



## **Morphology and spatial patterns of Macrotermes mounds in the SE Katanga, D.R. Congo**

Basile Bazirake Mujinya, Florias Mees, Hans Erens, Geert Baert, and Eric Van Ranst

University of Lubumbashi, General Agricultural Sciences, Lubumbashi, Congo, The Democratic Republic Of The (bazirake\_4@hotmail.com)

The spatial distribution patterns and morphological characteristics of *Macrotermes falciger* mounds were investigated in the Lubumbashi area, D.R. Congo. Examination of the spatial patterns of *M. falciger* mounds on high resolution satellite images reveals a mean areal number density of  $2.9 \pm 0.4$  mounds  $\text{ha}^{-1}$ . The high relative number of inactive mounds in the region, along with their regular distribution pattern, suggests that current termite mound occurrences are largely palaeostructures. Mound positions in the habitat are consistent with intraspecific competition rather than soil and substrate characteristics as controlling factor. Detailed morphological description of five deep termite-mound profiles ( $\sim 7$  m height/depth) shows that carbonate pedofeatures are present in all studied profiles, in contrast to the control soils. They mainly occur in the form of soft powdery masses, nodules and coatings on ped faces, all clearly pedogenic. Carbonate coatings occur mainly between 1 m above the soil surface and 1 m below that level in all mound profiles. Carbonate nodules do show a different distribution pattern at each site. Furthermore, when the studied profiles are considered to represent a toposequence, the stone layer occurs at greater depth in topographically low areas compared to crest and slope positions, which is mainly conditioned by erosion. The clay content of epigeal mounds increases from the summit to the toe slope, which can be largely related to differences in parent material. The Mn-Fe oxide concentrations occurring in all studied termite mound profiles reflect a seasonally high perched water table beneath the mound, which is more pronounced at the lower slope positions.