Title Rambutan cv. Anak Sekolah: Preliminary dose mapping study at commercial scale

Author Sofian Ibrahim, Ahmad Zainuri Mohd Dzomir, Cosmos George, Mohd Sidek Othman, Ahsanulkhaliqin Abdul Wahab, Hasan Sham, Mohd Khairul Azfar Ramli, Nor Ishadi Ismail, Zainon Othman, Suhana Yusof

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Abstract

Rambutan is one of the commodities that has been approved to enter the United States market. The main condition imposed is the use of min 400 Gy irradiation as a quarantine treatment for disinfestations of prohibited insect pests. In order to fullfil the requirement, commercial scale dose mapping study of Rambutan cv. *Anak Sekolah* was carried out at SINAGAMA which involved the use of Gammachrome dosimeters as the dose measurement device. To implement this exercise, a total of 26 rambutan boxes weighing 4 kg each were loaded according to their specific loading configuration into a commercial line tote box measuring 0.93 cubic meters. A total of 27 unit dosimeters were placed at specific locations inside and outside the boxes to record the dose distribution pattern throughout the load. Th is study met the need of generic radiation quarantine treatment where it exceeded the minimum dose of 400 Gy as required by the United States. The result showed that 530 Gy was the lowest dose achieved. To ensure the quality of fresh rambutan is maintained, the maximum allowable dose should be under 1 kGy. The highest dosimeter reading recorded was at 710 Gy. In general, this dose mapping study at commercial scale with 0.112g/cc packing density resulted in dose uniformity ratio (DUR) of 1.34.