



DETERMINATION OF QUALITY PARAMETERS OF A LIQUID EXTRACT BASED ON LOCAL MEDICINAL PLANTS USED IN INFLAMMATORY DISEASES OF THE GASTROINTESTINAL TRACT

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Relevance: Peptic ulcer disease of the stomach and duodenum is a chronic, recurrent disorder characterized by mucosal defects and ulcer formation in the stomach and duodenal walls. According to statistical data, 10–12% of adults, mainly between 20 and 50 years of age, suffer from gastroduodenal ulcers. The production volume of drugs used in the treatment of gastrointestinal inflammatory diseases does not meet existing demand, and most of these medications are imported. Since gastrointestinal inflammatory diseases require long-term therapy, the prolonged use of synthetic drugs often leads to adverse effects, accumulation in the body, and toxic effects on other organs. This situation has increased the demand for dosage forms based on medicinal plants. In the State Register of the Republic of Uzbekistan, Chamomile (*Matricaria chamomilla*), Calendula (*Calendula officinalis*), and St. John's wort (*Hypericum perforatum*) have been studied as medicinal plants, and pharmacopoeial monographs have been approved for them. However, no finished dosage forms combining these plants have yet been developed. Therefore, the development of a complex herbal mixture and its corresponding liquid extract for the treatment of gastrointestinal inflammatory diseases, as well as the evaluation of its quality, is of significant importance.

Objective. To develop a complex herbal mixture and evaluate the quality of a new liquid extract with anti-inflammatory, analgesic, and antiseptic properties for use in gastrointestinal inflammatory diseases.

Materials and methods. A liquid extract was obtained from local medicinal raw materials—Chamomile flowers (*Matricaria chamomilla*), Calendula flowers (*Calendula officinalis*), and the aerial part of St. John's wort (*Hypericum perforatum*)—using the maceration method. Ethanol at concentrations of 40% and 70% was used as the extraction solvent. The liquid extracts were evaluated for quality parameters, including organoleptic properties (appearance, odor, taste, color), dry residue, ethanol content, authenticity, heavy metal content, and active constituents, in accordance with the requirements of the State Pharmacopoeia of the Republic of Uzbekistan, 1st edition (UzR Ph I), and other normative documents.

Results. The liquid extracts obtained from the complex herbal mixture were clear, yellow-brown liquids with a characteristic odor and slightly bitter taste. The main active constituents were flavonoids, which provide anti-inflammatory and antiseptic activity. The extracts were evaluated for appearance, odor, taste, color, dry residue, ethanol concentration, heavy metal content, and active substances. The ethanol content was found to be 33% in the extract obtained with 40% ethanol, and 66% in the extract obtained with 70% ethanol. Heavy metal content was below the permissible limit 0.01%. The dry residue ranged between 5.9–6.8%, corresponding to pharmacopoeial requirements. The flavonoid content was determined spectrophotometrically and is under further investigation.

Conclusion. The liquid extracts obtained by maceration using 40% and 70% ethanol from a complex herbal mixture of Chamomile (*Matricaria chamomilla*), Calendula (*Calendula officinalis*), and St. John's wort (*Hypericum perforatum*) meet the quality requirements of the State



Pharmacopoeia of the Republic of Uzbekistan (1st edition) in terms of both qualitative and quantitative parameters. The developed extract is recommended as a new dosage form for the treatment of gastrointestinal inflammatory diseases.