Triazine resistant *Echinochloa colona* (junglerice) in Iran

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The most common mechanism of resistance to triazine herbicides is a mutation in the *psbA* gene, which encodes the D1 protein, leading to an alteration at the site of the protein where triazine binding occurs. Suspected resistant *Echinochloa colona* (junglerice) biotypes obtained from sugarcane fields in Khuzestan province, Iran, were subjected to greenhouse and laboratory experiments to study possible metribuzin resistance and their molecular base resistance. The ED50 values for the six suspected resistant biotypes (R1, R2, R3, R4, R5, and R6) and a susceptible (S) biotype were 1667.2, 1195, 830.7, 672.4, 4458.7, 140.5 and 338 g ai ha⁻¹, respectively. This indicated that the R-biotypes were 30.49, 21.85, 15.18, 12.39, 81.54 and 2.56-fold resistant to metribuzin, respectively, as compared to the S-biotype. Gene sequencing revealed that serine to glycine substitution at residue 264 of the D1 protein was occurred in the R-biotypes (except R4 at residue 264). Also the R-biotypes R, R2, R3, R5 and R6) were heterozygous at this residue. It was concluded that one of the different mechanisms of herbicide resistance in the R-biotypes was target site based resistance.