

Influence of roasting on antioxidants, fatty acids, sensory properties and oxidative stability of macadamia nuts

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Scientia Horticulturae 278: 109850. (2021)

Abstract

Raw and roasted kernels of 'A4' and 'Beaumont' macadamia cultivars were assessed for biochemical and sensory quality during the accelerated storage of 70 days. Kernels were roasted at 125 °C for 15 min using a hot air oven dryer. Roasted kernels had significantly ($p < 0.001$) high concentration of phenols, antioxidants and good sensory properties: aroma, taste and overall appearance, validated by low levels of polyphenol oxidase (PPO), peroxide value (PV) and fatty acids (FAs) at the end of storage. Whereas, raw kernels had high and unacceptable levels of PPO, PV and FA compositions which accelerated the rancidification process, supported by low concentration of phenols, antioxidants and poor aroma. A strong correlations were observed between ratio of polyunsaturated FA: monounsaturated FA (PUFA:MUFA) and sensory quality attributes (aroma and appearance) for roasted cultivars before storage. And also positive correlation was observed among PV, rancidity and cultivars which indicate that raw 'Beaumont' and roasted 'A4' macadamia nuts after 70 days of storage had higher PV values, resulting to rancidity taste. Roasting can alter fatty acid profile of the nuts depending on the roasting temperature. These findings demonstrate that roasting can improve macadamia nuts' quality as compared to raw nuts, but the roasting temperature regime needs to be determined for different cultivars.