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Influences of soil characteristics on root architecture of the promising bio-diesel plant *Jatropha curcas* L.

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ABSTRACT: Studies were undertaken to elicit information on root distribution pattern on *Jatropha curcas* in three different age classes (one, three, five year old) in two distinct seasons viz, before rain and after rain to compare the seasonal variation. Root distribution study was carried out with dry excavation method at Allahabad Agricultural Institute-Deemed University, forest nursery and research centre which involves the partial excavation of soil sample to represent the whole part of the rooting volume of the tree. Among the two seasons of observations, after rains recorded the maximum rooting intensity, root density and root biomass followed by before rains. The result revealed that increase in distance and depth led to decrease in root activity by reduced rooting intensity, root density and root biomass. Maximum rooting intensity (340.44) m^{-2} was observed in five year old trees at the 50 cm distance of 0-15cm soil depth category after rains followed by three and one year old Jatropha tree. The maximum root density of (0.033)$cm.cm^{-3}$ was registered in 50 cm distance of 0-15 cm soil depth category in one year old tree during rainy season followed by three and five year old Jatropha tree . Significantly higher root biomass of (499.33)$gm^{-3}$was recorded in 50cm distance of 0-15cm soil depth category in five year old trees during the rainy season followed by one and three year old Jatropha tree. Similarly, minimum root density, root intensity and root biomass before rains was minimum with D_3d_4 (150cm distance-45-60cm depth).

Key Words: Root distribution, dry excavation, rooting intensity, root density, root biomas.