## Insights in aquaculture and biotechnology

## Effects of Some Soil Management on Soil Carbon Stock in the Sudan Savanna Agro Ecological zone of Dambatta, Kano, Nigeria

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The study aimed at assessing the effect of soil management practices on soil carbon stock for carbon sequestration in the Sudan Savannah of Nigeria. Three soil management practices: Eucalyptus plantation, cropland and grass land were selected purposively whereby 10 soil samples were collected at 0 - 15cm depth from each soil management practice and subjected to physicochemical analysis using standard laboratory procedures. The results show that the mean value of bulk density was higher in grassland (0.96 gcm<sup>-3</sup>  $\pm$  0.25) than cropland  $(0.71 \text{gcm}^{-3} \pm 0.06)$  and plantation land  $(0.63 \text{gcm}^{-3} \pm 0.03)$  which is due to the overstocking of grazing animal and cultivation activities in grassland and crop land. The results also revealed that, D<sub>b</sub> is positively correlated with organic C in GL (r = 0.35), PL (r = 0.25) and CL (r = 0.05) with coefficient of determination as: GL ( $r^2 = 0.12$ ), PL ( $r^2 = 0.06$ ) and CL ( $r^2$ = 0.002). High mean values of carbon stock was found in PL  $(2343.6tC ha^{-1} \pm 81.6)$  which is attributed to high storage and retention capacity of soil organic carbon (SOC) due to availability of plant litter and low erosion because of the surface cover by plantation, while GL(2150.4tC ha<sup>-1</sup>  $\pm$  274.98) and CL (894.6tC ha<sup>-1</sup>  $\pm$  97.55) recorded lower values than that of PL. It was concluded that, soil is considered as part of climate change challenges and at the same time as an integral part of the solution.



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