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# Association analysis in greengram *(Vigna radiata* (L.) *wilczek)*

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**ABSTRACT**
The estimates of correlation co-efficient of the traits *viz.,* number of branches per plant, length of branch, number of clusters per branch, number of clusters per plant, number of pods per plant, hundred seed weight and protein content with the seed yield were higher indicating the importance of the traits in the selection for high seed yield.

**Key words :** Greengram, Straits.

## INTRODUCTION

*Vigna radiata* (L.) *wilczek*, commonly known as green gram or mungbean is the most widely distributed species among the six Asiatic *Vigna* species. It is one of the predominant sources of protein and certain essential amino acids like lysine and tryptophan in vegetarian diets. It possessed certain added features compared to other pulses. It is relatively drought tolerant and well adapted to a range of soil conditions including light soils and can thrive even under limited irrigation, more over, it is suited for crop rotation and crop mixtures. However, this crop is suffering from the yield advantage as realized in case of C4 cereals.

Presently, the yield level of green gram as like other pulses is well below the optimum level. The average yield of mungbean is very low not only in India (425 kg/ha) but in entire tropical and subtropical Asia. In Tamil Nadu it is cultivated in an area of 1.63 lakhs hectare with a production of 0.78 lakhs tonnes. Yield is complex character which is determined by many traits. To find out the characters which are high influence to the yield, this study was taken up with this objective. To assess genetic components and to perform association analysis among yield and yield attributes

## MATERIALS AND METHODS

Seeds of 646 accessions of greengram were collected from the Department of Pulses and utilized for the study. The field experiments were carried out at Department of Pulses, Centre for Plant Breeding and Genetics (CPBG), Tamil Nadu Agricultural University, Coimbatore during 2002 -2004 Rabi and Kharif seasons. Each genotype was sown in two single row plot each of four metre length, plants were raised at a spacing of 30 x 10 cm and replicated twice. The package of practices recommended in the crop production guide were followed. Eighteen quantitative traits viz., plant height (cm), number of branches per plant ,length of branch (cm), days to initial flowering, days to 50 per cent flowering, number of clusters per branch, number of clusters per plant, number of pods per plant, pod length (cm), number of seeds per pod, seed length (cm), seed breadth (cm), hundred seed weight (g), single plant yield (g), dry matter production (g), protein content (%), days to initial maturity and days to full maturity. The observations were recorded in five randomly selected plants in each of the accession per replication.

The data on 18 quantitative traits for 65 accession of core collection were subjected to statistical analysis Correlation co – efficients were worked. The significance of correlation co- efficients was tested by referring to the table given by Snedecor (1967).

## RESULTS AND DISCUSSION

The results of correlation for the 18 characters are presented in the Table.1. The data showed that number of pods per plant (0.56), number of clusters per plant (0.45), number of cluster per branch (0.44), number of branches per plant (0.31), length of branch (0.29), protein content (0.29) and hundred seed weight (0.25) exhibited

Table 1 : Genotypic correlation co efficient of 65 core collection accession for yield and yield components

| | PHT | NOB | BRL | DIF | DFF | NCB | NOC | NPP | POL | NSP | SDL | SDB | HSW | DMP | PTC | DIM | DFM | SPY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PHT | 1.00 | 0.44** | 0.76** | 0.33** | 0.29* | 0.49** | 0.52** | 0.44** | 0.16 | 0.34** | -0.16 | -0.27 | -0.12 | -0.02 | -0.01 | 0.26 | 0.26 | 0.20 |
| NOB | | 1.00 | 0.77** | 0.14 | 0.11 | 0.74** | 0.62** | 0.58** | 0.02 | 0.25* | -0.22 | -0.41 | -0.15 | 0.10 | 0.08 | 0.14 | 0.10 | 0.31* |
| BRL | | | 1.00 | 0.21 | 0.16 | 0.75** | 0.64** | 0.59** | 0.10 | 0.36** | -0.21 | -0.33 | -0.15 | 0.02 | 0.13 | 0.17 | 0.13 | 0.29* |
| DIF | | | | 1.00 | 0.96** | 0.10 | 0.11 | 0.00 | -0.19 | -0.11 | -0.03 | -0.14 | -0.22 | 0.00 | -0.18 | 0.98** | 0.93** | -0.15 |
| DFF | | | | | 1.00 | 0.05 | 0.07 | -0.02 | -0.21 | -0.08 | -0.06 | -0.15 | -0.22 | 0.05 | -0.21 | 0.95** | 0.98** | -0.18 |
| NCB | | | | | | 1.00 | 0.90** | 0.80** | 0.13 | 0.25* | -0.13 | -0.24 | -0.03 | 0.04 | 0.25* | 0.09 | 0.02 | 0.44** |
| NOC | | | | | | | 1.00 | 0.85** | 0.16 | 0.26* | -0.08 | -0.21 | -0.06 | -0.01 | 0.22 | 0.11 | 0.05 | 0.45** |
| NPP | | | | | | | | 1.00 | 0.19 | 0.32** | -0.07 | -0.18 | 0.03 | -0.04 | 0.32** | 0.00 | -0.04 | 0.56** |
| POL | | | | | | | | | 1.00 | 0.35** | 0.27* | 0.23 | 0.27* | -0.18 | 0.17 | -0.20 | -0.18 | 0.21 |
| NSP | | | | | | | | | | 1.00 | -0.13 | -0.21 | -0.23 | -0.15 | 0.02 | -0.14 | -0.08 | 0.13 |
| SDL | | | | | | | | | | | 1.00 | 0.75** | 0.54** | 0.04 | 0.01 | 0.01 | -0.06 | 0.00 |
| SDB | | | | | | | | | | | | 1.00 | 0.56** | 0.09 | -0.09 | -0.11 | -0.17 | -0.07 |
| HSW | | | | | | | | | | | | | 1.00 | 0.20 | 0.21 | -0.22 | -0.23 | 0.25* |
| DMP | | | | | | | | | | | | | | 1.00 | -0.07 | 0.04 | 0.02 | 0.02 |
| PTC | | | | | | | | | | | | | | | 1.00 | -0.20 | -0.18 | 0.29* |
| DIM | | | | | | | | | | | | | | | | 1.00 | 0.93** | -0.16 |
| DFM | | | | | | | | | | | | | | | | | 1.00 | -0.15 |
| SPY | | | | | | | | | | | | | | | | | | 1.00 |

* Significant at 5 per cent level ** Significant at 1 per cent level

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