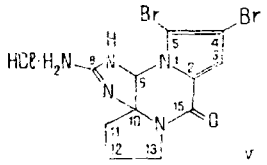
(t,C-12)] confirmed the structure of compound (V) as that shown below



V

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LOW-MOLECULAR-WEIGHT RNAs FROM PLANT SEEDS

Kh. R. Nuriddinov, M. R. Nuriddinova, and R. N. Nuriddinov

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In the present paper we give the results of a comparative electrophoretic study of the cytoplasmic low-molecular-weight RNAs (lm RNAs) isolated from postmitochondrial supernatants from homogenates of defatted flours or the seeds of the cotton plant (Gossypium hirsutum), the mung bean (Phaseolus aureus), and kenaf (Hibiscus cananabinus) and the tissues of bakers' yeast (Saccharomyces cerevisiae). The ln RNAs were isolated from the total ribosomal RNA (total rRNA) by a procedure described previously [1, 2]. The preparation of total rRNA from bakers' yeast was used as the standard. Electrophoresis was performed in 10% polyacrylamide gel (PAG) in 0.05 M Tris borate buffer with pH 8.3 containing 0.001 M EDTA-Na_2 in the presence of 7 M urea. The copolymerization for the preparation of the PAG in 6 × 100 mm tubes was performed at room temperature, the amounts of initiator (ammonium persulfate) and catalyst (TEMED) being selected experimentally at 0.05% each. Preliminary electrophoresis was performed for an hour at a voltage of 10 V per centimeter height of the gel. On one tube of gel with a volume of 50-60 μl was deposited 7-10 OU_{260} of the total rRNA denatured at 50°C for 3 minutes in 0.005 M Tris borate buffer with pH 8.3 containing 0.001 M EDTA-Na_2 and 7 M urea [3].

Electrophoresis was performed at a voltage of 18 V per centimeter height of the gel for 2.5-3 h. The gel was stained by the procedure described previously [2].

The electrophoretic pattern (Fig. 1) showed that the total rRNA from plant seeds did actually contain a set of lm RNAs in addition to tRNA and the 5S and 5.8S rRNAs. In the quantitative respect the amounts of the 7S and > 7S lm RNAs were the greatest among the components of the spectrum of the lm RNAs in the total rRNAs. For each plant studied we established the characteristics spectrum of the lm RNAs. The spectra of the lm RNAs of the different plants had lm RNA zones with the same mobility and also zones characteristics of each given plant. The results obtained show that during the isolation process not only the ribosomes but also other ribonucleoproteins (RNPs) present in the cytoplasm of the cells of

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

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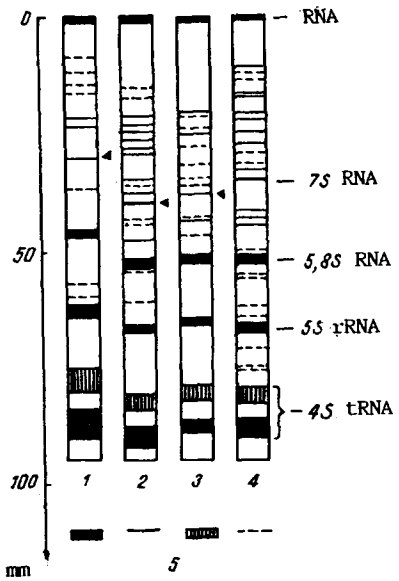

Fig. 1. Electrophoresis of the lm RNAs from the cytoplasm of yeast cells (1), and of the seeds of the mung bean (2), kenaf (3), and the cotton plant (4) in 10% PAG. 5) Indication of the degree of coloration of the RNA zones in order of decreasing intensity of coloration of the zones from left to right.

plant seeds pass into the precipitate. Some of these probably contain lm RMAs. This agrees with the results obtained in a study of the lm RNAs of mammals and lower eucaryotes [4, 5].

Thus, the cytoplasm of dormant cells of plant seeds contains characteristic sets of lm RNAs such as have been detected previously in the cells of mammals, birds, amphibians, and lower eucaryotes.

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