

The idea that specific genetic information controls leaf insertion and thus the phylotaxy of the plant is not new. However, we are presented with a system for the study of other problems which in turn may provide suggestions on how the architecture of the corn plant may be further modified. The applied applications of this project are being considered.

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## 2. Acrylamide gel electrophoresis of maize pollen protein.

Pollen proteins have been separated by electrophoresis on acrylamide gel columns in pairs of large polyethylene reservoirs holding fourteen tubes per pair. The gels were prepared according to the method of Ornstein and Davis; the best travel and separation was obtained using a tris-glycine buffer of pH 9 in both upper and lower reservoirs and a current of 5mA per tube. The gels were stained with amido black and destained electrophoretically in an apparatus which allowed the current to be applied across the gel column.

Several preparations, obtained by subjecting the extracted protein to such preparatory treatments as ammonium sulfate precipitation and dialysis gave poorer resolution than the crude extract. The latter was prepared by homogenizing the pollen in cold mannitol buffer, 0.5 M pH 8.0, centrifuging at 20,000 g for 10 minutes and adding the supernatant to the columns.

Pollen and other parts of several different genotypes are being examined by this method.

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## 3. The separation and detection of some dehydrogenase isozymes in maize pollen.

The electrophoretic separation on acrylamide gels described above was used to detect several dehydrogenases in the pollen of "Seneca 60" ( $\frac{su_1}{su_1}$ ). Soluble protein extracted from fresh pollen in the mannitol buffer of pH 8.0 was separated and detected on the gels using a system containing nitroblue tetrazolium (Fine and Costello, Methods in Enzymology, Vol. VI).

The method used differs from that of Ornstein and Davis in that the protein sample was mixed with a solution of 50% sucrose and was added directly on top of the large pore gel without any further polymerization. When this method is used, care must be taken to add the buffer in such a way that there is a minimum amount of agitation.

Two or more isozymes of the following NAD-dependent dehydrogenases were detected: malic, glutamic, lactic and alcohol. Five distinct isozyme bands were found for malic dehydrogenase.

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