

## CYTOPATHOGENIC METABOLITE OF THE FUNGUS

### *Verticillium Dahliae*

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From the culture liquid of the fungus *V. dahliae* K. of the Yangi-Yul' population grown on Czapek-Dox medium we have isolated by extraction and gel chromatography a substance which has been assigned to the oligosaccharides on the basis of qualitative reactions. Physiologically active compounds of a similar type are known in the literature [1, 2].

The isolated oligosaccharide has the following chromatographic mobilities:  $R_f$  0.58 [n-propanol-ammonia-water (10:1:1) system], 0.2 [butanol-acetic acid-water (4:1:5) system], and 0.55 [methanol-ammonia-water (16:1:3) system]. The chromatographic mobilities of the oligosaccharide studied were determined on Silufol silica gel plates. The IR spectrum showed absorption in the regions of 110, \* 1640, and 3200-3400  $\text{cm}^{-1}$  (borad band), which is characteristic for a carboxy group and a larger number of hydroxy groups. The results of an investigation of the products of the hydrolysis of the oligosaccharide have shown that it contains four monosaccharides. The oligosaccharide was hydrolyzed in 30% formic acid for 8 h. The products were chromatographed on paper in the ethyl acetate-acetic acid-formic acid-water (18:3:1:4) system. The results of hydrolysis were confirmed by  $^{13}\text{C}$  NMR spectroscopy.

The oligosaccharide possesses a high toxicity for cotton plants of the varieties 108-F and Tashkent-1. Its toxicity was tested on plants in the stage when four or five leaves are present. Using the preparation in concentrations of 120 and 150  $\gamma/\text{ml}$ , wilting of the leaves was observed on the third day, and chlorotic spots on the fifth day. The chlorotic spots increased in size with time, and on the ninth day the leaves yellowed completely and shrivelled up. Similar symptoms of the development of the disease were observed with concentrations of the substance of 30 and 60  $\gamma/\text{ml}$ , but far later.

#### LITERATURE CITED

1. J. Ralph Green, Jr., *Phytopathology*, **44**, No. 8 (1954).
2. S. Zel'tser, in: *Cotton Wilt* [in Russian], Tashkent (1966).

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