ISOLATION AND CHARACTERIZATION OF t-RNAs AND r-RNAs IN COTTON

Dr. Frank R. H. Katterman, Plant Breeding Department

Another fraction of t-RNA from cotton seed meal was isolated in addition to the four (4) already well characterized fractions. This new fraction is different in that it was not isolated by the detergent method but resulted from a physiological saline extraction of the meal. Although its nucleotide composition differs radically from Fractions I and II, it has the same number of methylated nucleotides as does the latter. More characterization studies are now in progress.

With regard to the four (4) well characterized t-RNA fractions, four (4) separate isolations of each of the fractions from a single species of Gossypium was undertaken. It was found that the base ratio composition of three of the fractions, as well as the newly described one, was consistent between isolations. This was not true for Fraction I. This indicates an incomplete release in some instances of the particular set of t-RNAs that compose Fraction II. Therefore, some caution should be taken in interpreting base ratio changes of Fraction I between different species of Gossypium as noted in previous cooperative work with scientists at Texas A & M University.

A technique has been worked out to isolate both chloroplastic and cytoplasmic monomeric ribosomes from 7-10-day-old cotton cotyledons. This technique will be used to study the relative ribosomal contents of both classes in a variegated mutant variety of cotton. This in turn should partially clarify the mechanism involved in the production of this mutant.

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GAMMA IRRADIATION OF POLLEN OF MARKER LINES FOR THE ISOLATION OF PLANTS DEFICIENT FOR SPECIFIC CHROMOSOMES

J. E. Endrizzi and T. E. Taylor, Head, Department of Plant Breeding and Assistant in Research

One of the major objectives of the research project on the cytogenetics of cotton is the isolation of a monosomic chromosome for each member of the genome in the cultivated tatraploid species. The monosomic chromosomes are ideally suited for the investigation of the genetic factors carried by each chromosome. Presently, eight of the chromosomes of Gossypium hirsutum have been reported to be identified by monosomy. Monosomes for several other chromosomes in the complement have also been isolated, and these are in the process of being studied genetically and cytologically.