BIOLOGICALLY ACTIVE COMPOUNDS FROM *Cacalia hastata* LEAVES. 2. CAROTINOIDS AND CHLOROPHYLLS

D. N. Olennikov, L. M. Tankhaeva, G. G. Nikolaeva, and S. M. Nikolaev

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We reported the presence of carotene in *Cacalia hastata* L. leaves [1]. We now present results of research on the chemical composition of photosynthetic pigments in leaves of this plant species. The pigment complex was isolated by extracting ground leaves with acetone at 50°C. The acetone extract was diluted with water and concentrated to an aqueous solution that was extracted with hexane until colorless. Chlorophyll concentrated at the water—hexane interface as dark flakes and was separated by vacuum filtration. The hexane solution was evaporated to dryness. The solid was dissolved in petroleum ether. Carotinoids and xanthophylls were separated as before [2] to produce three fractions, chlorophylls, carotinoids, and xanthophylls. The pure components were separated using column chromatography and TLC over silica gel [3]. Pure pigments were identified based on the properties of maxima in absorption spectra at 200-700 nm [4, 5], the location of bands on the chromatograms, comparison of the chromatographic mobility, and chromatography of mixed samples of the investigated compounds with authentic specimens of pigments isolated from fruit of seabuckthorn, mountain ash, tomato, red pepper, and nettle leaves.

The compounds were determined quantitatively by spectrophotometry using specific absorption coefficients [6, 7]. The pigment complex of *C. hastata* leaves contained α- and β-carotenes, lutein, zeaxanthine, violaxanthine, neoxanthine, chlorophylls a and b, pheophytins a and b, and pheophorbides a and b. Table 1 presents data for pigment accumulation in *C. hastata* leaves during plant development that are calculated per absolute dry mass. The content of carotinoids and xanthophylls is maximal during full flowering and reaches 586.07 mg%; of chlorophylls, 1.57%.

TABLE 1. Pigment Accumulation Dynamics in *Cacalia hastata* L. Leaves, mg%

Pigment	Start of vegetation	Vegetation		Budding (28.07)	Full Flowering (15.08)	Fruiting (28.08)
		(11.06)	(22.06)			
α-Carotene	-	8.85	9.60	28.48	25.66	20.47
β-Carotene	21.04	37.52	54.23	83.17	115.88	93.64
Lutein	58.17	121.74	163.13	233.75	274.09	272.24
Zeaxanthine	15.89	18.01	22.97	33.86	24.02	10.01
Violaxanthine	-	16.58	32.46	38.03	41.87	26.63
Neoxanthine	27.31	40.20	41.59	90.34	104.55	75.52
Chlorophyll a	298.02	532.32	554.78	620.62	812.46	780.96
Chlorophyll b	218.11	358.13	386.84	440.37	604.23	564.83
Pheophytin a	51.64	79.59	83.73	79.50	67.46	51.05
Pheophytin b	40.05	43.85	51.81	53.66	54.35	48.94
Pheophorbide a	5.41	8.58	10.64	17.83	21.28	27.88
Pheophorbide b	-	3.36	8.11	12.57	13.99	16.24

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