IMPACT: International Journal of Research in Applied, Natural and Social Sciences (IMPACT: IJRANSS)
ISSN(E): 2321-8851; ISSN(P): 2347-4580
Vol. 2, Issue 6, Jun 2014, 47-52

EFFECT OF GAMMA RADIATION ON GERMINATION AND PHYSIOLOGICAL ASPECTS OF PIGEON PEA (*CAJANUS CAJAN* (L.) MILLSP). SEEDLINGS

ARUNA S. DESAI[1] & SRINATH RAO[2]

[1]Dissertation Scholar, Department of Post Graduate Studies & Research in Botany, Plant Tissue Culture & Genetic Engineering Laboratory, Gulbarga University, Gulbarga, Karnataka, India

[2]Registrar Evaluation, Womens University, Bijapur, Karnataka, India

ABSTRACT

Gamma irradiation is one of the physical mutagen that widely used for mutation breeding, food sterilization and medicinal healing. In the present study irradiation techniques were applied to investigate the effect of gamma irradiation on germination and physiological aspects of pigeon pea seedlings. Pigeon pea (Var. BSMR 736) seeds were irradiated with gamma rays (5,10,15,20,25Kr). The results shown that the germination frequency, shoot and root length decreased with increasing radiation doses. Germination frequency was high (95.89) in control plants and low (66.09) in 25kr irradiated plantlets. Total protein content was high in plantlet irradiated with 5kr (12.60mg/g FW) where as only 9.21mg/gFW) was found in control plants. Proline content was high in 25Kr plantlets (9.93µmoles/g FW) less in 10Kr irradiated plantlets. Highest amount of chlorophyll was found in 25Kr irradiated plantlets (3.84mg/gFW) and least (2.18mg/gFW) was found in 15Kr irradiated plants. In addition the amount of chlorophyll a was higher than chlorophyll b in both irradiated and non-irradiated plantlets.

KEYWORDS: *Cajanus cajan*, Gamma Irradiation, in Vitro Mutagenesis