A New psbA Mutation Yielding an Amino-Acid Exchange at the Lumen-Exposed Site of the D1 Protein

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In eight metribuzin-resistant photoautotrophic cell cultures of *Chenopodium rubrum* (Thiemann and Barz, 1994 a, b) sequence analyses of a part of the psbA gene coding for the photosystem-II D1 protein had revealed different double and triple mutations within the herbicide binding niche of the protein (Schwenger-Erger *et al.,* 1993). Two pairs of the examined cell lines carried identical mutations within this part of the protein, although their growth performance and their herbicide resistance patterns were different, both at the cellular and the thylakoid level. Starting from the known part of the psbA gene we have amplified the remaining psbA sequences using inverse polymerase chain reaction. Thus the complete sequence of the coding part of the gene was elucidated. After sequence analyses we found an additional amino acid exchange at the position 184 (ile → asn) of the D1 protein in cell line L1. Metabolic consequences of this mutation are discussed. Partial sequence analyses of the psbD gene of the herbicide resistant cell culture lines revealed no mutation within that part of the D2 protein, which is in direct contact with the D1 protein.