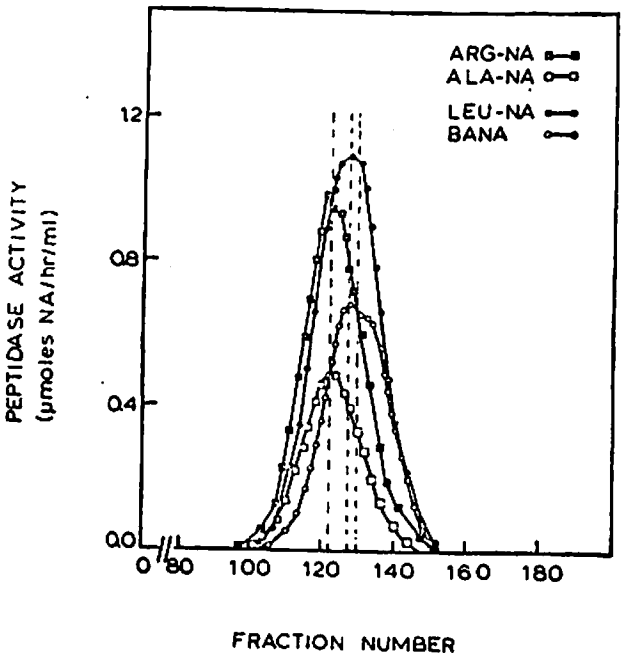

Figure 2. Molecular weight determination for maize endo- and aminopeptidases by elution from G-200 Sephadex. Dotted lines denote the peaks for the indicated activities.

the maize aminopeptidase isozymes do overlap in specificities, they are distinct enough to show the molecular weight differences.

Lila A. Ott and John G. Scandalios

Quantitative expression of alcohol dehydrogenase (ADH) and the ADH-specific inhibitor during germination

Quantitatively, ADH in any given tissue, including the scutellum, the root, the shoot and the endosperm, declines sharply after germination (Fig. 1). Ho and Scandalios demonstrated that the decline of ADH in the scutellum is due to the increase of an endogenous ADH-specific inhibitor (Plant Physiol.56:56, 1975). Further studies suggested the regulation of ADH in the root and in the shoot follow the same scheme: the control of the degenerative process of ADH activity relies on the buildup of a specific inhibitor to the enzyme. The inhibitor activity would then maintain at a certain level after the fourth day of germination (Fig. 1). In contrast, in the endosperm, the inhibitor activity is low and does not increase significantly after germination. Presumably, the inactivation of the enzyme in this tissue preceded the formation of the inhibitor prior to kernel maturation. In fact, the enzyme level in the endosperm of dry seeds is significantly lower than that in the milky endosperm stage. The decrease of ADH activity in the endosperm during kernel development has been reported to be due to inactivation of pre-existing enzyme (D. Fischer, MNL 47:55, 1973). Control of ADH activity after germination does not rely only on the inhibitor; when 6 day-old seedlings were subjected to anaerobic conditions, ADH was found to be increased in the root and the shoot but not in the scutellum and the endosperm. Whether it is due to de novo synthesis or other activating mechanisms for ADH protein molecules is not yet known. Correlations between the anaerobic "induction" and inhibitor levels are being investigated.

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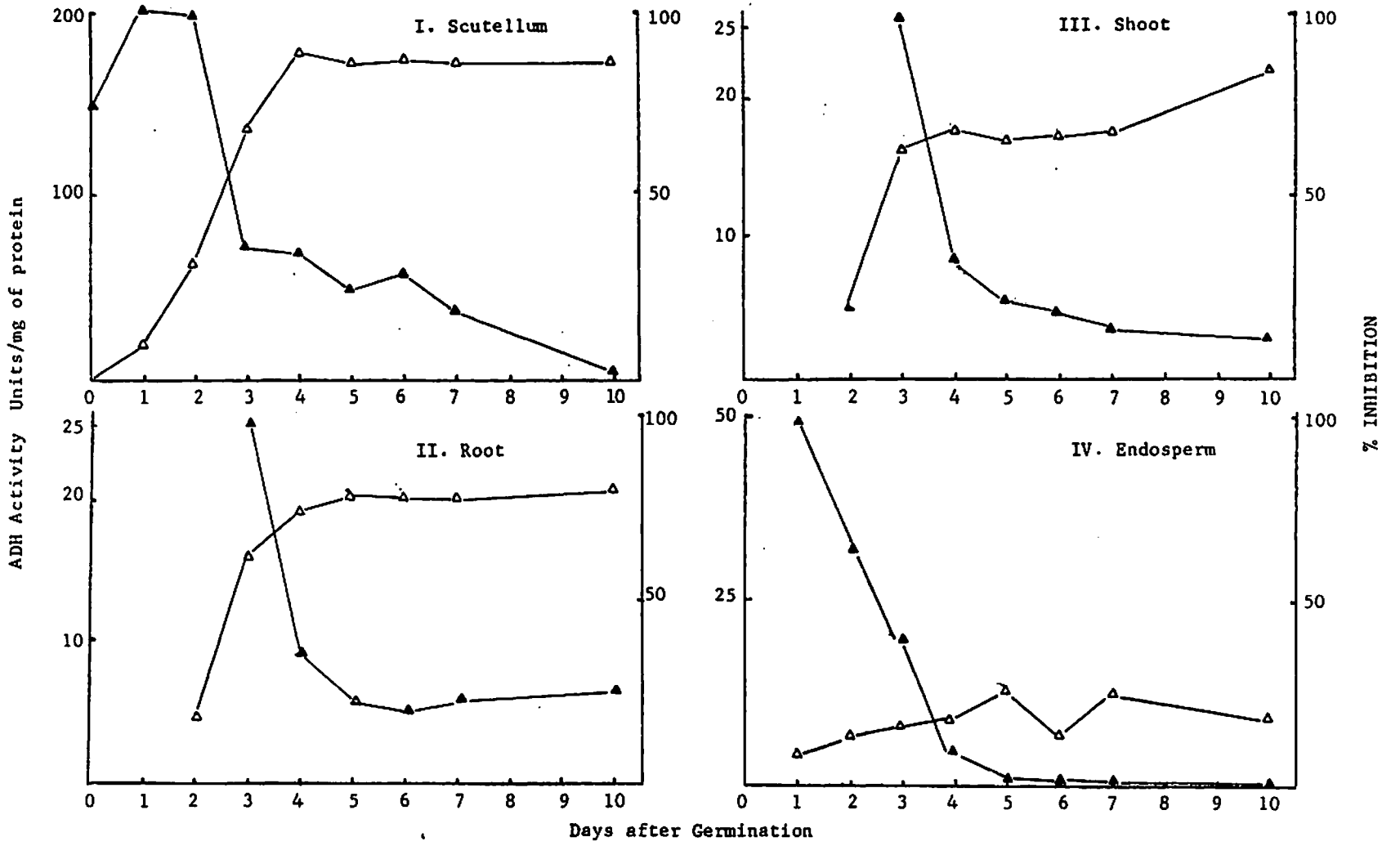

1 unit = $0.01 \Delta O.D._{340}/min$ (All Enzyme assays and Inhibitor assays are performed as described, Ho and Scandalios, Plant Physiol. 56:56, 1975)