

**Table 2.** Concentration and Proportion of Amino Acids in Leaves, Stems, and Roots of Control and SOD-AS Antisense Plants

Amino Acids	Amino Acid Concentration (nmol/mg Dry Weight) and Proportions (%) <sup>a</sup>								
	Leaves			Stems			Roots		
	UT	SOD-AS7	SOD-AS9	UT	SOD-AS7	SOD-AS9	UT	SOD-AS7	SOD-AS9
Asp	1.0 (0.9)	1.0 (0.6)	0.7 (0.4)	6.7 (3) <sup>b</sup>	14.0 (7.7) <sup>b</sup>	15.6 (8.2) <sup>b</sup>	2.6 (4.2)	2.3 (4.6)	2.7 (5.1)
Asn	3.8 (3.4)	4.5 (2.8)	4.6 (2.8)	24.4 (11)	19.0 (10.4)	22.2 (11.7)	3.7 (6.1)	1.5 (3)	1.5 (2.8)
Glu	1.2 (1.1)	1.0 (0.6)	1.1 (0.7)	10.9 (4.9)	16.2 (8.9)	13.4 (7)	5.3 (8.6)	4.2 (8.5)	3.6 (6.8)
Gln	8.8 (8)	16.5 (10.5)	20.7 (12.9)	80.5 (36.4)	67.6 (37)	60.2 (31.8)	16.0 (25.9)	10.3 (20.9)	9.1 (17.3)
Pro	36.5 (33.4) <sup>b</sup>	26.0 (16.4) <sup>b</sup>	24.0 (15) <sup>b</sup>	62.5 (28.2) <sup>b</sup>	35.1 (19.3) <sup>b</sup>	32.3 (17) <sup>b</sup>	4.1 (6.7) <sup>b</sup>	2.1 (4.2) <sup>b</sup>	2.3 (4.3) <sup>b</sup>
Ser	23.8 (21.8) <sup>b</sup>	43.2 (27.5) <sup>b</sup>	47.6 (29.7) <sup>b</sup>	13.4 (6.1)	15.1 (8.3)	17.7 (9.3)	4.6 (7.4)	4.5 (9.1)	4.9 (54)
Others	34.4 (31.9)	65.6 (41.7)	61.5 (38.4)	22.5 (10.4)	14.0 (7.7)	27.6 (14.6)	24.6 (41.1)	24.4 (49)	28.4 (54)
Total	109±25 (100)	157±35 (100)	160±28 (100)	221±31 (100)	181±32 (100)	189±14 (100)	61.3±6 (100)	49.3±5 (100)	52.5±7 (100)

<sup>a</sup> Amino acids were separated and quantified in tobacco plants grown for 8 weeks on a complete N12 solution and for an additional 2 weeks on 8 mM NH<sub>4</sub><sup>+</sup> as sole nitrogen source. Values are the mean of six untransformed control plants (UT) and the two SOD-AS7 and SOD-AS9 transgenic lines for which three individual plants were analyzed (SOD-AS). Relative amino acid proportions are given in parentheses. Standard deviation for the individual amino acids was of the same order of magnitude when compared with the total amino acids.

<sup>b</sup> Significant changes in the amino acid proportions.

**Table 3.** Concentration and Proportion of Amino Acids in Phloem Sap and Xylem Sap of Control and SOD-AS Antisense Plants

Amino Acids	Amino Acid Concentration (nmol/mL) and Proportions (%) <sup>a</sup>					
	Phloem Exudate			Xylem Exudate		
	UT	SOD-AS7	SOD-AS9	UT	SOD-AS7	SOD-AS9
Asp	54.9 (5.1) <sup>b</sup>	94.8 (8.7) <sup>b</sup>	103.0 (9.1) <sup>b</sup>	35.8 (1.8)	31.2 (2.0)	32.4 (1.9)
Asn	47.9 (4.4)	42.1 (3.9)	46.1 (4.1)	195.0 (9.8) <sup>b</sup>	230.0 (15.1) <sup>b</sup>	248.0 (15.3) <sup>b</sup>
Glu	75.6 (7)	93.2 (8.6)	95.0 (8.4)	71.1 (3.6)	59.0 (3.9)	51.0 (3.1)
Gln	96.5 (8.9)	121.0 (11.1)	113.0 (9.9)	669.0 (33.6)	605.0 (39.8)	645.0 (39.6)
Pro	393.0 (36.5) <sup>b</sup>	251.0 (23.1) <sup>b</sup>	269.0 (23.7) <sup>b</sup>	288.0 (14.5) <sup>b</sup>	79.1 (5.2) <sup>b</sup>	69.3 (4.3) <sup>b</sup>
Ser	233.0 (21.6) <sup>b</sup>	340.0 (31.3) <sup>b</sup>	359.0 (31.7) <sup>b</sup>	108.0 (5.4)	78.0 (5.1)	72.0 (4.4)
Others	177.0 (16.4)	143.0 (13.2)	149.0 (13.1)	624.0 (31.3)	438.0 (28.8)	509.0 (31.3)
Total	1078±112 (100)	1085±48 (100)	1134±108 (100)	1990±182 (100)	1520±106 (100)	1627±139 (100)

<sup>a</sup> Amino acids were separated and quantified in tobacco plants grown for 8 weeks on a complete N12 solution and for an additional 2 weeks on 8 mM NH<sub>4</sub><sup>+</sup> as sole nitrogen source. Values are the mean of six untransformed control plants (UT) and the two SOD-AS7 and SOD-AS9 transgenic lines for which three individual plants were analyzed (SOD-AS). Relative amino acid proportions are given in parentheses. Standard deviation for the individual amino acids was of the same order of magnitude compared with total amino acids.

<sup>b</sup> Significant changes in the amino acid proportions.