
Title

Assessing the modifications and degradation of cell wall polymers during the ripening process of Rubus ulmifolius Schott fruit

Abstract

The stability of cell walls and their constituents, extractives, and water during the development and ripening stages of *Rubus ulmifolius* Schott fruits (blackberry fruit) was explored. The cell wall plays a crucial role in providing structural support and protection to the fruit, maintaining its shape and integrity. It acts as a barrier against mechanical stress, pathogens, and environmental factors. The ripening stages of blackberry fruit were previously classified in four stages according to the size and volatile components in each one. In the present work, we examine the water and sugar content, thermodynamic properties of the cell wall, and colour determination in each of the four ripening stages. The results indicate that the thermal stability of the fruit decreases during ripening, attributed to depolymerisation and changes in the physicochemical properties of the cell wall polysaccharides. Furthermore, the research reveals that the fruit's colour and sugar content undergo changes throughout its development and ripening process. These findings suggest that the stability of the cell walls in ripening fruits is influenced by their constituents and interactions, and that ripening is accompanied by alterations. This knowledge can be used to improve fruit production, storage, and marketing strategies, ultimately benefiting both producers and consumers. © 2024 Journal of Horticultural Science & Biotechnology.

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