

Biodiversity of soil and litter mites from the area of Los Tuxtlas, Sierra de Santa Marta, Veracruz

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Introduction and Objective

The soil is a unique system that acts like filter, shock absorber and transformer of substances, also is the habitat of diverse organisms between which they emphasize, given its high diversity, the arthropods.

Among the arthropods the Mesostigmata, Prostigmata and Cryptostigmata mites play an excellent role in soil fertilization. Some of their species are sensible to the changes in the use of the substrate, and they do not survive such transformations. Nevertheless others have been able to adapt to those changes, and can be found in disturbed soils by agricultural activities or pasturing, and even in places that display pollution by pentachlorophenol, metilpirimiphos and clorpirifos, also by the metals Zn, Cu, Ni, Pb, Cr, Cd and Hg.

This contribution has the purpose of give information about the diversity of those mites in four different uses of soil at the Sierra de Santa Marta, which is located inside the Biological Reserve of Los Tuxtlas, Veracruz.

Methodology

In February and March of 2012 the soil and litter sampling was done at ejidos de López Mateos, San Fernando and Venustiano Carranza. Those ejidos have a different vegetation cover, 75% the first, 50% and 25% the other.



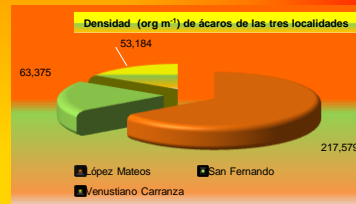
From each ejido four kind of soil use were chosen, agroforestry, grassland, jungle and corn crop.



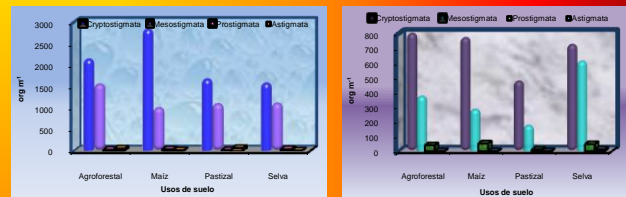
From each of the 8 samples were taken, 4 of soil and 4 of litter. For taking the samples, a cylindrical core of was used, of 5 cm of high. Mites' extractions were done in the Berlese-Tullgren funnels for 5 days with light and were preserved in 70% ethanol.

Results

The densities of mites were, at López Mateos 217,579 ind m⁻¹, at San Fernando 63,375 ind m⁻¹ and 53,184 ind m⁻¹ at Venustiano Carranza.

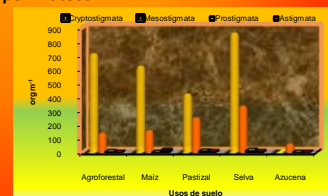


In the ejidos, as well in the different use of soil, the Cryptostigmata and Mesostigmata had the highest density in comparison with the Prostigmata and Astigmata. Highest densities for the first two groups were found at agroforestral and jungle. In both systems, López Mateos was the ejido with highest Cryptostigmata densities (2,000 ind m⁻¹) and also Mesostigmata (1,500 ind m⁻¹).



López Mateos

San Fernando



Venustiano Carranza

Observations

A total of 23 families, 73 genera and 101 morphospecies were identified. The Cryptostigmata and Mesostigmata had the higher number of morphospecies at the different ejidos and land use. In the three ejidos, the best represented was *Scheloribates* (Cryptostigmata). Rodacaridae (Mesostigmata) was better represented at two ejidos (López Mateos y Venustiano Carranza) and Ologamasidae in one (San Fernando). The Prostigmata was better represented by Tetranychidae (López Mateos), Trombiculidae (San Fernando) and Tarsonemidae (Venustiano Carranza). Among the Astigmata mites, it was *Sancassania* in López Mateos and *Rhizoglyphus* in the other ejidos.

Based on the results we detected that the use of the soil can affect the density and number of mites morphospecies. It also seems that the jungle and agroforestral systems of López Mateos y San Fernando have better preservation conditions than Venustiano Carranza.

Gratitude: GEF, CSM BGBD, CIAT-TSBF, UNEP, INECOL AND EJIDOS