These results permit possible structural changes in the hemoglobin molecule taking place under the action of TCA in urea solution to be suggested, as is indicated by the appearance of characteristic absorption at 400 nm.

## LITERATURE CITED


1. H. R. Mahler and E. H. Cordes, Biological Chemistry, Harper and Row, New York (1966) [Russian translation, Moscow (1970), p. 115].
2. F. Haurovitz, The Chemistry and Functions of Proteins, 2nd edn., Academic Press, New York (1963).


# ELECTROPHORETIC INVESTIGATION OF THE PROTEINS OF COTTON SEEDS


D. A. Khashimov, B. D. Dzhailov
and P. Kh. Yuldashev



UDC 575.173


The detection and study of protein markers responsible for valuable economic features is of great importance for the national economy [1].

An electrophoretic study of the protein composition of cotton seeds in the presence of sodium dodecyl sulfate and 2-mercaptoethanol has permitted the detection of the heterogeneity of the salt-soluble fraction [2] but in this process the quaternary structure of the proteins is disturbed, while the retention of the native nature of marker proteins is important for the investigation of their biological functions [3].

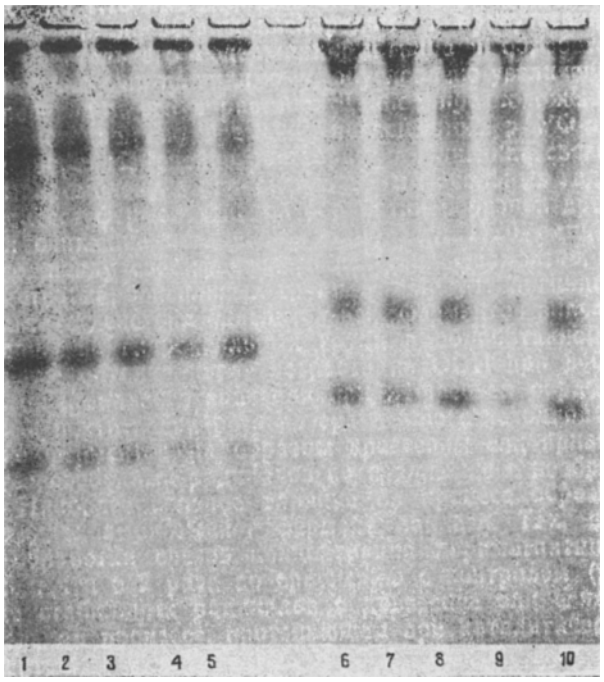


Fig. 1. Electrophoretogram of the proteins of individual seeds of the varieties Tashkent-1 (G. hirsutum L (1-5) and S-6030 (G. barbadense) (6-10).


Institute of the Chemistry of Plant Substances of the Uzbek SSR Academy of Sciences, Tashkent.


Translated from Khimiya Prirodnykh Soedinenii, No. 5, pp. 661-663, September-October, 1986. Original article submitted June 2, 1986.



0009-3130/86/2205-0627$12.50

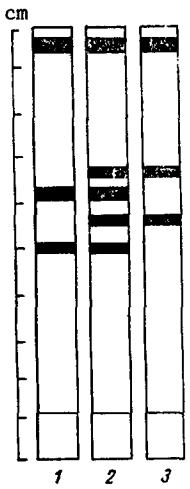


Fig. 2. Electrophoretograms of the characteristic proteins of G. hirsutum (1) and G. barbadense (3) and their 1:1 mixture (2).

The aim of our investigation was to find conditions under which individual proteins specific for a given concrete type of cotton plant are revealed. The proteins were extracted with 0.375 M Tris-HCl buffer, pH 8.9, in a ratio of 1:10 from the seed flour that had been defatted and washed three times with distilled water. Protein extracts of the seeds of cotton plants of the varieties Tashkent-1 (Gossypium hirsutum L) and S-6030 (G. barbadense L.) of the 1984 harvest obtained under strictly identical conditions were investigated. The concentration of the proteins was determined by Lowry's method [4]. Electrophoresis was performed as described by Davies [5] at a voltage of 450 V and a current strength of 40 mA per gel plate. The results, which are presented in Fig. 1, show that the main characteristic proteins have $R_f$ 0.43 and 0.51 for the Tashkent-1 variety and $R_f$ 0.37 and 0.48 for the 6030 variety.

A scheme of the electrophoresis of these proteins and their 1:1 mixture is shown in Fig. 2. The results obtained permit the assumption that the proteins found in the cotton plants G. hirsutum and G. barbadense may possibly be marker proteins for these species.

LITERATURE CITED

1. A. A. Sozinov, The Polymorphism of Proteins and Its Value in Genetics and Breeding [in Russian], Moscow (1985), p. 272.
2. E. Yu. Chugunova, T. I. Odintsova, Ts. A. Egorov, and A. A. Sozinov, Biokhimiya, 50, No. 6, 1030 (1985).
3. V. G. Konarev, Plant Proteins as Genetic Markers [in Russian], Moscow (1983), p. 27.
4. O. H. Lowry, N. J. Rosebrough, A. L. Farr, and R. J. Randall, J. Biol. Chem., 193, 265 (1951).
5. B. J. Davies, Ann. N.Y. Acad. Sci., 21, 404 (1964).