

**Title** Quality and microbiological changes of asparagus spear packaged in PVC film and treated with ultraviolet-C

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### **Abstract**

Quality and microbial populations of asparagus spear packaged in foam tray and wrapped with PVC film were investigated after exposing to ultraviolet-C (UV-C). Asparagus spears were exposing to UV-C doses (1.2, 2.4, and 3.6 kJ/m<sup>2</sup>) and compared to that of unirradiated spears (control). Exposing packaged asparagus spears to UV-C light increasing in respiration rate with the highest of respiration rate was found when treated with 3.6 kJ/m<sup>2</sup>. Ethylene production of asparagus spears exposed to UV-C showed a raise in ethylene concentration with little or no difference with control. Total ascorbic acid contents of asparagus spears increased during storage at 7°C, with the dose of 2.4 kJ/m<sup>2</sup> resulted in better maintain ascorbic acid than the other treatments. Color and crispness of asparagus spears declined with not significant as compared to unirradiated spears. Total microbial and coliforms counts of asparagus spears slightly increased during storage regardless of UV-C irradiation. Fungi population remained relatively constant in all treatments *over* the day of storage. The UV-C irradiation for up to 3.6 kJ/m<sup>2</sup> had no significant effect on reducing growth of total microbial, coliforms and fungi of asparagus spears compared to control. The shelf life of asparagus spear was about 4 days at 7°C.