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Annals of Biological Research

Abstract

[Variability, Character Associations and Path Analysis in](#)

[Ashwagandha \(Withania somnifera \(L\). Dunal\) with Respect to Root Yield and Biochemical Aspects](#)

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Background: The experimental study was carried out to know the genetic variability, characters association, interrelationship and cause and effect of various characters in ashwagandha with respect to dry root yield and biochemical aspects. **Methods:** Twenty genotypes (including 3 checks) were evaluated for 13 traits (10 quantitative and 3 qualitative) and analysis of variance, correlation and path analysis were performed for the mean data. **Results:** All characters were found to be differing significantly among genotypes. Estimates of variability parameters revealed that a high genotypic coefficient of variation (GCV) and phenotypic coefficient of variation (PCV) were found for total antioxidants content in root, dry root weight per plant, dry plant weight per plant and harvest index (%). High heritability (h^2) was found for total crude fiber content in root, total antioxidants content in root, plant height and number of secondary branches per plant. Total antioxidants content in root, dry plant weight and total crude fiber content in root were recorded with high genetic advance (GA). A high heritability coupled with high genetic advance was found for total antioxidants and total crude fiber content in root. Root diameter, plant height, dry plant weight and days to 75% maturity were shown significant positive correlation with dry root yield per plant. Path coefficient analysis revealed that root diameter, days to 75% maturity and plant height had shown high positive and direct effect on dry root yield per plant. **Conclusion:** The heritable variability and estimates of variability can be used for crop improvement. Root diameter, days to 75% maturity, plant height and dry plant weight could be used to select high dry root yielding genotypes. Biochemical data (alkaloid and antioxidants content) will be useful to select genotypes of high medicinal value.

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