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**STUDY OF FLAVONOIDS OF THE HERBAL DRUG “TILIAE FLORES”**

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**ИССЛЕДОВАНИЕ ФЛАВОНОИДОВ РАСТИТЕЛЬНОГО ПРЕПАРАТА “ЛИПЫ ЦВЕТКИ”**

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Abstract. In our study, we examined the composition of flavonoids in linden flowers using UPLC/FDM/MS method. We found that linden flowers contain flavonoids (flavonols and isoflavones) and these findings are consistent with previous research. Based on our results, we suggest using quercetin and kaempferol derivatives, as markers for standardizing linden flower preparations.

Keywords: *Bidens tripartita* herb, flavonoids, UPLC/FDM/MS method, standardization.

Аннотация. Исследован состав флавоноидов в цветках липы методом УЭЖХ/ФДМ/МС. Было обнаружено, что цветки липы содержат флавоноиды (флавонолы и изофлавоны), это согласуется с литературными данными. Мы предлагаем использовать производные кверцетина и кемпферола в качестве маркеров для стандартизации цветков липы и препаратов на их основе.

Ключевые слова: цветки липы, флавоноиды, метод УЭЖХ/ФДМ/МС, стандартизация.

**Introduction.** Linden flowers are pharmacopoeial medicinal plant raw materials (MPRMs). It is widely used in clinical practice for the treatment and prevention of many common diseases. Despite the high degree of scientific study of this MPRMs, the improvement of approaches to standardization remains a pressing issue [1, 2]. The purpose of this study was to study the composition of flavonoids of linden flowers. Research objectives: 1. Collect information and conduct an analytical study of the chemical composition of linden flowers. 2. Determine flavonoids in linden flowers using modern methods in industrial samples. 3. Determine marker compounds used to identify medicinal products. 4. Draw a conclusion about the need to supplement or develop sections of regulatory documentation (RD).

**Materials and methods.** Ultra-high-performance liquid chromatography with photodiode array and tandem quadrupole mass-selective detection in the gradient elution mode was used to analyze flavonoids in industrial samples of linden flowers. Extraction was performed with 70% aqueous methanol in a water bath.

**Results.** The presence of flavonoids characteristic for linden flowers was confirmed. 13 flavonoids were identified (quercetin-3-rutinosid-7-rhamnoside, quercetin-3-glucoside-7-rhamnoside, tiliroside, rutin, quercetin-3-glucoside, kaempferitrin, kaempferol 3-rutinosid, quercetin-3-arabinoside, astragalin, quercetin 3-rhamnoside, kaempferol 7-rhamnoside, quercetin 3-glucuronide, prunetin-4'-rutinosid).

**Conclusion.** During the experiment, a flavonoid profile was identified and it is consistent with literature data. When standardizing linden flowers and medicinal herbal preparations based on them, it is recommended to use quercetin and kaempferol derivatives as marker compounds. These compounds are specific and the inclusion of a definition of this group of biologically active compounds in the RD to confirm authenticity seems very relevant when standardizing linden flowers.

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