

Nutritional Characterization of Horse Gram (*Macrotyloma uniflorum* Lam. Verdc.) Germplasm Accessions

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Horse gram (*Macrotyloma uniflorum* Lam. Verdc.) is an under-exploited multipurpose legume being cultivated in wide range of environmental regimes. The seeds are enriched with protein, carbohydrate, iron, molybdenum, phosphorous and vitamins viz., thiamine, vitamin C, niacin, carotene and riboflavin. Horse gram also plays an important role in Indian ayurvedic medicine which cures many ailments. It is popularly known as poor man's pulse crop in India because of its increased nutritional benefits coupled with adaptable tolerance mechanism to various abiotic stresses. Though large germplasm deposits are available in Indian gene banks, the negligence in characterization/ evaluation limits the crop improvement programme in horse gram. An experimental study was conducted with 252 horse gram accessions retrieved from Dr. Ramaiah gene bank, Tamil Nadu Agricultural University, India. Data on 12 biometrical traits were utilized to estimate genetic divergence by employing Mahalanobis D² statistic. The genotypes were grouped into 25 clusters based on Tochers's method. The representative sample from each cluster was selected based on comparison of *per se* value of single plant yield with respective cluster mean. A total of 25 genotypes involving a local check viz., PAIYUR 2 was considered for estimation of crude protein, fat and fibre content. These nutritive components decide the suitability of horse gram flour for diet and health mixture preparations. A significant range of variation was observed between horse gram clusters for crude protein (19.25 % - 25.69 %), fibre (2.00 % - 2.60 %) and fat content (0.82 % - 1.16 %). One promising accession viz., PLS 6219 (Cluster XII) was identified with high protein content of 25.69 % which could be employed in future nutritional breeding programme. Among nutritional contents, the highest variability was noticed in crude fat (8.44 %) followed by crude fibre (7.31 %), which provides a scope for evolving high yielding genotypes with enriched nutrient value in near future.

Keywords: Horse gram, Germplasm, Nutritional characterization