Antioxidative Responses of Tobacco Expressing a Bacterial Glutathione Reductase

Barbara Lederer and Peter Böger*

Lehrstuhl für Physiologie und Biochemie der Pflanzen, Universität Konstanz,
D-78457 Konstanz, Germany. Fax: +49-7531-883042. E-mail: peter.boeger@uni-konstanz.de

* Author for correspondence and reprint requests

Z. Naturforsch. **58c**, 843–849 (2003); received July 25, 2003

Reports on stress response of tobacco expressing a bacterial glutathione reductase (GR) do not agree. To clarify this situation we investigated several parameters using the tobacco BelW3 line and its transformant BelW3*gor* expressing an *E. coli* GR.
This alteration in the activity of GR led to an ambiguous modification of the antioxidative system. In contrast to the wild type, the transgenic tobacco suffered lipid peroxidation under moderate light intensities, while it was found to be more resistant towards oxidative stress induced by paraquat or hydrogen peroxide. Transcript levels for violaxanthin deepoxidase and cytosolic Cu-Zn-superoxide dismutase were strongly reduced in BelW3*gor* plants as compared to BelW3.

Key words: Glutathione Reductase, Transgenic, Oxidative Stress