

Abstract

Plants use iron as a cofactor of proteins used in photosynthetic systems, electron transport chain and many more. Iron bioavailability for plants in soil is low because it tends to oxidise and create insoluble compounds. For this reason plants have evolved two distinct iron uptake mechanisms. Because of the iron toxicity caused by production of reactive oxygen species via the Fenton reaction and the unspecific transport of metals other than iron, plants have to regulate cellular iron concentration tightly. They have evolved a complex system of signalling networks that has recently begun to uncover. In addition to the regulation of iron uptake, the plant cell combats iron toxicity by sequestering iron into storage organelles and by chelating it. Iron is essential for seed sprouting but this work is focused on transport of iron into the plant from the soil, subcellular transport and long distance transport of iron in the vasculature.