

# Turkish Journal of Botany

Turkish Journal

Germin-Like Oxalate Oxidase Activity Increase in Auxin-Treated Wheat Coleoptiles

of

Botany

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Mahmut ÇALIŞKAN Mustafa Kemal University, Biology Department,, 31040-Hatay - TURKEY Andrew C. CUMING University of Leeds Biology Department, Leeds LS2 9JT ENGLAND Received: 06.09.1999 Accepted: 02.06.2000 Abstract : Oxalic acid or more commonly its salts, oxalates, are widely distributed throughout the plant kingdom. Oxalic acid is generally considered an inert product of metabolism and its accumulation is toxic to tissues. Therefore, the enzymes degrading oxalic acid have received considerable attention. Oxalate oxidase is an oxidoreductase which degrades oxalate into CO<sub>2</sub> and H<sub>2</sub>O<sub>2</sub>. Recently, oxalate oxidase was shown to have high amino acid homology with germin proteins and at the same time cereal germin proteins were shown to have oxalate oxidase activity. Germin gene expression was shown to be auxin responsive. It was well demonstrated that coleoptile cells underwent extensive elongation upon auxin treatment. In the current study, it was shown that during auxin-induced wheat coleoptile elongation there was an increase in the activity of germin-like oxalate oxidase. This activity which produce H<sub>2</sub>O<sub>2</sub> may restrict cell elongation by mediating cross-linking of cell wall polymers.

**Key Words:** Auxin, Coleoptile elongation, Germin-like oxalate oxidase

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Turk. J. Bot., **24**, (2000), 329-335.

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