METHODS OF OBTAINING UZBEK CHAMOMILE EXTRACT (MATRICARIA CHAMOMILLA)

Azamova Sevarakhon Nodirjon kizi
Meliyeva Shakhnoza Muzaffar kizi
Azamatova Maftunaoy Khamidjon kizi
Sapaev Bayramdurdi
Saitkulov Foziljon Ergashevich
Students of Tashkent State Agrarian University
Tashkent State Agrarian University
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Annotation: In this paper, the object of research is the flowers of the Uzbek chamomile. The method of maceration was taken as a method for obtaining an extract, standardization was carried out using a chemical method.

Key word: Chamomile flowers, method of obtaining, obtaining an extract, maceration method, chemical method, marginal flowers - white, reed, female; middle flowers - yellow, tubular, bisexual

INTRODUCTION

The expansion of the range of modern effective and safe medicines can be achieved with the introduction of new medicines based on natural raw materials, including plant origin, into domestic medical practice. Therefore, today the creation of new drugs from plant materials is relevant. One of the representatives of the widely used plant material is chamomile (Matricaria chamomilla) - an annual herbaceous plant with an upright, highly branched stem, up to 35 cm high. The flowers are collected in baskets with a conical hollow receptacle. Marginal flowers - white, reed, female; median flowers - yellow, tubular, bisexual. Chamomile inflorescences contain essential oil (0.2-0.8%) of a characteristic blue color, which contains chamazulene and other compounds of this series. The essential oil has disinfectant and anti-inflammatory properties. Chamazulen is low toxic, promotes the processes of granulation and epithelialization of wounds, relieves pain, itching, stimulates the growth of connective tissue and epithelialization of varicose and trophic leg ulcers. In Uzbekistan, it occurs as an invasive weed in the plains and foothills of the southeast [1]. Currently, chamomile is included in various therapeutic and prophylactic preparations, creams, toothpastes, etc., however, the possibilities of its use cannot be limited to this, especially in combination with other medicinal plants. Therefore, the development of new drugs based on biologically active substances contained both in chamomile itself and in their compositions with biologically active substances in other medicinal plants will remain an urgent task for a long time. In connection with the above, the aim of the study was to

develop a new dosage form based on chamomile for the prevention and complex treatment of inflammatory diseases [2-14].

MATERIALS AND METHODS

The object of research is the flowers of the Uzbek chamomile. The method of maceration was taken as a method for obtaining an extract, standardization was carried out using a chemical method.

RESULTS AND DISCUSSION

It is known that oil extracts are extracts from medicinal plant materials prepared using vegetable oils as extractants. The maceration method was used to prepare oil extracts [2-4]. At the first stage, dry plant materials (chamomile flowers produced by Zerde) were subjected to the removal of mechanical impurities from it and drying. Then it was crushed. Next, samples of a certain mass were taken on electronic technical scales (2.5 and 5.0 g), which were placed in flasks and filled with vegetable oil.

Refined sunflower and olive oils were used as extractants. Since the vegetable oils used in the work have a relatively high viscosity, to intensify the extraction, the process was carried out by heating in a water bath to 40°C for 6 hours. The extraction process was carried out for 7 days at room temperature with occasional stirring (see Figures 1). Then, oil extracts were separated from the residues of plant materials by filtration through multilayer gauze filters.

Fig-1

Organoleptic analysis showed that the obtained oil extracts are yellowish viscous liquids. They are not transparent - slightly hazy due to the presence of very small inclusions of the feedstock. They have a characteristic taste of chamomile, the smell of oil (Figure 2).

Fig-2

EXPERIMENTAL PART

Standardization of oil extracts. To carry out the primary standardization of oil extracts, the acid, ester and saponification numbers were determined [3–8]. The acid number is the amount of potassium hydroxide in mg required to neutralize the free acids contained in 1 g of the test substance. To determine the acid number, 10,000 g of an oil extract (accurately weighed) were taken into a flask with a capacity of 250 ml and dissolved in 50 ml of a mixture of equal volumes of absolute alcohol and ether, previously neutralized with respect to phenolphthalein with a solution of sodium hydroxide (0.1 mol/l). Then 1 ml of phenolphthalein solution was added and titrated with constant stirring with sodium hydroxide solution (0.1 mol/l) until a pink color appeared, which did not disappear within 30 s.

The saponification number is the amount of potassium hydroxide, in mg, required to neutralize the free acids and saponify the esters contained in 1 g of the test substance. The saponification number was determined as follows: 2 g of the substance (accurately weighed) was placed in a 200 ml flask, 25 ml of an alcohol solution of potassium hydroxide (0.5 mol/l) was added, a reflux condenser was attached to the flask, it was immersed in a boiling water bath and heated for 1 hour, stirring regularly by swirling. In parallel, 25 ml of an alcoholic solution of potassium hydroxide (0.5 mol/l) was heated. Both solutions immediately after stopping heating were diluted with 25 ml of freshly boiled hot water, 1 ml of phenolphthalein solution was added and titrated with a solution of hydrochloric acid (0.5 mol/l) until colorless. From the amount of milliliters of hydrochloric acid solution (0.5 mol/l) used in the control experiment, the amount of milliliters of hydrochloric acid solution (0.5 mol/l) used for titration

of the test substance was subtracted. The resulting difference is the number of milliliters of potassium hydroxide solution (0.5 mol/l) used to neutralize free acids and acids formed during the complete hydrolysis of esters in the sample taken.

The ester number is the amount of potassium hydroxide, in mg, required to saponify the esters contained in 1 g of the oil extract under test. It was determined by titrating an aliquot of the extract with 0.1 mol/l KOH solution.

CONCLUSIONS

1. Extracts of chamomile in sunflower and olive oils were obtained with different ratios of vegetable raw materials and oil.

2. Standardization of oil extracts was carried out to determine the acid and ester numbers and the saponification number. It has been established that the values of the listed indicators for extracts in olive oil are higher than those for extracts in sunflower oil.

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