Seed thioredoxin h

Thioredoxins are nearly ubiquitous disulfide reductases involved in a wide range of biochemical pathways in various biological systems, and also implicated in numerous biotechnological applications. Plants uniquely synthesize an array of thioredoxins targeted to different cell compartments, for example chloroplastic f- and m-type thioredoxins involved in regulation of the Calvin-Benson cycle. The cytosolic h-type thioredoxins act as key regulators of seed germination and are recycled by NADPH-dependent thioredoxin reductase. The present review on thioredoxin h systems in plant seeds focuses on occurrence, reaction mechanisms, specificity, target protein identification, three-dimensional structure and various applications. The aim is to provide a general background as well as an update covering the most recent findings. This article is part of a Special Issue entitled: Plant Proteomics — a bridge between fundamental processes and crop production, edited by Dr. Hans-Peter Mock.

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