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Effects of Gibberellic Acid (GA_3) on Sprouting and Quality of Potato Seed Tubers in Diffused Light and Pit Storage Conditions

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Abstract: Effects of gibberellic acid (GA_3) on dormancy termination, sprouting and quality of potato (*Solanum tuberosum* L.) seed tubers stored for 12 weeks in Diffused Light Store (DLS) and for 2 weeks in pit were determined. Potato genotypes (Tigoni, Asante, Dutch Robyjn, Kenya Karibu and Kenya Sifa) and GA_3 at 0, 10, 20 and 30 mg kg^{-1} were used. Dormancy period was reduced to three weeks in all genotypes except Kenya Sifa, which sprouted after seven weeks following GA_3 treatments in DLS. Increasing GA_3 concentrations increased sprouting (%), number of sprouts per tuber, sprout length and vigor score. However differences among GA_3 concentrations for these parameters were not observed. In the pit, the potato seed tubers sprouted within the two weeks of storage. Except for Kenya Sifa, GA_3 had no effect on sprouting and vigor score; however, it increased number of sprouts per tuber and sprout length. Increase in GA_3 concentration led to increase in rotting at 30 mg kg^{-1} of GA_3 for Tigoni, Kenya Sifa and Kenya Karibu genotypes, under DLS. It is suggested that lower levels of GA_3 of up to 20 mg kg^{-1} should be adopted for promotion of sprouting of potato seed tubers.

Key words: Gibberellic acid, sprouting, potato, seed, pit, diffused light