

INFLUENCE OF THE FUNGICIDE "UZGEN" [BENLATE] ON THE QUALITY  
OF THE FOOD PROTEIN FROM COTTON SEEDS

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Workers at the Institute of Plant Substances of the Academy of Sciences of the Uzbek SSR have proposed the anti-wilt preparation "Uzgen" [1]. In view of the promising use of this fungicide in agriculture, especially cotton-growing, investigations in the field of the analysis of the quality of the fibres and of the seeds of the cotton plant after treatment with this preparation are extremely urgent.

The active principle of "Uzgen" is 1-n-butylcarbonyl-2-methoxycarbonyl-aminobenzimidazole (benlate). The main product of its transformation in plants is methyl benzimidazol-2-ylcarbamate-2-MBC [2, 3]. We have investigated cotton seeds treated with this preparation in doses of 100 and 200 kg/ha. The oil was extracted from the seeds with chloroform-methanol (2:1). To determine the 2-MBC in the oil qualitatively we used a method that we have developed based on the chromatographic separation of the 2-MBC from the accompanying substances in a thin layer of silica gel in the benzene-butanol (9:1) system. 2-MBC was revealed in the form of a yellow spot on a pink background after spraying with a mixture of equal volumes of a 5% solution of  $\text{Na}_2\text{CO}_3$  and a 1% solution of  $\text{KMnO}_4$ .

As a result it was established that 2-MBC does not pass into the cotton seeds, which agrees with previous results [4].

Then we studied the quality of the food protein obtained from the seed meal of cotton plants treated with the preparation. The protein was isolated by a method which we have developed: extraction with a 5% aqueous solution of ammonium chloride.

The protein precipitated from the extract with hydrochloric acid and washed with water contained no 2-MBC or other toxic substances and corresponded in all its properties to the requirements set for plant food proteins.

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