

studies. Thus, three locus designations in our 1972 report have been changed, from Px₈ to Px_A, from Px₉ to Px_B and from Px₁₀ to Px₈. The nine loci and their alleles are listed below:

<u>Locus</u>	<u>Alleles</u>
<u>Px₁</u>	1,2,3,null
<u>Px₂</u>	1,2
<u>Px₃</u>	1,2,3,4,5,6 (=1+2)
<u>Px₄</u>	1,2,3
<u>Px₅</u>	1,null
<u>Px₆</u>	1,null
<u>Px₇</u>	1,2
<u>Px₈</u>	1,2
<u>Px₉</u>	1,null

Px₈ genetic polymorphisms were studied in steles or in young mesocotyls, prior to synthesis of the neighboring Px₃ band, which is restricted to cortex cells (see below). At least four isozymes (or "allozymes") occur in this region in different inbreds, but our present data unequivocally define only two of these as allelic, Px₉ is present in comparatively few inbreds (e.g., AA8, CI64, CI66, H55, Oh51A, R168), and absence segregates as a recessive allele. Px₉ action was also studied in stele of mesocotyl and in the pericarp; it is an exceptionally heat-labile enzyme among the maize peroxidases (band A-5 in Chenchin & Yamamoto, 1973, J. Food Sci. 38:40).

Additional studies of the Px₇ locus, aided by electrophoresis at high pH and low gel concentrations, confirm allelism of the fast and slow bands; however, data obtained from progenies with null types (inbreds B37 and CI66) do not presently permit us to distinguish between allelism or separate locus control mechanisms. Further studies have also given no convincing evidence that allele 6 of Px₃, which displays bands identical to both alleles 1 and 2 in homozygotes, is separable by crossing over.

With the exceptions of enzymes A and B, all of the peroxidases of maize have distinct tissue specificities. These specificities are given below, unique among them being the endosperm tissue culture results (T. T. Yu, unpublished data).

Peroxidases of maize

Tissue	Locus known									Locus unknown			
	1	2	3	4	5	6	7	8	9	A	B	D	E
Leaf	+	0	+	+	0	+	+	0	0	0	0	0	0
Coleoptile	+	0	+	+	v	+	+	+	+	0	0	0	0
Mesocotyl	+	0	+	+	v	+	0	+	+	0	0	0	0
Stele	+	0	0	0	v	0	0	+	+	0	0	0	0
Cortex	+	0	+	+	v	+	0	0	0	0	0	0	0
Stem apex	0	0	0	+	0	+	+	0	0	0	0	0	0
Pericarp	+	0	+v	+	+	0	+	+	+	0	0	+	+
Embryo	0	0	0	+	0	0	0	+	+	0	0	+	+
Endosperm	0	0	0	+	+	0	0	0	+	0	0	+	+
Silk	+	0	0	+	0	0	+	0	0	0	0	0	0
Pollen	0	+	0	0	+	0	0	0	0	0	0	+	0
Root	+	0	0	+	0	+	0	v	0	+	+	0	0
Endosperm tissue cult.	+	0	0	+	0	+	0	0	0	+	+	0	0

* Bands prominent only in mature tissues

v Expression variable

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2. Aphid resistance under apparent monogenic control.

In the autumn of 1972, aphid resistance was observed among a series of related shrunken-2 inbreds of the general pedigree (RR) AA8sh BC3 S1. There were 18 resistant lines and 21 lines that were susceptible or segregating. Further studies confirmed the homozygosity of resistant lines, and their aphid resistance under a wide variety of infections. Sorghum plants have been used to provide severe aphid infestations, minimizing escapes, and aphids are only rarely seen on the resistant plants.

The origin of the resistance is as yet unclear, with several possibilities. The basic inbred under conversion, a shrunken-2 version of Hawaiian inbred AA8, has no resistance. Conversion was being made