

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

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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 K_m values for $NADH_2$ and for oxaloacetate are 55 μM and 23 μM respectively. The activity is linear up to 20 μg protein/ml. The V_{max} 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 V_{max} (presented as $\mu M \cdot min \cdot mg$ 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 V_{max} 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.