

MALATE DEHYDROGENASE ACTIVITY DURING MATURATION AND
DURING THE EARLY TIME OF GERMINATION IN ONION SEEDS.

M. Perl, The Volcani Center, Bet Dagan, Israel.

The characteristics of the MDH activity in extractions from onion seeds (*Allium cepa* cv. Ben Shemen), have been established. The optimal pH found is between 6.8-7.6 with a decrease to 50% at 6.2 and 8.4. The Km values for NADH₂ and for oxaloacetate are 55 μ M and 23 μ M respectively. The activity is linear up to 20 μ g protein/ml. The Vmax values were examined at various stages of seed maturation and at the early time of germination (up to radical emergence). In premature seeds (green seeds) the Vmax (presented as μ M \cdot min \cdot mg protein) is 1.6 and the activity increases during maturation to 2.9 and 5.7 in brownish and black seeds respectively. During germination a further increase occurs up to two hours of imbibition, reaching a Vmax of 8.5, after which a sharp decrease is observed. After 24 h of imbibition, when the radical emerges, activity falls to a value of 2.0. Treated seeds for seed invigoration, which resulted in stimulation of pregermination activities but prevented radicle emergence, exhibited during time of treatment an increase to a peak followed by a decrease in MDH activity, obtaining a similar profile to that found during germination time. A possible role of MDH activity in onion seed vigor is suggested.