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Sommario/riassunto	<p>Plant organ abscission is a developmental process regulated by the environment, stress, pathogens and the physiological status of the plant. In particular, seed and fruit abscission play an important role in seed dispersion and plant reproductive success and are common domestication traits with important agronomic consequences for many crop species. Indeed, in natural populations, shedding of the seed or fruit at the correct time is essential for reproductive success, while for crop species the premature or lack of abscission may be either beneficial or detrimental to crop productivity. The use of model plants, in particular <i>Arabidopsis</i> and tomato, have led to major advances in our understanding of the molecular and cellular mechanisms underlying organ abscission, and now many workers pursue the translation of these advances to crop species. Organ abscission involves specialized cell layers called the abscission zone (AZ), where abscission signals are perceived and cell separation takes place for the organ to be shed. A general model for plant organ abscission includes (1) the differentiation of the AZ, (2) the acquisition of AZ cells to become competent to respond to various abscission signals, (3) response to signals and the activation of the molecular and cellular processes that lead to cell separation in the AZ and (4) the post-abscission events related to protection of exposed cells after the organ has been shed. While this simple four-phase framework is helpful to describe the abscission process, the exact mechanisms of each stage, the differences between</p>

organ types and amongst diverse species, and in response to different abscission inducing signals are far from elucidated. For an organ to be shed, AZ cells must transduce a multitude of both endogenous and exogenous signals that lead to transcriptional and cellular and ultimately cell wall modifications necessary for adjacent cells to separate. How these key processes have been adapted during evolution to allow for organ abscission to take place in different locations and under different conditions is unknown. The aim of the current collection of articles is to present and be able to compare recent results on our understanding of organ abscission from model and crop species, and to provide a basis to understand both the evolution of abscission in plants and the translation of advances with model plants for applications in crop species.

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