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Determination of Optimal Radiation Levels of Kiwifruit Scions cv. Hayward to Improve Fruit Quality

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Mutation by gamma radiation is used as a new technology to improve some quality traits in fruits. In this research, the effect of gamma radiation in scions of kiwifruit with different doses (0, 30, 40, 50, 60, 70 and 80 Gray) on the physicochemical properties of kiwifruit was studied. For this purpose, chisel grafting of gamma treated scions were done on kiwifruit vines in winter 1391 and after a year of no fruiting (1392), in 1393, the fruits were evaluated at harvest time and intervals of one month in the cold storage for 3 months. The results showed that fruits obtained from treated scions with dose of 40 gray of gamma radiation had the highest firmness, highest weight and lowest weight loss at harvest and during storage. Vines with treated scions by doses of 70 and 80 gray of gamma radiation did not have any fruits and remained in vegetative stage. The treatments of 50 and 60 gray of gamma radiation caused severe deformation and deep split in kiwifruits and these lost their marketability. Therefore, the firmness of kiwifruit during storage is the most important factor in the potential storage and exports, due to the positive effect of radiation of 40 gray on this factor at harvest time and during storage, as well as an increase in fruit weight, fruit yield and reduce water loss, it seems to be effective in positive changes of quality of the fruit.

Key Word: Firmness, Kiwifruit, Storage, Gamma radiation, Scion.

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