



**Group B08 – ABS FUND**  
**Seasonal changes of soil microarthropod populations in microhabitats of oil palm plantations of southern Sumatra**

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Due to being heavily managed oil palm plantations are distinctively structured ecosystems featuring low undergrowth vegetation and thin organic layers, with only small scale palm frond litter accumulations providing habitat structure for litter dwelling soil animals. The soil habitat in oil palm plantations is therefore likely little buffered against seasonal climatic changes. The study investigated variations of soil microarthropod communities and functional properties of the soil habitat (microbial biomass, organic matter, etc) as affected by seasonal abiotic changes (e.g., precipitation, soil temperature, soil moisture). Additionally the role of microhabitats as refuges for soil animals during climatic extremes was investigated. Four oil palm plantations in the Harapan landscape were investigated. Soil samples were taken every 30 days during a period of 12 months and soil animals were extracted by using modified Kempson extractors. Soil microarthropods from various microhabitats (e.g., shaded area, frond litter accumulation, detritus and epiphytes) were sampled once during the wet season and once during the dry season. Abundances of soil animals were counted, Collembola and Oribatida were determined to family level.

The temporary results showed that generally abundance and family level richness of oribatida were lower in open area than that in compost lane of oil palm trees, especially during the wet season. Population of soil microarthropods (Collembola and Oribatida) was more abundant in microhabitats with high litter accumulation, such as stems, fronds and epiphytes compared to that in the open area of oil palm trees. This was more pronounced during climatic extreme condition, such as in the peak of wet season. Therefore, enhancement of soil communities through soil animal enrichment in the open area of oil palm trees should take into account. Soil animal enrichment can possibly be done through addition of soil animal rich soils from compost lane to the open area of oil palm trees.