

Title A brief note on thermoluminescence analysis of photosystem II and lipid peroxidation during the shelf life of ready-to-use rocket (*Diplotaxis tenuifolia* L.)

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Abstract

The quality of leafy vegetables has to be guaranteed for consumers over the whole postharvest period, usually limited to 5–7 days. The analyses to evaluate the quality of vegetables are very time- and resource consuming, so the use of qualitative markers can be much useful. The aim of this work was to evaluate the use of thermoluminescence (TL) parameters as qualitative markers of fresh-cut leafy vegetables during the shelf life. TL is a technique consisting of a cooling, followed by the progressive warming, of a preilluminated sample to reveal the different types of charge pairs as successive emission bands, which are resolved better than the corresponding decay phases recorded at constant temperature. Experiments were performed on rocket (*Diplotaxis tenuifolia* L.) stored at 2 °C for 7 days. During storage, several changes in TL glow curves were found. The position of the peaks showed a shift to higher temperature. The area of the peaks, relating to the photosystem II (20–65 °C), grew up lightly; whereas in the temperature range that detects lipidic peroxidation (65–140 °C), the TL emission became more than twice. These changes demonstrated that, during the shelf life, a progressive destabilization of PSII centres occurred and that lipid peroxidation products were accumulated in membranes. TL could be used to estimate the damages immediately after as well as during the storage period. This is the first time that TL was used to evaluate the quality of fresh-cut vegetables products during the shelf life.

<http://www.springerlink.com/content/3466mg3577n613w3/fulltext.pdf>