



Mesostigmatid mite (Acari: Mesostigmata) diversity and abundance in two sites in Pedregal de San Ángel Ecological Reserve, Distrito Federal, México*

DANIELA PÉREZ-VELÁZQUEZ^{1,4}, GABRIELA CASTAÑO-MENESES^{1,2}, ALICIA CALLEJAS-CHAVERO³ & JOSÉ G. PALACIOS-VARGAS¹

¹*Ecología y Sistemática de Microartrópodos, Departamento de Ecología y Recursos Naturales, Facultad de Ciencias, Universidad Nacional Autónoma de México, Coyoacán 04510, México, D.F.;*

²*Unidad Multidisciplinaria de Docencia e Investigación, Facultad de Ciencias, Universidad Nacional Autónoma de México, Campus Juriquilla, Boulevard Juriquilla 3001, C.P. 76230, Querétaro, México;*

³*Laboratorio de Ecología Vegetal, Departamento de Botánica, Escuela Nacional de Ciencias Biológicas, Instituto Politécnico Nacional, Prolongación de Carpio y Plan de Ayala, Casco de Santo Tomás, Miguel Hidalgo 11340, México, D.F.;*

⁴*Corresponding author: E-mail: siankaan_namib@hotmail.com*

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Abstract

The Pedregal de San Ángel Ecological Reserve (REPSA) is located in the central campus of the Universidad Nacional Autónoma de México (UNAM), in México City. Diversity and abundance of edaphic mites of the order Mesostigmata were estimated in two sites of REPSA. One site had scanty vegetation, due to human alterations, and was designated as “open site” (O), whereas the other had less altered, denser vegetation, being designated as “closed site” (C). Samples of soil and litter collected during the rainy and dry seasons of 2008 were processed for the extraction of mites of that group, which were then mounted and quantified by morphospecies. Mite abundance was much higher in site O, but the number of morphospecies was about the same in both sites. The same mite families were found in both sites. For each season and for both seasons considered together, Shannon diversity and Pielou’s evenness indexes were significantly higher in site C. Sørensen similarity coefficient between sites was high in both seasons, but higher in the dry season; considering both seasons together, similarity coefficient between sites was 94%. This indicates that anthropogenic alteration of the vegetation at REPSA, reducing the height of the vegetation and turning it less dense, was not sufficient to cause major alterations in Mesostigmata species composition.

Key words: Abundance, diversity, edaphic, mesostigmatid mites, phenology.

Introduction

The soil is a very complex ecosystem where physical, chemical and biological processes are commonly influenced by the fauna (Jacot, 1940). For different reasons, arthropods are very important components of soil fauna. For example, they can increase soil fertility, due to their role in the fragmentation of organic matter (Bedano *et al.*, 2005) and humus production. The best represented arthropods in the soil are mites (Acari) and springtails (Collembola). Mites constitute a very diverse group in terms of species, ecological niche they occupy and behavior (Prieto *et al.*, 2005). The Mesostigmata constitute a mite order with high ecological diversity. They are very frequently found in the soil, being often only outnumbered by the Oribatida (Moreno-Moreno & Mayagoitia-Penagos, 2008).

Most Mesostigmata are free living predators, but many are internal or external parasites of mammals, birds, reptilians and some invertebrates, while others feed on fungi, pollen or nectar (Iraola, 1998, 2001; Lindquist *et al.*, 2009a). Edaphic Mesostigmata feed mainly on other mites, springtails, nematodes and other invertebrates. They are medium to large mites, varying in length between 0.2 to 2 mm.