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**COLLEMBOLA (ARTHROPODA: HEXAPODA) BIODIVERSITY IN TROPICAL AGRICULTURAL ENVIRONMENTS OF ESPIRITO SANTO, BRAZIL.**

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Collembola are among the most widespread and abundant arthropod inhabitants of terrestrial ecosystems, and by feeding on organic matter and microorganisms they have important influences on soil microbial ecology and fertility. However, despite their environmental importance, basic information on the biodiversity and ecology of Collembola is lacking. The Neotropical collembolan fauna is probably the most diverse but least known in the world and knowledge of the collembolan fauna of Espírito Santo, Brazil, which contains some of the most diverse tropical forests in the world, consists of only two records of nine species. Likewise, knowledge of the biology of Collembola in agroecosystems is also limited. The goal of this research is to increase basic knowledge of the biodiversity and ecology of Collembola in tropical agricultural environments. Specific objectives are to determine what Collembola species inhabit agricultural soils of Espírito Santo, obtain a record of the seasonal abundance of Collembola in this area, and determine effects of alternative agricultural practices on Collembola in this tropical environment. Field sites for the project are located at the EMCAPER Central Mountain Research Center, Domingos Martins (20° S latitude), and consist of three sites designated: A, Fertilizer site (the site contains two blocks (replications) with plots, 100m<sup>2</sup>, subjected to two fertilizer treatments, organic fertilizer (compost) and inorganic fertilizer application); B, Tillage site (with two blocks containing plots, 165m<sup>2</sup>, subjected to two different tillage treatments, no-tillage and conventional tillage); and C, Mulch site (with two blocks containing plots, 150m<sup>2</sup>, subjected to two different mulch treatments, mulch and no mulch application). The same plots have received similar treatments annually since the sites were established in 1992 (site A) and 1991 (sites B and C, in an organic system) and a variety of vegetable crops are grown on the sites. Beginning in December 1999, two soil core samples (5cm diameter) are taken randomly from the surface 10cm of each plot each month. Collembola are extracted from the soil cores using Tullgren funnels and identified as far as possible to species level. Fourteen taxa of Collembola have been identified from initial samples collected from site A including *Hypogastrura* sp., *Brachystomella* sp., *Onychiurus* sp., *Tullbergia* sp., *Isotomodes* sp., *Heteromurus* sp., *Entomobrya* sp., *Pseudosinella* sp., *Sinella* sp., and *Oncopodura* sp. Two genera, *Isotomodes* and *Heteromurus*, are new records for Brazil. These initial results indicate that a diverse variety of Collembola can inhabit agricultural soils in Espírito Santo. This research is continuing and additional information on collembolan diversity and effects of agricultural practices on collembolan populations will be presented. Additional studies such as this in other areas and environments in Espírito Santo are also likely to add greatly to knowledge of the biodiversity and ecology of Collembola. This research is supported in part by a grant from the National Geographic Society.

Index Terms: Neotropical, biogeography, soil biology, organic agriculture.

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