

GLUTATHIONE

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I. INTRODUCTION

Glutathione is widely distributed in plant cells. It appears to be synthesized in both the chloroplast and the cytosol, and to occur in both subcellular compartments at relatively high levels. Its function as an antioxidant is reviewed here. In concert with ascorbate, glutathione acts by scavenging free radicals and hydrogen peroxide. The reactive intermediates form as a consequence of oxidative stresses caused by extremes of temperature, drought, herbicides, or air pollutants. An integral part of the response of glutathione metabolism to oxidative stress appears to include an increase in the levels of the reduced form of the molecule. Both altered gene expression and modulation of enzyme functioning are involved. The possible role of glutathione as an elicitor of transcriptional events associated with stress responses is discussed.