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# Microarthropod use as bioindicators of the environmental state: case of soil mites (Acari) from Côte d'Ivoire.

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## 1 SUMMARY

**The aim of this study was to identify biological indicators of soil state under four agrosystem types. Therefore, Lamto savannah (SOM-poor sites), Oume primary forest (SOM-rich sites), Oume teak plantation (SOM-less sites) situated in Sudanese domain and Tai primary forest (SOM-moderate sites) localized in Guinean domain (Ivory Coast) were sampled twice during one year. The *Indval* software was used to identify the indicator species, through two analyses. The first analysis separated level 1- climatic zones (Guinean vs. Sudanese), level 2- localities (Oumé vs. Lamto vs. Taï), level 3-segregated sites depending on the level of disturbance: A second analysis opposes litter dwelling to mineral soil dwelling mites. The results revealed that only one species was dominant and ubiquitous, particularly *Afrotrachytes* sp.1 whereas three species, respectively *Rhysoglyphus* sp.1, *Dendracarus* sp.1 and *Acaridae* sp.4 were dominant and specialist. Chemical elements $C_{org}$ (g/kg), $C_{tot}$ (%), $N_{tot}$ (%), and SOM (g/kg) was higher in forest than in savannah and teak plantation. Dwelling mite indicator species characterizing the Guinean domain (Taï primary forest / undisturbed site) were highly different to those observed in Sudanese domain (disturbed sites). If the four sites were considered and distinguished between microhabitats, the essential species indicators were found in Oume primary forest where a moderate disturbance was observed. However, a lower number of indicator species were found in Oume teak plantation, characterized by a high disturbance. The value of Oribatida-Actinedida ratio ranged from 3.95 in teak plantation to 52.28 in Oume primary forest.**