Environment and Natural Resource Research Institute (ENRRI)

National Center for research, Sudan

Effect of gamma irradiation and storage on fungal growth, aflatoxin production and quality characteristics of groundnuts

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Introduction

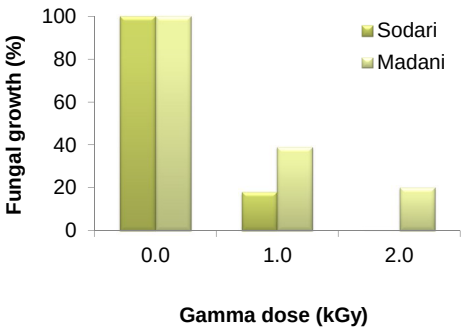
- Gamma irradiation has been established as a safe and effective method for shelf-life extension and improvement of overall nutritional attributes of food.
- The aim of this study was to determine the fungal growth, aflatoxin production, nutritive value of two groundnut cultivars as affected by gamma irradiation at dose levels of 0, 1, 1.5 and 2 kGy followed by storage at room temperature.

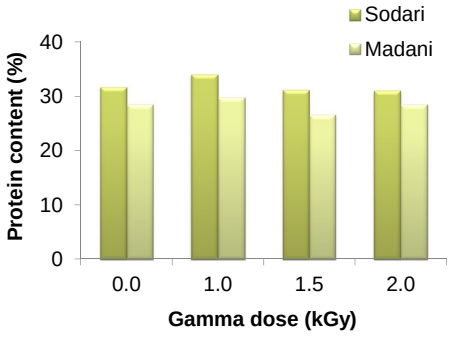
Materials and methods

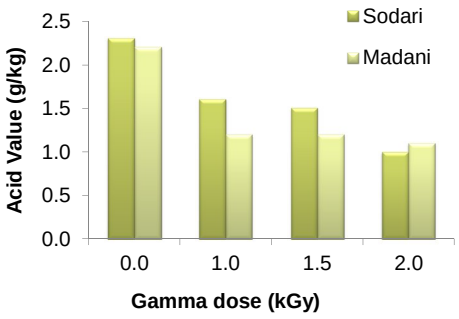
- Seeds were irradiated with a 3.89 Kci and ^{60}Co Source.
- Treated samples were stored at room temperature.
- Fungal growth and aflatoxin production (ELISA).
- Chemical compositon of seeds & oil quality.

Fig. 1 Gamma irradiator

Results







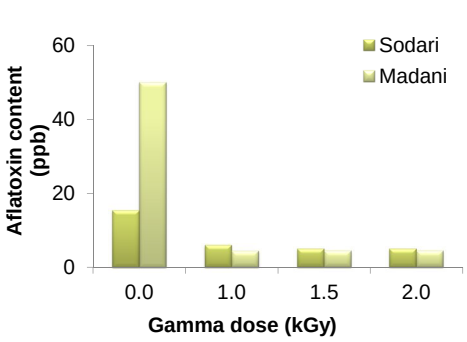


Fig. 2 Fungal growth & aflatoxin content of gamma irradiated seeds

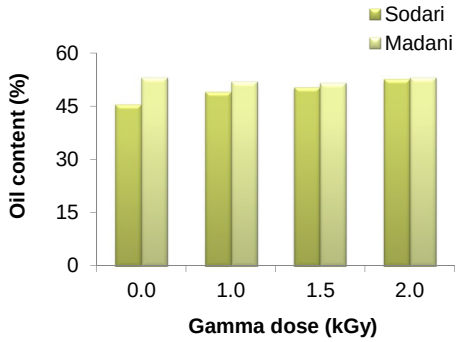


Fig. 3 Protein & oil contents of gamma irradiated seeds

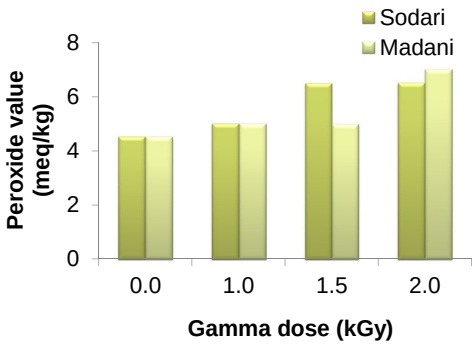


Fig. 4 Acid & peroxide values of gamma irradiated seeds

Conclusion

- Obtained results confirm that application of gamma irradiation prevent the fungal growth as well as production of the aflatoxin effectively for a long period of time extending to two years without adverse damage in groundnut quality.

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