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HPLC and HPTLC methods for the hederacoside C determination in leaves of *Hedera helix L.*, dried extract and some dosage forms

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Background. Hederacoside C is an active ingredient and biomarker of ivy leaf. It approved to treat acute respiratory infection and chronic inflammatory bronchitis accompanied by cough and sputum. The biomarker is indicate of the drug development process quality (such as dried extract, syrup, capsules). We measured quantitatively hederacoside C in leaves of *Hedera helix L.*, dried extract, syrup and capsules. For this purpose, we decided to use HPLC and HPTLC methods. Those methods can be used to separate and substances quantitative determination, even in such complex mixtures such as leaves and syrups.

Materials and methods. For HPLC separation an ACE – C18 reversed phase column (150*4.6 mm, particle size 5µm) equipped with pre column was used. The system was run at a flow rate of 1.0 ml/min, with mixture of acetonitrile/water (29:71 v/v) as mobile phase and the detection was done at 210 nm.

HPTLC conditions were optimized on stationary phase pre coated silica gel 60 F_{254} glass sheets (10*10 cm), with mobile phase of anhydrous formic acid/acetone/methanol/ethyl acetate (4:20:20:30 v/v). The chromatographic chamber and plate was allowed to saturate for about 30 min and migration distance allowed was 70 mm. The wavelength scanning was performed in daylight. The system was operated by winCATS software.

Results. Methods were validated in terms of the following parameters: linearity, specificity, accuracy and precision according to the guidelines of the International Conference on Harmonization (ICH) for validation of analytical procedures. The results obtained showed complies with good laboratory practice requirements and meets the validation criteria. There was no significant difference between the content of Hederacoside C obtained by HPTLC and HPLC, although the HPLC method showed slightly lower values compared with HPTLC.

Conclusion. The HPLC and HPTLC methods were found to be sensitive and accurate. Hence, those methods can be used for quantitative determination of hederacoside C in leaves of *Hedera helix L.*, dried extract, syrup and capsules.

References:

1. State Pharmacopoeia of Ukraine: at 3 volumes. 2015. Kharkiv: State enterprise “Ukrainian scientific pharmacopoeial center of medicines quality”, 2-nd ed., Vol. 1, 1128 p.