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Studies of gamma irradiation on morphological characters in gladiolus

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ABSTRACT : The present experiment was undertaken entitled studies of gamma irradiation on morphological characters in gladiolus. The experiment was carried out at Horticulture Research Farm, Department of Horticulture, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi, India during winter of 2008-2009 and 2009-2010. To conduct field experiment ten cultivars of gladiolus namely Gulal, Gunjan, Her Majesty, Jessica, J.V. Gold, Jyotsana, Picoee, Rose Supreme, Shabnam and Urmil were planted in the field at 30 × 20 cm distance. Experiment was laid out in randomized block design with three replications. In this experiment different morphological characters *i.e.* sprouting of 50% corms, plant height at 30 days after planting and number of leaves/plant at 30 days after planting of corms were studied. Data revealed that earliest sprouting of 50% corms were recorded with 2.00 kr gamma rays in cultivar Jyotsana. While in interaction with variety and treatment best result was recorded with 1.00 kr gamma rays in variety Jyotsana and late sprouting were recorded with 7.00 kr gamma rays in variety Gunjan. Maximum plant height also reported with same treatment. Treatment 2.00 kr gamma rays with cv. J.V. Gold show the best performance with respect of number of leaves per plant.

KEY WORDS : Gladiolus, Gamma irradiation, Morphological characters

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Gladiolus is an important flower crop and is very popular as cut flower both in domestic and international market. It is relatively easy to grow and ideal for bedding and exhibition. In India, gladiolus is commercially grown in West Bengal, Maharashtra, Uttar Pradesh, Uttrakhand, Punjab, Haryana, Madhya Pradesh, Delhi and Rajasthan (Singh, 2006). Ever increasing demand particularly in cities and towns of India made it an important cut flower which is now available in the Indian markets round the year. Therefore, a lot of work had been done on improvement of gladiolus in India and world, subsequently number of varieties developed. In crops mutation plays an important role to induced variability which can be used for further improvement. A large number of varieties have been developed in ornamentals through mutation breeding. Gladiolus is highly heterozygous in its genetic constitution which makes it promising test material for induced physical mutagenesis. The effects of physical mutagens on gladiolus have been studied by several workers. Therefore, present experiment was carried out to see the effect of gamma radiation on morphological characters in gladiolus.

RESEARCH METHODS

The present investigation entitled studies of gamma radiation on morphological characters in gladiolus was carried out at the Horticulture Research Farm, Department of Horticulture, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi. This district of U.P. is situated about 28.180 North latitude, 83.030 East longitudes and at altitude of the location is 123.23 meter above the mean sea level. Ten cultivars *viz.*, Gulal, Gunjan, Her Majesty, Jessica, J.V. Gold, Jyotsana, Picoee, Rose Supreme, Shabnam and Urmil were used as experiment material. Healthy and uniform size of corms were treated with gamma radiation at various treatments *viz.*, 1.00 kr, 2.00 kr, 3.00 kr, 4.00 kr, 5.00 kr, 6.00 kr, 7.00 kr and control (0.00 kr) and planted at 8 cm depth, with a spacing of 30×20 cm. The experiment was carried out in Randomized Block Design with three replications. Standard package of cultural practices