appearance of a rootlet. The activities of the substances tested were determined from the extent of growth. Control cotton seeds were kept in water. The trial showed that the greatest biological activity on germinative capacity (98%) and the growth of the plant was possessed by the carbohydrate fraction, the effects of the complex itself (95%) and of the control (84%) being smaller (Table 1). The length of the rootlet on the 8th day of growth of seeds that has been moistened in the carbohydrate fraction reached 25 cm, while it was 22 cm for the initial complex and 19.0 cm for the control. Shoots of the cotton seeds that had been treated with the carbohydrate fraction and with the complex (GLP) developed faster than the controls and subsequently had a more powerful root system — lateral rootlets appeared in them earlier than in the control specimens and in larger amount.

It must be mentioned that the preparations in a concentration of 0.01% gave a better stimulating effect than in a concentration of 0.001%.

Thus, a biologically active glycolipoprotein complex has been isolated for the first time from a culture of the blue-green algae of *N. muscorum* and its chemical composition has been studied. It has been shown that the growth-stimulating activity of the glycolipoprotein complex is probably connected with the carbohydrate fraction.

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DETECTION OF BACTERIAL LIPOPOLYSACCHARIDES BY A GEL-FORMING REACTION

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Bacterial lipopolysaccharides, which are a component part of the outer membrane of the cell wall of Gram-negative microorganisms, possess a broad spectrum of biological action. It is known that on the intravenous administration of drugs contaminated with bacterial pyrogens (in their chemical structure, pyrogens are lipopolysaccharides) serious complications are possible, the most characteristic of which is a rise in the body temperature. In view of this, the pharmacopoeias of the majority of countries provide for the performance of tests for pyrogenicity by a biological method on rabbits. This method has a number of serious disadvantages and, moreover, it is unsuitable for practical use in pharmaceutical enterprises. Among other methods of detecting bacterial pyrogens, the Limulus test, which is based on a gel-forming reaction of lysed amebic cells of the crab *Limulus polyphemus* with pyrogens has come into wide use. Without touching on the question of the advantages and disadvantages of this method, we may note only that the species of crab required for the analysis is absent from the fauna of our country. The development of more modern methods of detecting bacterial pyrogens remains an urgent task.

The capacity of Gram-negative marine microorganisms for forming a gel has been reported in the literature [1]. It is known that lipopolysaccharides are located in the surface layer of the cell coat of bacteria, occupy a considerable part of its surface, and largely determine the physicochemical properties of bacteria and the nature of their interaction with the environment. We therefore suggested a possible participation of lipopolysaccharides in the formation of the gel.

Six lipopolysaccharides, isolated from *E. coli* 0111, *E. coli* 055, *S. typhi*, *S. paratyphi* 0901, *Bact. prodigosum*, and *Ps. aeruginosa* (a mixture of serotypes 0.2; 0.25; and 0.5) were investigated. These lipopolysaccharides were supplied by the I. M. Mechnikov Moscow

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Institute of Vaccines and Sera, where they are obtained from the corresponding microorganisms by Westphal's method of aqueous phenol extraction.

The investigation was performed in the following way. One drop of a 3% aqueous solution of KOH was deposited on a microscope slide, various amounts of powders of the polysaccharides were added and, after mixing, the mixtures were observed at room temperature for 2-3 min. The samples of lipopolysaccharides were weighed out on a microbalance.

It was found that on the addition to a drop of a 3% solution of caustic potash of 50 and 20 μg of the powders of the lipopolysaccharide under investigation a gel was formed while om the addition of smaller amounts of the lipopolysaccharide powders (10 μg) no gel was formed.

Thus, the lipopolysaccharides take a direct part in the formation of a gel by pyrogen-forming microorganisms. The results show simultaneously the possibility of detecting lipopolysaccharides by the gel-forming reaction.

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FATTY OILS FROM THE SEEDS OF SOME PLANTS OF THE FAMILY FABACEAE

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We have investigated the fatty oils from the seeds of three representatives of wild-growing plants of the family Fabaceae: *Sophora alopecuroides* L. (environs of Alma-Ata, KazSSR), *Genista aetnensis* DC, and *Spartium junceum* L. (village of Karakala, TurkmSSR) — in comparison with the oil from the seeds of *Glycine hispida* Maxima growing in Kazakhstan.

We give results from the study of the amounts of carotenoids, tocopherols [1], and chlorophylls [2] in the seeds, and also the fatty-acid compositions of the oils. The fatty oils were isolated by extraction with petroleum ether (Table 1).

The fatty acid compositions of the oils (Table 2) were studied by gas-liquid chromatography on a Vyrukhrom instrument with a flame-ionization detector. The fatty acids were analyzed in the form of their methyl esters [3] on an 0.4 × 250 cm steel column filled with Chromaton NAW (0.40-0.60 mm) impregnated with 15% of poly(ethylene glycol succinate). Column temperature 204°C, evaporator temperature 250°C, pressure of the carrier gas 0.6 kg/cm^3.

TABLE 1. Physicochemical Constants of the Fatty Oils

Constant	Sophora alopecuroides	Genista aetnensis	Spartium junceum	Glycine hispida
Yield, %	0.9	2,8	3,4	17,2
Color	Golden-yellow	Yellow-brown	Dark yellow	Golden-yellow
n_D^{20}	—	1,4738	1,4745	1,4783
d_4^{20}		0,918	0,922	0,923
Acid No., mg KOH/g	0,15	7,00	6,60	0,21
Saponification No., mg KOH/g	202	187	186	192
Iodine No., %	106	68	122	148
Unsaponifiable substances, %	15,5	6,4	9,6	5,4
Carotenoids, mg/kg	5,0	7,7	12,5	25,8
β-Carotene »	1,1	0,8	0,9	6,3
Tocopherols »	13,0	17,0	21,0	176,9
Chlorophyll a »	10,0	2,4	2,0	—
Chlorophyll b »	7,4	2,7	3,8	—

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