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Effect on quality and shelf-life of an aloe vera edible coating in fresh-cut kiwi

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Kiwifruit is well known as a highly nutritional food due to its content in vitamin C and some bioactive compounds as carotenoids and phenolics. However, the softening and ripening of this fruit dramatically increase with its minimal processing which involves that fresh-cut kiwis have a short shelf-life period due to the cell respiration and microbial spoilage. Packaging design and edible coatings are being used to increase its shelf-life. Both had a combined effect, reducing the respiration rate of the fruit and the microbial growth. Aloe vera gel extract is being used as a coating for whole fruits due to its antifungal activity (papaya, mango, grape, strawberry and cherish) but there are no data available for fresh-cut fruits. The aim of this work was to assess the effect of an edible coating made from an aloe vera extract in the sensory quality and shelf-life of fresh-cut kiwi. Different concentrations of the aloe gel extract (0, 1, 5 and 15 %) were tested in kiwi slices. Samples were packaged in passive atmosphere and kept at 3±1ºC for 12 days. During this period, headspace gas concentrations, colour, pH, sensory analysis, mesophilic bacteria and moulds and yeast growth were monitored. Aloe vera coating tended to reduce the respiration rate of the kiwi slices and the more the concentration the better the reduction obtained. After seven days of storage, the mesophilic bacteria and moulds counts of kiwi slices treated with 5% and 15% were significantly lower than control samples ($p<0.05$). However, levels of 15% increased the bitterness of the kiwi slices after 8 days of storage but the 5 % treated samples were the best rated in the preference sensory test. Quality of the non treated samples decayed after six days of storage. Aloe vera may be use as an effective coating to increase the shelf-life of fresh-cut kiwifruit.

Keywords: minimal processing, fruits, sensorial quality, antifungal coating