

Estimation of Sedge Biomass around the dams at University of Embu, Kenya.

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Abstract

The role of vegetation as natural carbon sinks is widely acknowledged with many researchers focusing on understanding the carbon capture and storage in vegetation types and species. Wetlands are among the major carbon sinks and recent research reveal that they play important role in climate change mitigation. Despite this awareness, no research has focused on biomass estimation for the sedges in Embu County. This study aimed at estimating variation of biomass across sedges around the dams within the University of Embu. It evaluated variation in above ground and below ground biomass of the sedge vegetation, and the relationship between the two. Above ground biomass was obtained through harvesting shoot canopies while the below ground biomass was obtained by coring. One way ANOVA was used to compare the total biomasses across the sites. The mean values for the total biomass around dams 1, 2, 3, 4 and 5 were 4305.3, 4421.6, 3343.2, 3222.8 and 2702.4 gm² respectively. The mean values for above ground biomass around dams 1, 2, 3, 4 and 5 were 830.62, 796.74, 654.76, 628.75 and 207.50 gm⁻² respectively. The mean values for below ground biomass around dams 1, 2, 3, 4 and 5 were 3468.9, 3624.9, 2690.5, 2554 and 2494.9 gm⁻² respectively. There were significant differences in total biomass, above ground and below ground biomass accumulation across the zones ($F_{(4, 24)} = 14.13; P = 0.001$), ($F_{(4, 24)} = 57.55; P = 0.001$) and ($F_{(4, 24)} = 7.21; P = 0.001$) respectively. There was a strong positive correlation between above ground and below ground biomass $R=0.755$. These findings are important as they enhance our knowledge on the contribution of wetland vegetation in carbon capture and storage and hence their role in climate change mitigation.