Research Notes: Cotyledon Culture

John F. Thompson  
United States Department of Agriculture

James T. Madison  
United States Department of Agriculture

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1) Cotyledon culture.

A procedure for aseptically culturing immature soybean cotyledons has been developed to study the synthesis of seed storage proteins. Experiments were carried out so that one cotyledon from an embryo was compared to the second cotyledon. Cotyledons were normally incubated for 6 days at 25°C in light with gentle shaking. The medium was modified from Linsmaier and Skoog (1965) by omitting any auxin and by replacing NH₄NO₃ and KNO₃ with glutamine (30-120 mM).

Under these conditions, cotyledons grew better than on the plant and produced more protein. Both major groups of storage proteins (7S and 11S) increased throughout the culture period. The relative amount of these two storage proteins was similar to that of cotyledons developed on the plant.

Using this culture method in pulse-chase experiments with tritiated glycine, the turnover of storage proteins was found to be very slow while the half life of the nonstorage proteins was 1 to 2 weeks.

Reference

John F. Thompson—USDA
James T. Madison—USDA

1) Progress in obtaining soybean haploids 2n = 20.

Male sterility gene ms₁ from North Carolina was transferred to maturity groups I, II, and III over the last few years to facilitate the use in Wisconsin of the twinning and haploidy phenomena associated with ms₁ms₁ plants. In 1975 we had an extended fall growing season and seed was obtained from several hundred male sterile ms₁ms₁ plants, representing maturity groups I, II, III,