

**Askarova Saidakhan Tokhirjonovna, teacher**  
**Khakimova Sabokhatkhan Mamatovna, teacher**  
**Khakimova Gulnoza, teacher**

**Kuva Abu Ali ibn Sina Public Health Technical School**

**PHARMACOLOGICAL ACTION OF THE COMPONENTS OF CHAMOMILE  
PHARMACY AND ITS USE IN COSMETICS**

Annotation: It is known that chamomile flowers are rich in biologically active substances and are a significant medicinal source of raw materials. That is why pharmaceutical and cosmetic products of various types obtained from chamomile extracts have been widely used in medicine and cosmetology practice in recent years.

Key words: chamomile flowers, pharmacy, cosmetic, medicine.

The use of chamomile pharmacy as a medicinal plant dates back to ancient times. The name "chamomile" (chamomile) is derived from the Greek words "chamai" (chamai) (earthy) and "melon" (melon, i.e. apple), because the smell of this plant resembles apple. In Spain, it is called manzanilla (bullseye). The ancient Egyptians considered this plant a sacred gift from the sun god, sent to treat fever and sunburn. Since the VI century, chamomile has been used to treat insomnia, back pain, neuralgia, rheumatism, skin diseases, headache.

Chamomile was considered and continues to be considered a universal remedy for the treatment of many ailments, and in terms of popularity of use, it can probably compete with aspirin. This explains why chamomile is mentioned in the pharmacopoeias of 26 countries. [1] Application of chamomile There are a large number of publications devoted to the pharmacological properties of this plant as such or its individual components. Chamomilla recutita have long been used in medical practice as an anti-inflammatory, antiseptic and analgesic: for sore throats, tonsillitis, etc. inflammatory processes; wound healing agent - in dentistry, gynecology; choleric, antimicrobial, soothing, hyposensitizing, antiviral, antitoxic agent for diseases of the stomach, intestines, liver, with increased gas

formation; acts excitingly on the central nervous system, strengthens and quickens breathing, dilates the vessels of the brain. In folk medicine, chamomile is used to treat various allergic reactions as lotions. Chamomile oil is used in aromatherapy. This effect is somewhat similar to that of drugs used in medicine, but there are no side effects. For example, the wound-healing effect of the drug "Kamillosan" is comparable to that of hydrocortisone derivatives.

Chamomile, due to its pronounced therapeutic effect, could not fail to find wide application in the cosmetic industry. In particular, due to its ability to eliminate irritation, as well as its deodorizing and bactericidal action, it is increasingly used in various products, it is preferred when creating products for cleansing and skin care (in particular, intended for children), in sunscreen compositions, as well as in preparations applied after shaving. Chamomile extract is used to lighten hair, in scalp care products. Moreover, there is evidence that chamomile has anti-aging activity. The fact that chamomile has a fragrant smell, even more advantageously emphasizes its therapeutic effect. Due to its pleasant smell, it finds application in aromatherapy, and chamomile essential oil serves to give flavor to herbal liqueurs. Let us now turn to the physiologically active components of the German chamomile. The main substances here are (-)- $\alpha$ -bisabolol, bisabolol oxides and hamazulene.

In the 70s and 80s, they became the subject of extensive research. Almost odorless, optically active bisabolol shows pronounced anti-inflammatory activity in experiments on paw edema in rats, has a pronounced bactericidal effect. Bisabololoxides and hamazulene also have an anti-inflammatory effect, although weaker than that of the most active substance of this class —  $\alpha$ -bisabolol. The same applies to synthetic bisabolol. Since natural chamomile essential oil is a very expensive product, many attempts have been made to introduce its individual, affordable and effective ingredients, supplied at reasonable prices. In this regard, the main ingredient is bisabolol.

Currently, racemic bisabolol is synthesized on a large scale with low costs from intermediates used in the production of vitamins. However, it is less effective

than the levorotatory form contained in natural essential oil. This form is also called levomenol, distilled from the essential oil of a Brazilian shrub called "candeia", and currently it is she who dominates the market. Bisabolol is used as a part of cosmetics for various purposes: - for sensitive skin; - for skin care of infants; – for sun protection; - for the treatment of sunburn; - for depilation; - as part of toothpastes and mouthwash; - for lip care; - in feminine hygiene products. Its content in the final product varies from 0.05 to 0.5%. Azulenes are known to play an important role in the treatment of stomach ulcers. They are less suitable for external use because they are sensitive to air and easily lose their activity and color. The flavonoids apigenin, luteolin and quercetin contained in the aqueous extract also contribute to the anti-inflammatory effect of chamomile, and in addition, absorb UV light and suppress the activity of free radicals. The latter is also characteristic of umbelliferon [5]. Properties of chamomile belongs to the Asteraceae or compound-colored family. Although there are a number of species known only by the name of chamomile, only three of them are used as plants useful for humans. The most popular is *chamomilla recutita* or *Matricaria* (medicinal chamomile), also known as pharmacy chamomile, German chamomile, Hungarian chamomile, false or wild chamomile. This is the same daisy that is familiar to everyone by its white-yellow flowers. In its wild state, it is found almost all over Europe, and it is cultivated in most European countries and the USA. Another well-known type of chamomile is *Anthemis nobilis*, known to everyone as Roman or English chamomile. As a medicinal plant, it is cultivated in England, Belgium, France and the USA. [1]. Let's turn, first of all, to the pharmacy chamomile - the best studied and most commonly used species. In particular, its flowers contain a number of lipophilic, as well as polar pharmacologically active ingredients that are isolated in various ways. Lipophilic ingredients are concentrated in the essential oil, which is obtained as a result of steam distillation from fresh or dried flowers and partially from stems (yield from 0.3 to 1.5%).

The most important component of the essential oil, which accounts for up to 50%, is (-)- $\alpha$ -bisabolol, followed by bisabolol oxides A, B and C, bisabolonoxides,

hamazulene, then spiroether and trans- $\beta$ -farnesene. Rarer ingredients are represented by cardinene, nerolidol, pachulene, caryophyllene oxide, farnesol, furfural, umbelliferon methyl ester (herniarin), spatulenol and myrcene. The essential oil of chamomile pharmacy is a very viscous liquid, color from dark blue to bluish-green, with a characteristic smell: balsamic, honey, partly floral, reminiscent of apple. For this reason, the oil is used in perfumery, in particular to impart chypre notes. The blue color is explained by the presence of hamazulene, which itself is not a component of chamomile, but is formed from matricine during distillation with water vapor. Water-alcohol extraction produces extracts that, in addition to essential oil, also contain polar components such as apigenin, luteolin and quercetin, coumarins such as umbelliferon, as well as antemimic acid (bitter glucoside), choline, tannin and polysaccharides. In the final stages, the flowers are treated with oils to obtain oil extracts, which have basically the same composition as the distillate obtained by steam distillation. The above also applies to extracts obtained using carbon dioxide in a supercritical state.

However, the simplest extraction method is brewing dried flowers to produce chamomile tea. Research methods Extraction of raw materials In the composition of chamomile there are various classes of compounds. Therefore, in order to quantify the composition of extractive substances, the extraction method with various solvents was used. The following extractants were used for the preparation of extracts: water-glycerin, water-alcohol with various hydromodules, oil (refined deodorized sunflower oil was used as an oil extractant).

- Water-glycerin: Water: Glycerin = 1:1; Water: Glycerin = 1:2–

- Water-alcohol: Water: Alcohol = 1:1; Water: Alcohol = 1:2–

- Oil: the weight ratio of raw materials / oil is 1:6 and 1:10. Extraction was carried out at a temperature of 60 ° C for 168 hours. Determination of the dry matter content The dry matter content was determined refractometrically. Determination of flavonoid content The content of flavonoids in chamomile extracts was determined by thin-layer chromatography in terms of rutin. Determination of coumarin content The coumarin content in chamomile extracts

was determined by thin-layer chromatography Results and discussion At the end of the extraction process, the dry matter content was determined in filtered extracts. Further, the content of flavonoids was determined in the obtained extracts. In the extracts of chamomile pharmacy, the content of flavonoids was carried out by thin-layer chromatography in terms of rutin.

The highest dry matter content is determined in oil extracts, and there is practically no difference between extracts with a different ratio of raw materials and solvent. The extraction process was weakest with the use of alcohol as a solvent, while the change in the hydromodule also did not affect the degree of extraction. The maximum amount of flavonoids from chamomile pharmacy is extracted when using oil as a solvent. More polar solvents have less extractive ability with respect to flavonoids. The largest amount of herniarin and umbellifenone is found in chamomile oil extracts and in water-alcohol chamomile extract 1:2, glycerin extracts showed the worst result.

Thus, it can be concluded that the largest number of substances exhibiting pharmacological action is in chamomile oil extract (2) and in water-alcohol chamomile extract (water: alcohol = 1:2). For further use in cosmetic products in the case of biologically active substances of chamomile, where the active substance is bisabolol, its maximum is determined in oil extracts (1:10) and in water-alcohol extract 1:2. Conclusion For use in cosmetics according to the results of research, the most optimal extract is the oil extract of chamomile pharmacy in the ratio of raw materials: oil = 1:10. At this stage, work is underway to study the pharmacological properties of chamomile pharmacy in the formulation of therapeutic cosmetic cream and study its pharmacological properties.

#### References:

1. Bolotina A. Y. Dictionary of medicinal plants. M.: Russo, 1999.
2. Voitkevich S. A. Medicinal plants and essential oils. M.: Food industry, 2002. - 172 p.
3. Zamyatina N. G. Medicinal plants. M.: ABF, 1998. - 216 p.

4. Schroeter A. I. Search and study of new medicinal plants. M.: Znanie, 1980. - 64 p.