

**TRYPTIC PEPTIDES OF SPECIES-SPECIFIC PROTEINS  
FROM *Gossypium hirsutum* AND *G. barbadense* OF COTTON**

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We previously reported [1] the isolation and purification of identical and different peptides from tryptic hydrolysates of species-specific proteins of *Gossypium hirsutum* and *G. barbadense* of cotton. In continuation of these studies, we isolated and purified peptides H-t-3, H-t-4, H-t-7, and H-t-8 from *G. hirsutum* and B-t-3, B-t-4, B-t-7, B-t-8, and B-t-12 from *G. barbadense*.

Seeds of Tashkent-1 variety (*G. hirsutum*) and C-6030 (*G. barbadense*) were ground and defatted with acetone. The water-soluble proteins were rinsed out. The buffer-soluble proteins were extracted and desalted with ammonium sulfate. The proteins were purified as described previously [2].

Proteins from both cotton species were hydrolyzed by trypsin (enzyme:substrate, 1:50) in 0.1 N  $\text{NH}_4\text{HCO}_3$  at pH 8.0 for 4 h at 37°C and then lyophilized. The peptides were separated on thin-layer cellulose into peptide maps [3]. The peptides were scraped off and separated from the cellulose by extraction into 50% pyridine. The pyridine was removed in a rotary evaporator.

The peptides were purified by paper electrophoresis [4] and chromatography on FN-18 paper using pyridine—*n*-butanol—acetic acid—water (10:15:3:12). The N-terminus of the aminoacids was determined using the dansyl method [5]. The aminoacid composition was determined on an aminoacid analyzer after preliminary acid hydrolysis in 6 N  $\text{H}_2\text{SO}_4$  at 110°C for 24 h (Table 1).

TABLE 1. Aminoacid Composition of Tryptic Peptides of Species-Specific Proteins of *G. hirsutum* and *G. barbadense*

Aminoacid	H-t -3	B-t -3	H-t -4	B-t -4	H-t -7	B-t -7	H-t -8	B-t -8	B-t -12
Asp			0.9(1)	0.9(1)			1.1(1)	1.1(1)	
Thr			0.7(1)	0.7(1)			1.1(1)		
Ser			0.8(1)	0.8(1)			2.9(3)	0.9(1)	
Glu	2.2(2)	2.1(2)	2.1(2)	2.2(2)	1.9(2)	2.2(2)		3.2(3)	0.9(1)
Pro							2.1(2)		
Gly			1.1(1)	0.9(1)	1.2(1)	1.1(1)	0.9(1)	1.9(2)	1.1(1)
Ala			1.0(1)	0.8(1)				1.1(1)	
Val									
Met	0.8(1)	0.9(1)	0.7(1)	0.7(1)					
Ile	0.9(1)	1.1(1)					2.1(2)	2.1(2)	
Leu			0.9(1)	0.9(1)			1.1(1)	0.9(1)	
Tyr							0.8(1)	0.7(1)	
His			1.2(1)	1.1(1)					
Lys	1.1(1)	0.9(1)					0.9(1)	0.8(1)	1.1(1)
Arg			0.9(1)	0.9(1)	1.1(1)	0.8(1)			

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The aminoacid analysis showed that the compositions of peptides H-t-3 and B-t-3, H-t-4 and B-t-4, H-t-7 and B-t-7, and H-t-8 and B-t-8 are identical. Their positions on the peptide map are also identical. This suggests that these peptides are identical. Furthermore, it was previously demonstrated that peptides H-t-8 and B-t-8 have identical aminoacid sequences at the N-terminus [1]. This means that the N-terminus peptide for *G. hirsutum* proteins is H-t-8; for *G. barbadense*, B-t-8. The aminoacid analysis demonstrated that peptide B-t-12, which is absent among peptides of *G. hirsutum* proteins, is a tripeptide.

Thus, additional data are obtained that indicate the aminoacid sequences of *G. hirsutum* and *G. barbadense* proteins are homologous.

## REFERENCES

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