PHOSPHOLIPIDS OF THE COTTON PLANT OF VARIETY

S-6030

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Continuing a study of the phospholipids of the seed kernels of the thin-fibered cotton plant, we have investigated the wilt-resistant variety S-6030. The phospholipids were isolated by methods described previously [1, 2]. The total phospholipids amounted to 1.2% (on the absolutely dry kernels). Qualitative two-dimensional chromatography [3] showed the presence of eight phosphorus-containing spots. The main components were phosphatidylcholines (PCs), phosphatidylethanolamines (PEs), the phosphatidylinositols (PIs), which were obtained in the homogeneous form by column chromatography and preparative TLC. From the products of alkaline and acid hydrolysis and also from the results of IR spectroscopy, it was confirmed that they were glycerophospholipids. Enzymatic hydrolysis with phospholipase A₂ showed the position distribution of the fatty-acid radicals in the molecules of these phospholipids (Table 1).

In the phospholipids of the seed kernels of the variety investigated, as compared with those of variety S-6029 [2], an increase in the total degree of unsaturated fatty acids in the PCs and some increase in the degree of saturation in the PEs are observed while in the PIs there are no changes in the overall fatty-acid composition; we have obtained similar results for the phospholipids of variety S-6029 grown on a wilt-infected background [4].

TABLE 1

Fatty acid	Phosphatidylcholines			Phosphatidylethanolamines			Phosphatidylinositols		
	initial	position		initial	position		initial	position	
		1	2		1	2		1	2
12:0	0,5	—	1,6	1,0	—	0,9	0,9	—	1,9
14:0	0,6	1,3	1,1	0,5	—	0,7	0,6	—	1,8
16:0	20,1	37,0	2,6	32,3	65,7	2,1	36,0	70,0	3,8
16:1	1,7	3,5	1,2	1,1	2,0	—	2,0	2,2	2,0
18:0	2,6	4,2	—	1,4	2,0	—	5,4	7,0	—
18:1	26,9	24,8	27,0	7,8	1,7	13,7	9,7	8,7	11,2
18:2	47,6	29,2	66,5	55,9	28,6	82,6	45,4	12,1	79,3
Σ sat. acids	23,8	42,5	5,3	35,2	67,7	3,7	42,9	77,0	7,5
Σ unsat. acids	76,2	57,5	94,7	64,8	32,3	96,3	57,1	23,0	92,5

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