PHARMACOGNOSTIC ANALYSIS OF HERBAL MIXTURES USE IN OPHTHALMOLOGY

Lyisukha I., Shemchuk N. S., Stremoukhov O. O., Kovalyova A. M.
National University of Pharmacy, Kharkiv, Ukraine
gnosy@nuph.edu.ua

Introduction. Nowadays different medications which have antioxidant, anti-inflammatory and immunomodulating effects are used to treat diseases of eye. Therefore, the development of the herbal mixtures, that affects various components of the disease, may be used in the long-term treatment and prevention, as well as the herbal mixtures standardization are relevant trends of research in pharmacy.

We have developed a herbal mixtures that includes red clover blossoms, blueberry fruits and ginseng roots. The choice of these types of raw herbal materials is caused by various groups of biologically active substances (BAS): anthocyanins, isoflavones, triterpenoids, which have antioxidant, immunomodulating and adaptogenic effect.

The aim of our research is to develop methods of establishing the authenticity of the herbal mixtures components.

Materials and methods. Red clover blossoms, blueberry fruits and ginseng roots have become the object of studying (producing plant - cultured Panax ginseng). A macroscopic analysis of the herbal mixtures component was carried out visually and by magnifying glass. A microscopic examination was performed using pharmacopoeial methods described in articles of 1.vol of SPU 1.4 add. (2.8 - "Methods of Pharmacognosy", "Medical raw herbal material") and private articles on the corresponding raw material. A microscopic analysis revealed the presence of diagnostically significant signs that are characteristic to the herbal mixtures components.

Herbal mixtures humidity indicators, common ash of herbal mixtures, based on absolutely dry raw herbal materials, in percent; the fineness and the content of impurities in the herbal mixtures have been determined. Types of materials included in the herbal mixtures contain different groups of biologically active substances (BAS): phenolic compounds: anthocyanins, flavonols, flavones, isoflavones, coumarin, tannins; triterpenoids. Quality, quantity and

composition of BAS identification was carried out using modern methods of chemical, physical and physical-chemical analysis.

A chromatographic investigation of flavonoids and phenol carbonic acids amount was carried out by ascending chromatography in a thin layer of sorbent (TLC) on Silufol, Sorbfil PTLC-P-A-UV, Sorbfil PTLC-AF-A-UV, Sorbfil PTLC-AF-B UV plates. By TLC method alcoholic extraction with ethyl alcohol (50%, 70%, 90%) in a ratio of extractant and raw herbal material 1:10 and the amount of aglycones obtained from acid hydrolysis were analyzed. In order to separate amounts of BAS: ethyl acetate - acetic acid (8:2); benzene - ethyl acetate - acetic acid (50:50:1); ethyl acetate - formic acid - water (8:1:1).

Chromatograms were studied by UV-light at 354 nm wavelength. The plates were developed by 5% ethanolic solution of aluminum chloride and the change in fluorescence stain substances were observed. To identify natural substances in the chromatograms the authentic samples of substances were used: quercetin, kaempferol, hyperoside, rutin, formononetin, daidzein, caffeic acid, chlorogenic acid and also were compared with such drugs – tincture of ginseng and "Blueberry-F", the manufacturer PLC ITF "Pharmacom", Kharkiv.

Results. The basic diagnostic signs of significant anatomical signs of herbal mixtures were established. As a result flavonols – quercetin, kaempferol, hyperoside, rutin; hydroxycinnamic acid – caffeic, chlorogenic; saponins were found, R_f values of which correspond to some saponins of ginseng tincture.

Conclusions. Pharmacognostic analysis of herbal mixtures which includes red clover blossoms, blueberry fruits and ginseng roots and is used in ophthalmology was carried out.