The catalase specificity of the inhibitor is demonstrated by the fact that, while it is fully active on beef liver catalase (1), it does not inhibit maize peroxidases, a group of catalytically related hemoproteins (Table 1).

Table 1

Effect of inhibitor on peroxidase. Scutellar extracts from days 1 & 4 were assayed for peroxidase and catalase activities, mixed in a 1:1 ratio, and assayed again for both enzymes.

	Peroxidase activity	Catalase activity
Day 1 Extract	12.6 u/ml	144 u/ml
Day 4 Extract	68.6	73
Expected Activity	40.6	109
Observed Activity	41.0	62
% Inhibitor	0	43

Work supported in part by AEC Contract AT (11-1)-1338.

Reference:

(1) Sorenson, J. C. and J. G. Scandalios. Isozyme Bulletin #6, 1972.

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2. Purification of maize peptidases.

Leucine aminopeptidase isozymes in maize have been investigated by Scandalios (J. of Heredity 56:177, 1965) and by Beckman, Scandalios, and Brewbaker (Genetics 50:899, 1964). The aminopeptidases were shown to be controlled by four separate loci each exhibiting a pair of codominant alleles. Recently, a maize enzyme which cleaves the trypsin substrate, α-N-benzoyl-DL-arginine p-nitroanilide, was found in maize (Melville and Scandalios, Biochem. Genetics 7:15, 1972). A fast (more anodally migrating at pH 7.0) or slow variant is present in maize inbreds. Heterozygotes possess both isozymes with no hybrid enzyme band

formation. Genetic analysis showed the variants to be co-dominant alleles of a single locus designated Ep-1.

Quantitative assays for LAP and endopeptidase activity show the highest levels for both occur in the developing kernel and in the scutella and embryo of the germinating seedling.

We are presently attempting to co-purify the aminopeptidases and the endopeptidase from the inbred line W64A, which possesses the fast endopeptidase variant. One-day imbibed seed are used. Three LAP bands are present in the crude extract (LAP-A, LAP-B and LAP-C, with respect to decreasing anodal migration at pH 7.0). Both LAP and the endopeptidase precipitate at 40-55% saturation with ammonium sulfate and elute from a G-100 Sephadex column in the same volume. The enzymes bind to PE-52 Whatman cellulose at pH 7.5 and are eluted with a linear KCl gradient. An activity peak containing LAP-C elutes before a peak of activity containing LAP-A and LAP-B (as indicated from electrophoresis of the fractions). The endopeptidase peak is intermediate. Homogeneity has not been achieved yet as protein OD280 peaks do not correspond with enzymatic peaks. The endopeptidase shows activation upon addition of ammonium sulfate to 40% saturation. Activation results in activities of approximately 250% of the level of activity in the crude extract. LAP does not show activation.

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3. Diaphorase isozyme patterns in the immature endosperm of Zea mays kernels.

Diaphorase (E.C. 1.6.99.-) is a low molecular weight, flavin-containing enzyme which is involved in electron transport in the oxidation of NADH. As well as being found in the free enzyme, diaphorase is also associated with a number of substrate inducible, multisubunit enzymes, such as nitrate reductase and sulfite reductase. In these multisubunit enzymes, the diaphorase active site has been shown to be distinct from the other activities of the enzymes [Losada, M. et al. (1968) Prog. Photosyn. Res. Proc. Int. Congr. 3, 1504-9].

It is conceivable that the diaphorase gene also codes for the subunit which contains this activity in other enzymes. The zymogram