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Abstract

In the context of the growing number of infectious diseases, as well as the resistance of pathogenic microorganisms to synthetic antibiotics, there is a growing interest in the use of medicinal plants in therapeutic practice. One of the most promising herbal remedies is chamomile (*Matricaria chamomilla*), which has long been used in folk and evidence-based medicine as an anti-inflammatory, antiseptic and immunomodulatory agent.

Conclusion.. Chamomile is an effective natural remedy that can be useful in the complex treatment and prevention of infectious diseases. Due to its antimicrobial, anti-inflammatory and immunomodulatory properties, it has potential in both folk and official medicine. Further research will contribute to the introduction of standardized herbal preparations based on chamomile into clinical practice.

Keywords. Chamomile, infection, properties, therapy.

Introduction. Chamomile (*Matricaria chamomilla*) is one of the most famous medicinal plants that have been used for centuries in both traditional and official medicine [1,2]. Due to the content of valuable biologically active substances, this plant exhibits a wide range of therapeutic effects. [3,4]. Among them, anti-inflammatory, disinfecting and antimicrobial effects are especially important. Against the background of the growing resistance of pathogenic microorganisms to synthetic antibiotics, the relevance of the use of natural antiseptics, such as chamomile, has increased significantly.

Components responsible for the antibacterial effect

The antimicrobial activity of chamomile is due to the content of the following substances:

- *Chamazulene* - a volatile compound formed during the distillation of essential oil; characterized by powerful anti-inflammatory and antibacterial properties[1,3]..
- *Bisabolol* - a natural alcohol from the monoterpene group, which inhibits the growth of both gram-positive and gram-negative bacteria[3,4].
- *Flavonoids* (in particular apigenin and quercetin) are substances with antioxidant effects that negatively affect the development of pathogenic microorganisms[2,5,6].
- *Organic acids* (for example, salicylic and caprylic) are natural preservatives that destroy the cell membranes of bacteria, leading to their death. [5,7].

Antibacterial effect: confirmed by research
Scientific works demonstrate the effectiveness of chamomile extracts against a wide range of bacterial pathogens

: • *Staphylococcus aureus* is one of the main causative agents of nosocomial infections, sensitive to chamomile components.

• *Escherichia coli* is a common gram-negative bacterium, inhibited by water and alcohol extracts of the plant.

• *Helicobacter pylori* is a microorganism associated with gastritis and peptic ulcer disease; studies indicate its reduction when using chamomile infusions.

The antibacterial properties of chamomile are actively used in the production of natural cosmetics, dental products, hygiene products, ointments and creams for external use [6,7,8].

Advantages over chemical antibiotics

- Low toxicity — chamomile is well tolerated, it can be used even for children and people with increased sensitivity.
- Low risk of developing resistance — unlike antibiotics, bacteria are less likely to develop resistance to plant components.
- Compatibility with other plants — chamomile is often used together with sage and calendula, which enhance its antimicrobial effect [1,2,6,8].

Areas of practical use

- Medical practice: treatment of sore throats, skin lesions, gynecological infections
- Cosmetology: component of creams, lotions and other products for the care of problem skin.
- Pharmacy: active component of herbal medicines, dietary supplements and antiseptic products on a plant basis [1,2,6,8,9,10].

Use in respiratory diseases.

Chamomile is a part of inhalation mixtures, teas, and gargling solutions used for: Acute respiratory viral infections (ARVI)

- Chronic tonsillitis, pharyngitis
- Laryngitis, tracheitis

Antiseptic properties help reduce the bacterial load on the mucous membranes, and anti-inflammatory action reduces swelling and pain. [1,2,6,8].

In gynecology and urology. Chamomile infusions and decoctions are effective in infectious and inflammatory lesions of the genitourinary system:

- Vulvovaginitis, urethritis, cystitis - due to antibacterial and antipruritic action.
- Local chamomile baths reduce the symptoms of infections, accelerate tissue regeneration. [24,6,9].
- Immunomodulatory properties Chamomile flavonoids activate phagocytosis and stimulate nonspecific immune defense. With regular use of chamomile tea, a decrease in the frequency of SARS in children and people with chronic fatigue is observed.
- Advantages in infections: Mild action, without aggressive effects on the microbiome
- Possibility of long-term use without the development of resistance Increasing the effectiveness of the main treatment due to synergy [5,7,9].

Conclusions Chamomile is a universal medicinal plant with proven antibacterial activity, which can be an effective alternative or addition to chemical antibiotics. Its safety, The natural origin and broad spectrum of action make chamomile a promising basis for the creation of new phytotherapeutic agents that can effectively combat bacterial infections. Further research will help improve the standardization of drugs and optimize their methods of application.

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