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Emerging role of potassium in plants -- 10. Key questions and future perspective -- References -- Abbreviations -- Index.

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Sommario/riassunto

Potassium (K<sup>+</sup>) is an essential mineral macronutrient abundantly present in the cytosol which, unlike other macronutrients, is not metabolized and does not integrate into macromolecules. Compared to animal cells, K<sup>+</sup> is more abundantly present in plant cells. Overall performance of the plant, and operation of metabolic machinery depends upon intracellular K<sup>+</sup> homeostasis (K<sup>+</sup> uptake and efflux) via K<sup>+</sup> channels and transporters acting as mediators of cellular responses during plant development. Unlike animals, plants lack sodium/K<sup>+</sup> exchangers; plant cells have developed unique transport systems for K<sup>+</sup> accumulation and release. In *Arabidopsis thaliana*, 71 K<sup>+</sup> channels and transporters have been identified and categorized into six families. Plant adaptive responses to several abiotic and biotic stresses are mediated by regulation of intracellular K<sup>+</sup> homeostasis. In this report, we highlight the role of K<sup>+</sup> in abiotic and biotic stresses, features of channels and transporters responsible for its homeostasis along with its evolutionary relationship, perception and sensing mechanisms, and K<sup>+</sup> deficiency triggering different signaling cascades. Overall, this book covers the role of K<sup>+</sup> in plants would be significantly helpful to research, academic community as well as students to understand the one of the major attributes of plant biology.

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