

# FAO/IAEA International Symposium on Plant Mutation Breeding and Biotechnology



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## DEVELOPING NEW COWPEA VARIETIES OBTAINED BY USING GAMMA IRRADIATION INDUCTION

Cowpea (*Vigna unguiculata*) is one of the most important legume staple food and forage crop in Africa. Because of its low genetic diversity, several breeding programs based on classical techniques have been implemented to develop new resistant varieties to biotic or abiotic constraints. Despite these attempts, the genetic basis of the crop is still narrow and thus, it appears that there is a need to use new approaches such as mutagenesis. The objectives of this study were to contribute to increase cowpea production specifically by identifying and selecting new elite genotypes. For these purposes, the seeds of 40 mutant M4 mutant lines were selected based on their yield component, sown in pot containing Sangalkam's sand and grown in the shade house and then in the experimental field using single seed descent approach until M7. Agro morphological characterization based on 11 quantitative and 5 qualitative parameters were evaluated in the population. Our results allowed the identification and the selection of 11 promising varieties among which, early flowering, resistance to nematodes, with large seeds and with long pods. The early flowering mutants were clustering together into the group B of a dendrogram. The mean seed weight of some mutants ranged from 0.23 to 0.35 g compared to the control Melakh (0.19 g) regardless of the generation. The mutants N°1 and N°14 showed seed size ranging from 10 to 12 mm while the control had 9.21 mm. The pod length of the mutant 25 ranged from 20 to 25 cm but the control had 19 cm. Statistical analyses showed correlation among the leaflet parameters and yield components as well. The pod mean length was correlated positively with the seed number per pod. The mean seed weight and mean pod length were highly heritable with respectively 54% and 40.20%.

### Country or International Organization

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