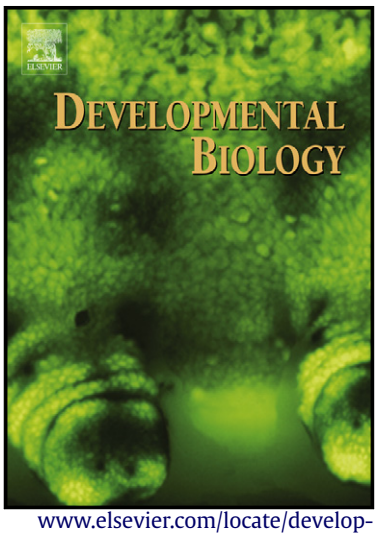

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Evolutionary conservation of microRNA regulatory programs in plant flower development

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Abstract

MicroRNAs (miRNAs) are post-transcriptional regulators of growth and development in both plants and animals. Flowering is critical for the reproduction of angiosperms. Flower development entails the transition from vegetative growth to reproductive growth, floral organ initiation, and the development of floral organs. These developmental processes are genetically regulated by miRNAs, which participate in complex genetic networks of flower development. A survey of the literature shows that miRNAs, their specific targets, and the regulatory programs in which they participate are conserved throughout the plant kingdom. This review summarizes the role of miRNAs and their targets in the regulation of gene expression during the floral developmental phase, which includes the floral transition stage, followed by floral patterning, and then the development of floral organs. The conservation patterns observed in each component of the miRNA regulatory system suggest that these miRNAs play important roles in the evolution of flower development.

Key words: microRNA; evolutionary conservation; flowering regulation; floral transition; floral patterning; the development of floral organs.

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