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ISOZYME VARIATION AT SELECTED LOCI IN PISUM

Weeden, N. F. NYS Agricultural Experiment Station, Geneva, NY, USA

Several recent studies have demonstrated the existence of allelic variants (allozymes) at isozyme loci in Pisum and have used such variation to help elucidate relationships among taxa within the genus (1,2). In an effort to identify additional allozymic variation for linkage and biochemical studies I surveyed approximately 100 diverse lines and ten USDA Plant Introduction accessions. The latter group included samples labelled P. elatius. P. jomardii. and P. sativum ssp. syriacum. abyssinicum and hortense. The 43 isozyme stains used in the survey permitted the visualization of products from 77 distinct loci. Of these, 40 were found to exhibit allozymic forms. The list of currently available isozyme variants is given in Table 1 along with the lines in which the rarer variants were discovered. This author would appreciate information regarding polymorphism at additional isozyme loci not included in Table 1.

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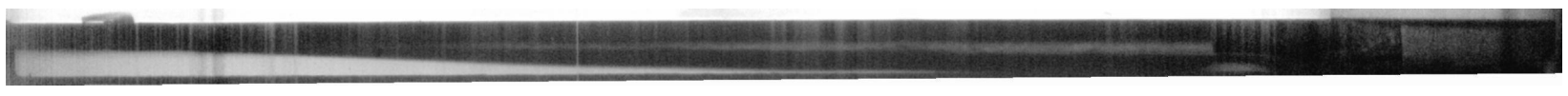

Table 1. Polymorphic loci identified in Pisum

Locus	Line possessing rare variant*
Acid pnosphatase-1	GAM A1 078-236
Acid pnosphatase-2	GAM A1078-23*
Acid phosphatase-3	GAM A1078-236
Aldolase-1	P.I.3*3993
Alcohol dehydrogenase-1	(see reference 2)
Aspartate aminotransferase-2	many
Aspartate aminotransferase-3	P.I. 2 42 0 27; GAM A1078-234
Amylase-1	P.I. 343997
Diaphorase-2	P.I. 268480
Esterase-1	GAM B77-257
Esterase-2	GAM B77-257
Esterase-3	GAM A78-237
Esterase-4	many
Fructose bisphosphatase-1	P.I.3 5 86 1 5
Fructose bisphosphatase-2	GAM C282-243
Fumarase-1	many (GAM C282-243; C282-295
Galactosidase-1	P.I. 268480
Galactosidase-2	P.I. 268480
Glucose 6-P dehydrogenase-2	P.I. 358612
Glutamate-pyruvate transaminase-1	P.I. 343993
Isocitrate dehydrogenase-1	GAM A78-237
Leucine aminopeptidase-1	many
Leucine aminopeptida se-2	P.I. 273209
Malate dehydrogenase-1	P.I. 343997
Malate dehydrogenase-2	P.I. 343997
Malate dehydrogenase-3	P.I. 242027
Malic enzyme-1	P.I.3 5 86 1 2
Mannose phosphate isomerase	P.I. 343993
Peroxidase-2	GAM C282-172
Phe-pro peptidase	many (P.I. 343985)
Phosphoenolpyruvate carboxylase-1	P.I. 343972
Phosphoenolpyruvate carboxylase-2	P.I. 343972
Phosphoglucomutase-1	GAM B77-260
Phosphoglucomutase-2	many
Phosphoglucose isomerase-2	P.I. 343972
6-Phosphogluconate dehydrogenase-1	many
6-Phosphogluconate dehydrogenase-2	many
3-Phosphoglycerate kinase-1	P.I. 358612
3-Phosphoglycerate kinase-2	P.I. 358612
Shikimic dehydrogenase-1	many

"GAM" refers to lines obtained from Dr. G.A. Marx; "P.I." refers to accessions obtained from the Northeast Regional Plant Introduction Station, Geneva, NY; "many" refers to cases in which each allele was found in many different lines.