

Effects of *Acacia mangium* on morphological and physicochemical properties of soil

ABSTRACT

This study was conducted in an industrial *Acacia mangium* plantation in Sarawak, Malaysia, to investigate the effects of planting and harvesting *A. mangium* on soil morphological and physicochemical properties. In *A. mangium* sites, the disruptive effect of planting practices extended to morphological properties in subsoil layers. The A horizon redeveloped during early stages after planting which could be ascribed to plentiful supply of organic matter through rapid decomposition of vegetation residues produced upon land preparation. However, soil C- And N-related properties appeared to decrease with stand age, while the levels of exchangeable bases and available P remained low even after 10 years. In post-harvest sites, distinct soil horizons were not observed due to severe disturbance. The levels of total C, N and exchangeable bases at depth of 0-5 cm for sites assessed 3 years after harvesting were higher than those of sites assessed 1 year after harvesting. This might be ascribed to relatively gradual release of organic matter and nutrients from harvest residues into soil due to low level of decomposition as well as low nutrient uptake of poor vegetation regrowth.

Keyword: Exchangeable bases; Harvesting; Malaysia; Planting; Soil organic matter; Typic dystrochrepts