

### Abstract:

In order to reduce microbial growth and maintain quality of fresh processed lettuce ultraviolet-C (UV-C) radiation has been applied. Red-pigmented 'Lollo Rosso' lettuce, freshly processed following standard industrial methods, was exposed to UV-C radiation from germicidal lamps before modified atmosphere packaging. Depending on distance and exposure time (1, 5, and 10 minutes) three intensities 0.81 kJ/m<sup>2</sup>, 4.06 kJ/m<sup>2</sup>, and 8.14 kJ/m<sup>2</sup> were applied. Throughout shelf life changes in gas composition within bags were monitored and the effects of UV-C radiation on microbial growth and on quality attributes of the product were determined. A panel test of 12 people evaluated the sensory quality. Results showed that microbial growth was inhibited by UV-C radiation at least until day 6 of storage except for lactic acid bacteria. When UV-C treated product was compared with the control, lower microbial counts for total psychrotrophic, coliforms, and yeast were found. However only the highest UV-C intensity was efficient to reduce mould growth. Higher CO<sub>2</sub> and lower O<sub>2</sub> concentrations were generated within bags containing 'Lollo Rosso' lettuce treated with higher UV-C radiation, which means that treatment increased the respiration rate of lettuce pieces. Between 0.81 kJ/m<sup>2</sup> and 4.06 kJ/m<sup>2</sup> treatments and control only slight differences in overall appearance were found. However, when the highest UV-C treatment (8.14 kJ/m<sup>2</sup>) was applied, the lettuce tissue became brighter, probably due to the segregation of wax by the lettuce tissue as a protection against the UV-C stress.