

Abd- El- Dayem, A.M., M.M.El-Morshedy, S.S.Hindi and M.L. El-Osta. 1998. Charcoal properties made from different tree organs of *Taxodium disticum*, L. *Egyptian Journal of Applied Science*.13 (10):244-255

#### Abstract

Basic information on the charcoal properties made from local woody species and wood residues are essential to evaluate its quality specially for industrial purposes. This study aims to know some physical and chemical properties of charcoal produced from roots comparing to those produced from stem and branches of the tree. Two trees of *T. disticum* were selected at Sabaheia location, Agile. Res. Center near Alexandria city. Representative samples from stem, branches and roots were removed and carbonized under the same conditions. Physical and chemical properties of produced charcoal were determined. The results of this study indicated that there are significant differences between the properties of charcoal produced from roots and the other two types produced from stem or branches of the tree. Charcoal yield made from roots wood (31.19%) was lower than that from stem (32.04%) and branches (34.62%). Also, apparent density of roots charcoal (0.1455 g/cm<sup>3</sup>) was lower than that for branches charcoal (0.3256 g/cm<sup>3</sup>) Regarding to chemical properties, the results showed that volatile matter (VM) contents was statistically equal in stem and branches charcoal (26.7 and 25.3%, respectively), and highest VM was obtained for roots charcoal (51.44%). Ash contents (ASH) in roots charcoal (22.2%) was higher than those obtained from stem (1.34%) and branches (1.78%) charcoal and the latter two were statistically equal. The lower content of fixed carbon was found in roots charcoal and close amounts were found in stem (66.28%) and branches (66.5%) charcoal. The results of fixed carbon were reflected on the gross heat of combustion (GHC) which value was found lower in roots charcoal (6753 cal/g) than that found in stem (7455 cal/g) and in branches (7509 cal/g). From the above results, it can be concluded that roots charcoal has lower quality compared to that from stem and branches, therefore, its using in industry purposes is limited.