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Research Abstract

MiRNAs Involved In Prickly Pear Cactus Fruit Development

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Abstract: MiRNAs are involved in many processes including the fruit development. The information available on miRNAs in plants species provides an opportunity to study the role of miRNAs in non-model species, such as *Opuntia ficus indica*. We analyzed dozens of miRNAs in prickly pear cactus and demonstrated that at least 32 miRNAs are expressed during prickly pear cactus development. These miRNAs revealed dynamic expression patterns through different stages of prickly pear cactus fruit development. A gradual increase in the expression of several miRNAs, including miR164, was observed during fruit development. Detailed spatial-temporal analysis of this miRNA during prickly pear cactus fruit development showed that miR164 is localized in meristematic tissues, boundaries and fusion zones before fertilization, and expressed homogeneously in all tissue after fertilization; suggesting that miR164 participates in different processes during prickly pear cactus fruit development. This is the first report of miRNA expression profiles during prickly pear cactus fruit development and provides the basis for future research on miRNAs in *Opuntias*.

Keywords: miRNAs, prickly pear cactus, fruit development, expression pattern, miR164

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