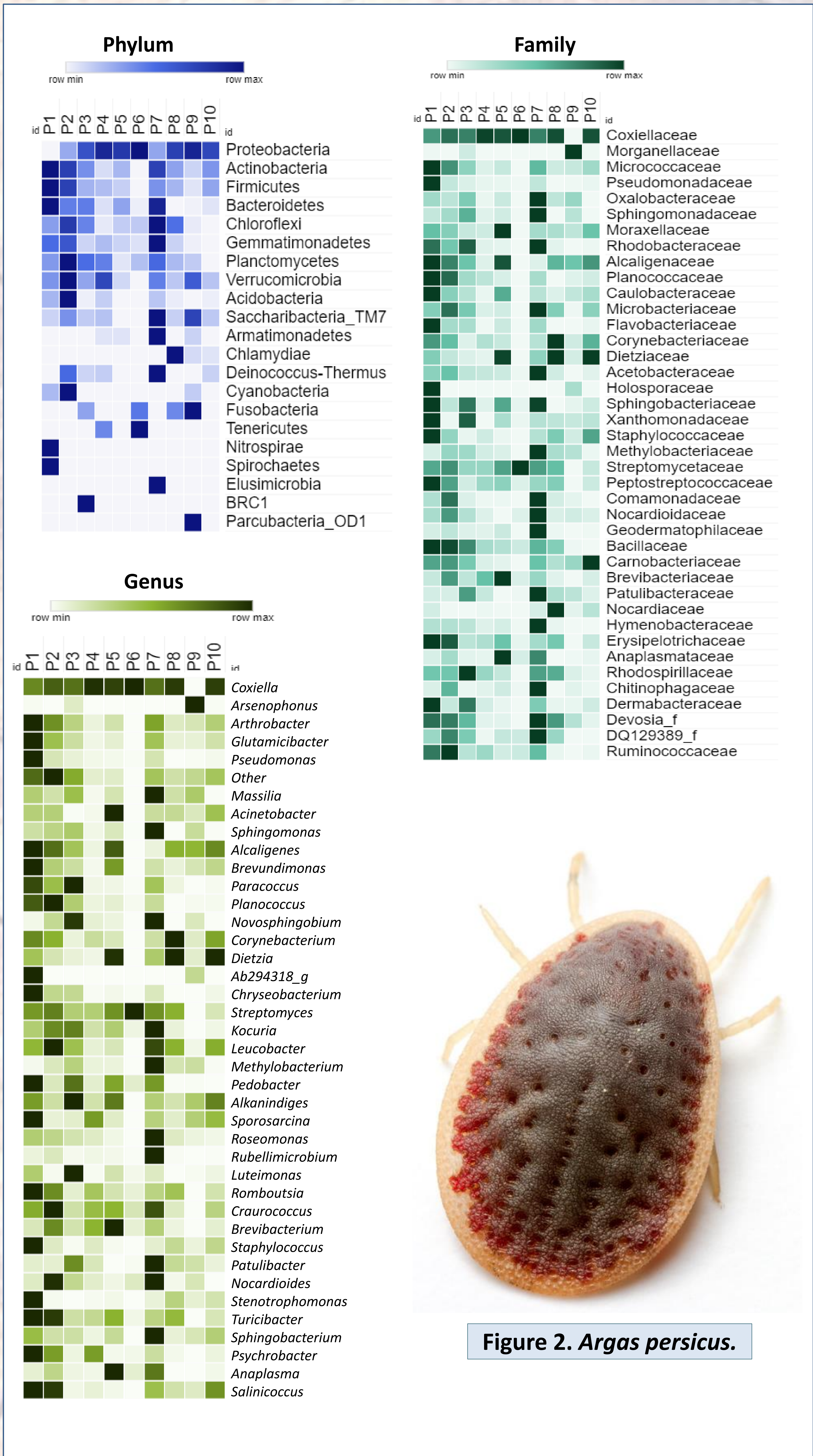


Figure 2. *Argas persicus*.

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