



## Genetic diversity and population structure analysis in the Indian taro (*Colocasia esculenta* var. *antiquorum* (L.) Schott) using morphological characters and molecular markers

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### Abstract:

Taro has much importance in ensuring food security, in earning foreign currency as being a cash crop and also as a means for rural development. Therefore, germplasm characterization is thus an important link between the conservation and utilization of plant genetic resources. Hence, in depth studies based on morphological and molecular markers, e.g. RAPD, AFLP, ISSR and SSR will help in understanding the genetic diversity of germplasm as well as identification, conservation and utilization of authentic and superior crop materials.

In this study 76 taro accessions collected from different parts of India were evaluated and characterized at agro-morphological and molecular level leading to elimination of duplicates and successful establishment of a core collection approximately having 20% (15) genotypes. Population structure analysis employing different population genetics components viz. Shannon's diversity index (H), Simpson's diversity index (D), Nei's genetic diversity, Nei's genetic distance, Fixation indices (Fst) and out crossing rate (t) revealed high level of heterozygosity and gene flow. To overcome the genetic erosion of the population this knowledge is useful for future

breeding theme of scheme in taro. Identified seven genotypes having leaf blight tolerance, low acidity, high tuber protein and high yield potentiality are suitable for consumption and cultivation. Finally, DUS characterization of selected genotypes made the work meaningful. DUS criteria along with developed digital morphometrics have immense importance in registration of crop accessions under the PPV and FR Act for obtaining Plant Breeders and Farmers' Rights.

### Biography:

Rupsanatan Mandal has submitted his PhD at the age of 27 years from Bidhan Chandra Krishi Viswavidyalaya. He is the Assistant Professor in Genetics and Plant Breeding, Regional Research Station, Terai Zone, Pundibari, UBKV, Coochbehar, West Bengal. He has published 12 papers in reputed journals.



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