

STUDY OF THE TOTAL CONTENT OF CATECHINS IN DIETARY SUPPLEMENTS WITH POMEGRANATE

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Introduction. In the contemporary landscape, dietary supplements represent a promising domain for both the pharmaceutical and food industries due to the growing interest of consumers in maintaining good health. These supplements have the potential to complement prescription medicines, offering opportunities to mitigate health risk factors and reduce the likelihood of diseases. The pomegranate (*Punica granatum* L.), belonging to the family *Lythraceae*, stands out as a valuable source of polyphenols with potent antioxidant properties. This deciduous fruit-bearing tree produces arils that are rich in anthocyanins, catechins, flavonoids, and various derivatives of ellagic and organic acids. Notably, the peel of the pomegranate contains hydrolyzed ellagotannins, such as punicalagin, and a significantly higher amount of catechins and phenolic acids when compared to the arils.

Aim. Determine the total content of catechins in dietary supplements with pomegranate

Material and methods. The object of our study were dietary supplements with pomegranate: «Extract of pomegranate» (manufactured by Source Naturals), «Extract of pomegranate» (manufactured by Puritan Pride), «Extract of pomegranate» (manufactured by Vitacost). 2.0 g (exact mass) of each dietary supplements were dissolved in 96% ethanol and filtrated in a measuring flask with volume 50.0 mL, and made up to the mark by same solvent. An aliquot of the solution obtained was mixed with 1.0 mL of 1 % vanillin solution in 96 % ethanol and added in a 25 mL volumetric flask. Then, the solution was diluted with the addition of 0.5 mol/L HCl in 96 % ethanol solution. The mixture was analyzed at 505 nm after standing for 30 min. The calibration curve was plot-ted with interval concentrations of 100–400 · 10⁻⁶ g/mL, the calibration equation $Y = 0.0025X - 0.0851$ ($R^2 = 0.9951$). The total catechins in dietary supplements in dosage form, expressed as epigallocatechin-3-O-gallate was calculated by equation:

$$X(\%) = \frac{C_x \cdot K_{dil} \cdot m_{aver\ dos\ form} \cdot 100 \cdot 100}{m_s \cdot (100 - W)},$$

where C_x – concentration of epigallocatechin-3-O-gallate according to calibration curve, $C \cdot 10^{-6}$ g/mL; m_s – mass of sample, g; $m_{aver\ dos\ form}$ – mass of average dosage form, g; K_{dil} – coefficient of dilution; W – percentage of moisture, %.

Research results. The total content of catechins were 4.60±0.14% or 16.10±0.50 mg/tab, 3.22±0.14% or 11.60±0.50 mg/tab and 1.98±0.14% or 7.33±0.50 mg/tab. Results are shown in Table 1. The highest amount of flavonoids derivatives was in the dietary supplement «Extract of pomegranate», (manufactured by Source Naturals).

Table 1. Total content of catechins

Dietary supplement	Total catechins	
	%	mg/tab
«Extract of pomegranate», (manufactured by Source Naturals)	4.60±0.14	16.10±0.50
«Extract of pomegranate», (manufactured by Puritans Pride)	3.22±0.14	11.60±0.50
«Extract of pomegranate», (manufactured by Vitacost)	1.98±0.14	7.33±0.50

Conclusions. A qualitative and quantitative analysis of the analysed dietary supplements with pomegranate has been performed. The dietary supplement «Extract of pomegranate», (manufactured by Source Naturals) has the highest amount of BAS than other analysed dietary supplements.