

# STUDY THE TOTAL CONTENT OF FLAVONOIDS IN ETHANOLIC EXTRACT OF GREEN TEA LEAVES

*Maslov O.Yu., Kolisnyk S.V., Altukhov O.O., Shovkova Z.V.*

National University of Pharmacy, Kharkiv, Ukraine

**Introduction.** Green tea leaves are known for their rich content of flavonoids, a type of plant compound that belongs to the larger family of polyphenols. Flavonoids are widely found in plants, and they have been shown to possess numerous health benefits, such as anti-inflammatory, antioxidant, and anti-cancer properties. Green tea is particularly rich in flavonoids, making it one of the healthiest beverages in the world. The main flavonoids found in green tea leaves include quercetin, kaempferol, and myricetin, which have been shown to possess a range of health benefits [1]. So, the aim of our study was determine the total content of flavonoids in ethanolic extract of green tea leaves.

**Materials and methods.** The ethanolic extract of green tea leaves was obtained by the following way: 10.0 g of the grinded leaves was mixed with 200 mL of 96% ethanol. Extraction was carried out within 1 hour on water bath with a condenser, then repeated two times with a new portion of the solvent. After that the obtained extracts were filtrated and concentrated using rotary evaporator to 20 mL. A 1.0 mL of prepared extract, 1.0 mole 2% AlCl<sub>3</sub> solution in 5% glacial acid in methanol were added into 25.0 ml measuring flask and made up to the mark with a 5% solution of glacial acetic acid in methanol. The absorbance was measured at 417 nm after 30 min as a compensation liquid was 1.0 mL of extract solution, which was diluted to 25.0 mL by a 5% solution of glacial acetic in methanol. The amount of flavonoid in extract, expressed as rutin was calculated according to following equation [2]:

$$X(\%) = \frac{A \cdot m \cdot K_{dil} \cdot 100}{A_{st} \cdot V_{ext}},$$

where, A – absorbance of analysed solution, A<sub>st</sub> – absorbance of standard solution of rutin; V<sub>ext</sub> – volume of extract, mL; m – mass of sample; K<sub>dil</sub> – coefficient of dilution.

**Results and discussions.** The total content of flavonoids was 0.60±0.02% in the green tea leaves ethanolic extract. As result, the green tea ethanolic extract has the perspectives in the developing new medicines, dietary supplements and cosmetologically products.

## References:

1. In vitro antioxidant and antibacterial activities of green tea leaves (*Camellia sinensis* L.) liquid extracts / O. Y. Maslov et al. *Annals of Mechnikov's Institute*. 2022. Vol. 2. P. 64–67.
2. Study of total antioxidant activity of green tea leaves (*Camellia sinensis* L.) / O. Maslov et al. *Herba Polonica*. 2022. Vol. 68, no. 1. P. 1–9.