

# CHROMATOGRAPHIC ANALYSIS OF HERBAL MIXTURES BAS FOR THE NORMALIZATION OF THE MUSCULOSKELETAL SYSTEM AT RHEUMATOID ARTHRITIS

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

It is known that arthritis of different etiology, a joint deformation is often occurred, the tissues of the musculoskeletal system (MSS) and organs that contain connective tissue are affected. The main causes of rheumatoid arthritis development are heredity, infectious diseases and injuries. The purpose of herbal medicine is to improve the effectiveness of the treatment, reduce the side effects of synthetic drugs, prevent disability and improve the quality of patients' life. Medical raw herbal materials (MRHM) that are typically used for arthritis have anti-inflammatory, antioxidant, anti-allergic, sedative, immunomodulating activity. In herbal medicine of MSS MRHM of such plants are used: birch, willow, alder, marjoram, nettle, lungwort, aspen, bedstraw, meadowsweet, horsetail, hawthorn, motherwort, mistletoe, valerian, peony, *Greek valerian (Polemonium)*, tormentil.

**The aim** of our research is to develop techniques for standardization of the herbal mixtures, which can be used to treat rheumatoid arthritis. On the basis of the source of information research, we have developed a herbal mixtures that includes white poplar buds, wood avens roots, rootstocks with the roots of cyanosis azure, calendula flowers, hop cones, white willow bark and purple coneflower roots. These raw materials contain groups of biologically active substances (BAS) of diverse chemical nature, exhibit different kinds of pharmacological activity.

**Materials and methods.** Chromatographic study of BAS was done by means of paper and thin layer chromatography (TLC). The alcoholic and hydroalcoholic extracts of herbal mixtures were used. Such solvent systems were used: ethyl acetate - formic acid - water (10: 2: 3), 15% acetic acid; sorbents - Silufol and Sorbfil plates; chromatography paper Filtrak №12; chromogenic reagents - alcoholic solutions of sodium hydroxide, vanillin, aluminum chloride; acid sulphate solution; DSC; filtered UV-light (540 nm).

**Results.** As a result of qualitative studies of BAS composition phenolic compounds such as simple phenols, phenol carbonic and hydroxycinnamic acids, flavonoids and tannins have been found. In the course of pharmacognostic studies moisture, common ash content and ash insoluble in a 10% solution of acid chloride, the fineness and the impurity of herbal mixtures have been established. Macroscopic herbal mixtures analysis allowed us to determine the external characteristic signs of herbal mixtures: color, smell, taste of water decoction. On the basis of microscopic herbal mixtures analysis the basic diagnostic features that correspond to each component of the herbal mixtures have been established.

**Conclusions.** It is proposed to develop such MQC while determining: merchandising herbal mixtures rates; by TLC method - flavonoids and hydroxycinnamic acids; the main morphological and anatomical diagnostic signs of raw materials components of herbal mixtures.