

EFFECTS OF GAMMA RADIATION ON TOMATO SEEDS

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Abstract: The present paper deals with effects of gamma radiation in tomato seeds . Tomato is one of the most labor and cost intensive horticultural crop in the World. It is also one of the most consumed vegetable. Its high volume consumed guarantees the importance as supplier of potash, folic acid, vitamins A, B1, B2, B3, C and E [1, 2] . Five treatments radiation doses were applied as follows: 0 (control); 10kr,15,kr,20kr 25kr and 30kr. Seed germination as well as green fruits number, harvested fruit number, fruit weight and total production were assessed to identify occurrence of stimulation. Tomato seeds and plants were handled as for usual tomato production in M U garden. Low doses of gamma radiation treatment in the seeds stimulate germination and substantially increase fruit number and total production up to 86% at 15 Kr dose. There are evidences that the use of low doses of gamma radiation can stimulate germination and plant production thus, showing hormetic effects.

Keywords: Gamma radiation, tomato seeds.

INTRODUCTION

Gama Radiation is a penetrating electromagnetic **radiation** arising from the radioactive decay of atomic nuclei. It consists of the shortest wavelength electromagnetic waves and so imparts the highest photon energy. Tomato is one of the most labor and cost intensive horticultural crop in the World. It is also one of the most consumed vegetable. Its high volume consumed guarantees the importance as supplier of potash, folic acid, vitamins A, B1, B2, B3, C and E [1, 2] .Stimulation effects on germination, growth and production with the use of low doses of gamma radiation have been reported by many authors. The experiment presented here aimed to investigate the seed irradiation as a viable process to increase tomato germination and production in commercial tomato plantations.

MATERIALS AND METHODS

Dried seeds were treated in the department of plant floriculture N B R I Lucknow. After treatment they were washed in running tap water. Finally seeds were dried for sowing. Treated seeds were grown in departmental garden and studied the effect and recording the morphological character.

RESULT AND DISCUSSION

Our result reveled that low doses of gamma radiation

Low doses of gamma radiation treatment in the seeds stimulate germination and substantially increase plant length, flower and fruit. Number of fruits and total production up to 86% at 15 Kr dose. There are evidences that the use of low doses of gamma radiation can stimulate germination and plant production thus, showing hormetic effects.

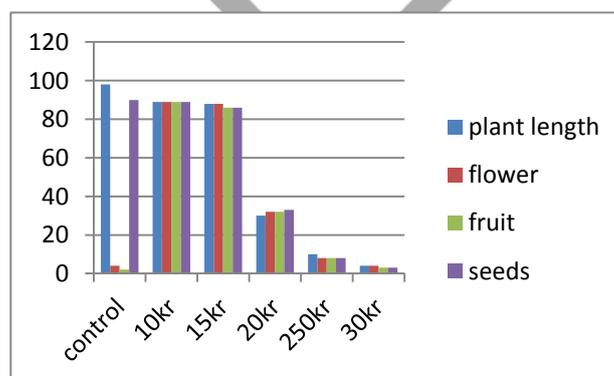


Fig : Graphic Representation of morphological character

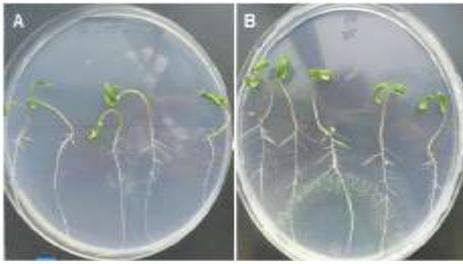


Fig : Photograph of germinating plant



Fig : S22 15 KR and Navoday 15 KR Plant.

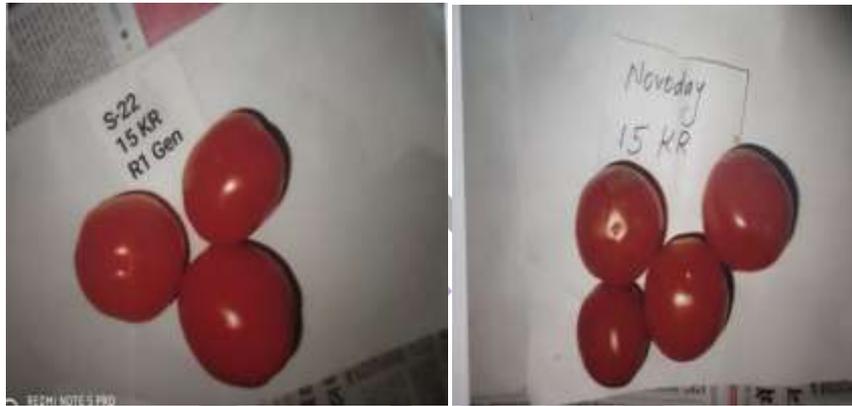


Fig : S22 15 KR and Navoday 15 KR Plant Fruit.

CONCLUSION

Low doses of gamma radiation treatment in the seeds stimulate germination and substantially increase fruit number and total production up to 86% at 15 Kr dose. There are evidences that the use of low doses of gamma radiation can stimulate germination and plant production thus, showing hormetic effects.

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