

Role of Glycoproteins during Fruit Ripening and Seed Development

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Abstract

Approximately thirty percent of the proteins synthesized in animal or plant cells travel through the secretory pathway. Seventy to eighty percent of those proteins are glycosylated. Thus, glycosylation is an important protein modification that is related to many cellular processes, such as differentiation, recognition, development, signal transduction, and immune response. Additionally, glycosylation affects protein folding, solubility, stability, biogenesis, and activity. Specifically, in plants, glycosylation has recently been related to the fruit ripening process. This review aims to provide valuable information and discuss the available literature focused on three principal topics: (I) glycosylations as a key posttranslational modification in development in plants, (II) experimental and bioinformatics tools to analyze glycosylations, and (III) a literature review related to glycosylations in fruit ripening. Based on these three topics, we propose that it is necessary to increase the number of studies related to posttranslational modifications, specifically protein glycosylation because the specific role of glycosylation in the posttranslational process and how this process affects normal fruit development and ripening remain unclear to date.

Author keywords

fruit ripening; glycoproteins; N-glycosylation; quality fruit; seed development