

Physiological and quality characteristic in seed of cowpea (*Vigna unguiculata* (L.) Walp) cultivars

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ABSTRACT

The experiment was conducted during to season 2007-08 at Seed Research laboratory, Department of seed technology R.B.S. College, Agra campus, Dr. B.R. Ambedkar University, Agra. The design used for this experiment was CRD with twenty varieties. The observation recorded on character *viz.*, seed length, seed breadth, seed coat characters, seed volume, 100 - seed weight, germination, vigour index and dry matter production (g/ seedling -10). The observation was made in seeds from different outlets for the physiological seed quality parameters and their test weight. The germination percentage of the initial seed lots was 90 and 86 per cent in BL-1 and BL-2, respectively. The final produce of pure seed for the first and second pass was 93.0 and 98.0 for and 91 and 99 per cent for the BL-2, respectively. The germination percentage was least with the seeds collected from the flown outlet, 70 and 86 in BL-1 and 84 and 81 in BL-2 for the first and second, respectively. The same trend was noted with the seedling length, vigor index and dry matter production of the seedling

Key words : Seed, variety, Seed coat, Germination, Cowpea

INTRODUCTION

Cowpea [*Vigna unguiculata* (L.) Walp] is an important crop of food and forages. It belongs to the family leguminosae sub family fabaceae, with 170 spp. of which 22 spp found in India. It is considered more tolerant to drought than soybeans and better adopted to sandy soils and well adopted to stress conditions. The variability among the different varieties of a species is known as genetic diversity, which arises due to geographical separation (Henry and Mathur, 2003). But the bases objective of varieties identification is to test the occurrence of traits that help to identify a particular variety when grown in different environmental conditions and generations (Flenner and Smith, 1983). The information on varieties diversity in cowpea is limited. (Thiyagarajan *et al.*, 1989; Dharmalingam and Kadamba Vanasundaram (1969).

In earlier days varieties tests were relatively easier with fewer varieties having greater differences among them. The advent of the modern plant breeding techniques resulted in variety explosion and evolving of many closely related varieties. Hence, seed analysts have been obliged to find newer ways of distinguishing among varieties in the seed laboratory. The simple tests like morphology of seed, seedling and seed size are useful indices of varieties identification. Recent strides in plant varietal production, legislation and increase in global trade of seed, it is essential to evolve stable diagnostic characters, which are not influenced under variable environmental factors. Contaminants such as inert material and off size are not in themselves harmful but greatly influence seed plant

ability, incidence of insect infestation and contribute to storage problem. Hence, seed are processed to remove contaminants, size grade for plant ability and to upgrade quality.

MATERIALS AND METHODS

The experiment was conducted at Research laboratory R.B.S. College Agra campus, Dr. B.R. Ambedkar University, Agra. The seeds of the different varieties of Cowpea were obtained from the germplasm collection of C.S.A. University of Agriculture and Technology, Kanpur. The data collected from experiment were analyzed statistically adopting the methods described by Panse and Sukhatme (1967). The twenty varieties of cowpea namely V – 585, GC – 3, RC – 19, BL – 1, V – 240, V – 130, KBC – 2, EC -4216, RC – 101, BL – 2, IGFRI– 95 – 1, UPC 5286, IL – 380, IL – 1156-1, IL – 3192, HY–10–P–583, IL– 160-11, IL – 886, EC – 240884 and IL – 161 – 1. The Twenty-five seeds from each variety were selected at random for measuring the morphological and physical characteristics.

RESULTS AND DISCUSSION

The seeds of different genotype displayed significant differences for the length and width of seed. The mean of seed length and width was 0.77 cm and 0.62 cm, respectively. V - 585 and RC - 101 recorded maximum seed length of 0.91 cm and 0.90 cm, respectively while IGFRI – 95-1 registered minimum values (0.61 cm). Seed breadth was recorded more in KBC - 2, EC - 4216 and V - 585 (0.70 cm) each while the least value was recorded