different inbred maize strains and from several pea mutants, and all gave negative peroxidase activity.

John G. Scandalios
Elmer C. Rossman*
Luci G. Espiritu**

*Department of Crop Science, Michigan State University, East Lansing, Michigan.

**Present address: Botany Department, Laguna, Philippines.

2. <u>The genetics of amylases in maize.</u>

Amylases of maize were separated into two zones by acrylamide gel electrophoresis, at pH 8.2. The fast (Zone-1) and slow (Zone-2) anodal zones are tentatively identified as alpha- and beta-amylase, respectively. Genetic variants were found in both Zone-1 and Zone-2. Genetic analysis of the Zone-2 amylase showed that the variants at this zone are under the control of two alleles acting without dominance. The resolution of Zone-1 amylase was found to be best by assaying endosperm extracts from 10-day old seedlings. Preliminary genetic analysis of 220 F_2 seedlings indicates that Zone-1 amylase is controlled by two alleles independently from the Zone-2 amylase.

The possibility of genetic linkage between Zone-2 amylase and several other genetically well-defined isozyme systems in maize was examined in our efforts to assign the amylase genes on specific chromosomes. Genetic linkage was assessed through backcross and F_2 progeny by electrophoretically assaying individual kernels, 16-20 days after pollination. The data from such experiments are summarized in the table below. It appears that <u>Amy-2</u> and <u>Ct</u> (catalase) are linked on a chromosome within 5 map units of each other. No linkage was detected between <u>AcP</u> (acid phosphatase) and <u>Amy-2</u> or <u>Ct</u>.

The crossover frequencies among the three loci, _Amy-2_, _Ct_, and _AcP_.

Crosses	Amy-2:Ct		Amy-2:AcP		Ct:AcP	
	Total	Crossover	Total	Crossover	Total	Crossover
W64A x (W64A x 6)	180	0.09 ± 0.02	100	0.53 ± 0.05	101	0.53 ± 0.05
6 x (W64A x 6)	118	0.05 ± 0.02	120	0.54 ± 0.05	119	0.50 ± 0.05
(W64A x 6) x (W64A x 6)	278	0.05 ± 0.01	312	0.49 ± 0.03	298	0.49 ± 0.03

The genotypes of the two inbreds are:

$$W64A = \frac{Amy-2^B \; Ct^S \; AcP^A}{Amy-2^B \; Ct^S \; AcP^A} \; ; \; 6 = \frac{Amy-2^A \; Ct^F \; AcP^B}{Amy-2^A \; Ct^F \; AcP^B}$$

Su-En Chao
John G. Scandalios
Ray G. Sculley

UNIVERSITÀ DI MILANO
Milan, Italy
Istituto di Genetica

1. <u>Transfer of instability of the P Sst complex to the P component.</u>

The compoundness of the _R_ locus allows an analysis of the manner in which the _P_ component of _R_ is affected by its association in coupling with an unstable _S_ component (S^{st}). The first step of this analysis is the recovery of _P_ _S_st intralocus recombinants. Two of these recombinants have been previously isolated (Gavazzi and Avila, M.N.L. 1968) and reproduced.

Contrary to our earlier observations, descendants of these intralocus recombinants show pigment variegation in their sporophytic tissues. The variegation, when roots or coleoptile tissues are observed at low magnification (20x), consists of a series of contiguous red stripes.