



SOIL-LITTER ARTHROPOD ASSEMBLAGE IN DIPTEROCARP FOREST, AGROFORESTRY AREA AND MAHOGANY PLANTATION IN MAKILING FOREST RESERVE, LAGUNA

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ABSTRACT – Arthropods are the most diverse among the animal groups and those in soil and litter play an important role in nutrient cycling but they received the least attention if not neglected in biodiversity conservation. This study compared the assemblages of soil and litter arthropods in dipterocarp forest (DF), agroforestry area (AA) and mahogany plantation (MP) at the Mt. Makiling Forest Reserve (MFR). They were extracted from soil and litter samples collected from each site during dry season (February 2009), sorted to lowest possible taxa, and assigned to morphospecies. Mean arthropod abundance in DF soil and that of MP litter were significantly higher compared to those in the other two sites, which were statistically similar. Soil and litter arthropod species richness (mean number of morphospecies) were not significant different among the sites. Arthropod diversity (Shannon index) in soil among the sites was statistically similar while in litter, DF and AA were statistically similar and more diverse than MP. There were few overlapping soil and litter arthropod species (lower than 50%) among the sites except for soil arthropods between DF and AA, which shared about 60% (Sorensens index = 0.60) of their species. Collembola, Hymenoptera (mainly ants), Coleoptera, and Acari were generally the most abundant among the soil and litter arthropod groups in the three sites and their species richness and diversity did not differ significantly except for litter Collembola which was significantly more diverse in DF than the two sites. Among these groups, abundance of Collembola and Coleoptera in soil and litter was significantly higher in DF than the two sites while litter Acari was significantly higher in AA and MP than in DF. Results support the idea that agroforestry system is more favorable in preserving the soil and litter arthropods than monoculture of trees and conformed the general trend of direct relationships between diversities of soil-litter arthropods and the surrounding vegetation.

Keywords: soil-litter arthropods, dipterocarp forest, mahogany plantation, agroforestry, forest reserve



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