

## COMPARATIVE STUDY OF ABOVE GROUND BIOMASS AND CARBON STORAGE POTENTIAL OF BAMBOO SPECIES IN BOTH *IN-SITU* AND *EX-SITU* CONSERVATION SITES OF KORAPUT DISTRICT OF ODISHA

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*Bamboo trees are the most important vegetation resources that are mostly distributed in tropical and sub-tropical regions of Africa, Asia and Latin America. Bamboos are fast growing and ease propagating species that avails multiple services towards the society. While going through the novel services of the bamboo species, the present study focused on above-ground biomass (AGB) and above-ground carbon (AGC) assessment in two types of bamboo conservation sites viz. plantation site and sacred groves. The overall AGB and AGC of the plantation site ranged from  $67.458 \pm 1.691 \text{ Mgha}^{-1}$  and  $31.704 \pm 0.803 \text{ MgCha}^{-1}$  (Plot-2) to  $71.714 \pm 1.716 \text{ Mgha}^{-1}$  and  $33.704 \pm 0.806 \text{ MgCha}^{-1}$  (Plot-1). Similarly in sacred groves it ranged from  $81.737 \pm 3.522 \text{ Mgha}^{-1}$  and  $38.41 \pm 1.652 \text{ MgCha}^{-1}$  (Plot-2) to  $87.192 \pm 3.529 \text{ Mgha}^{-1}$  and  $40.98 \pm 1.655 \text{ MgCha}^{-1}$  (Plot-5) respectively. Species wise AGB ranged from  $35 \text{ Mgha}^{-1}$  to  $120 \text{ Mgha}^{-1}$  for *Bambusa vulgaris* and  $30 \text{ Mgha}^{-1}$  to  $115 \text{ Mgha}^{-1}$  for *Bambusa nutans* in plantation site. Similarly, in sacred groves the AGB values ranged from  $47 \text{ Mgha}^{-1}$  to  $132 \text{ Mgha}^{-1}$  for *Bambusa bambos*. More concentration of soil EC, N, P, K and SOC were observed in sacred groves than in plantation site where pH values were higher. For both the sites AGB and AGC has a significant positive relationship with N, P, K and SOC with  $R^2$  value ranging from 0.62 to 0.99. Significant difference between the plantation site and sacred groves in terms of soil parameters, AGB and AGC was observed ( $F_{obs} > F_{crit}$ ;  $p < 0.05$ ). Sacred groves as the in-situ conservation site plays a major role in conserving the bamboo species in its own habitat along with the other species and therefore reflects its importance towards mitigating the global climate change.*

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