



## The effects of Gamma irradiation on the Microbiological quality, Sensory evaluation and Antioxidant activity of Spinach

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**Abstract :** This research was conducted to study the effect of transactions radiation on the assessment of microbial quality, sensory evaluation and antioxidant activity of Spinach. Spinach was treated by using three doses of gamma radiation, 0.5, 1.0, 1.5 and 2.0 KGy. The results of microbial quality revealed that radioactive transactions have led to a significant reduction (indicate level of significant  $p < 0.05$ ) in E.coli, total number of Bacteria, yeasts and fungi. However, a significant decrease ( $p < 0.$ ) in the appearance, color and texture with the dose of 1.5, 2.0 KGy was observed compared with control. The antioxidant activity, total phenols and total flavonoids of aqueous extract of Spinach have been evaluated. The results showed a high antioxidant activity when radioactive transactions gave a significant increase ( $p < 0.0$ ) in the content of total phenols and total flavonoids while the value decreased of the samples treated with 1.5, 2.0 KGy. The evaluation of antioxidant activity of aqueous extracts of Spinach using DPPH gave a significant decrease ( $p < 0.0$ ) in free radical scavenging activity of the samples treated with radiation compared to untreated samples.

**Keywords:** Radiation, Spinach, Microbial quality, Sensory evaluation, Antioxidants activity.