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Isoenzyme Variation of Esterase and Acid Phosphatase and Genetic Affinities among Dasypyrum villosum (L.) P.Candargy, Elytrigia repens (L.) Nevski and Elymus caninus (L.) L.

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Abstract: Polyacrylamide gel electrophoresis was employed to study the isoenzyme variation of esterase and acid phosphatase in natural populations of Dasypyrum villosum (L.) P.Candargy, Elytrigia repens (L.) Nevski and Elymus caninus (L.) L. Four similarity indices (SI, S, D, I_h) were calculated in an attempt to evaluate quantitatively genetic affinities among the species examined. Considering index D, the species D. villosum proved to be equally distant (D = 0.17 in both cases) from the species pair Et. repens and El. caninus. The nearly twice lower value of D for the comparison between Et. repens and El. caninus is an indication of their stronger genetic relationship. Mean values of indices I_h, SI and S also indicated that D. villosum is the most distinct species within the group studied. The results were discussed in the light of chloroplast DNA sequence data, suggesting a close affinity among the genera Dasypyrum (Coss. & L.Durieu) T.Durand, Elytrigia Desv. and Elymus L. The results of the present isoenzyme study are not in congruence with cpDNA analysis. Both isoenzyme and DNA data suggest that the phylogenetic position of the genus Dasypyrum within the tribe Triticeae remains unresolved.

Key Words: Dasypyrum villosum, Elytrigia repens, Elymus caninus, esterase, acid phosphatase, isoenzyme variation, genetic affinities

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