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Effect of gamma rays on some qualitative traits of three genotypes of Okra (*Abelmoschus esculentus* (L.) Moench) in Burkina Faso

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ABSTRACT

Objectives: The objective of this study is to evaluate the effects of eleven doses of gamma rays on the qualitative phenotypic traits of three okra genotypes, UAE22, KBG535 and KBG24, from Burkina Faso, in order to initiate mutation breeding. Plants with valuable traits will be grown in further generations for selection purpose.

Methodology and Results: Two hundred and fifty (250) seeds of each genotype were irradiated by ⁶⁰Co sources at doses ranging from 200 to 2000Gy. Seeds were sown in pots and plants grown at two per pot. Third leaf narrowing, stem ramification and plant creeping aspect were accentuated from 200 to 1800Gy. Various colours, shapes and positions of fruits were recorded between 200 and 1400Gy. At 500 and 600Gy, yellowish green fruits with dark green edges for KBG535 and KBG24 and two fruits at the same node were observed for the 3 genotypes. At 500Gy, KBG535 showed an atypical fruit with a twisted end.

Conclusions and application of findings: The characteristics studied showed variation depending on irradiation doses and genotypes. KbG535 exhibited the greatest variability for fruit shape and colour with the tendril shape of the fruit tip at 500Gy and the dark green stripes of the fruit edges at 500 and 600Gy. This tendril shape was not shown in okra descriptors. The pattern of two fruits at the same node and stem ramification with the level of dose may be used to improve yield for all 3 genotypes. In addition, the various colours observed are a proof of possibility to meet consumer needs, since fruit colour is a preferred trait for okra. The irradiation of okra seeds is therefore a source of variability in qualitative traits. Additional experiments in further generations are however necessary to assess the heritable nature of this variation.

Keywords: Burkina Faso, irradiation, okra, variability.