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Sommario/riassunto	In contrast to the situation in heterotrophic organisms, plant genomes code for a significantly larger number of oxidoreductases such as thioredoxins (TRXs) and glutaredoxins (GRXs). These proteins provide a biochemical mechanism that allows the rapid and reversible activation or deactivation of protein functions in response to changing environmental conditions, as oxidative conditions caused by excessive photosynthesis. Indeed, owing to the fact that cysteines are sensitive to oxidation, TRXs and GRXs play an essential role in controlling the redox state of protein thiol groups. These redox-dependent post-translational modifications have proven to be critical for many cellular functions constituting regulatory, signalling or protective mechanisms. The articles contained in this Research Topic provide timely overviews and new insights into thiol-dependent redox regulation mechanisms with a focus on TRX- and GRX-based reduction systems in plants. The different contexts discussed take into account physiological, developmental and environmental conditions.

