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**SELECTION OF ESSENTIAL OILS AND EXCIPIENTS
FOR LOZENGES FORMULATIONS FOR THE TREATMENT
OF ACUTE RESPIRATORY DISEASES**

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Lozenges are of great interest among all dosage forms used in the treatment of acute respiratory diseases of the upper respiratory tract. Dosage forms as lozenges are easy to use compared to syrups, sprays and drugs that are under pressure in aerosol packaging. No additional dosing agents are required for them. The microbiological purity of individual dosage units of the drug is maintained in primary packaging during use. Lozenges have a prolonged therapeutic effect due to the slow dissolution in the oral cavity. Positive compliance in patients of different ages is observed when using this dosage form [1, p. 5].

Today, the use of sugar as an excipient in the manufacture of most drugs in the form of lozenges remains a problem. Such lozenges cannot be used by diabetics.

The aim of the research was to create a drug for the treatment of acute respiratory diseases of the upper respiratory tract in the form of lozenges using essential oils and modern excipients.

Essential oils from the group of anti-inflammatory, antiseptic, antimicrobial, expectorant, reducing irritation in the throat: essential oil of tea tree, essential oil of rosemary and essential oil of pine were introduced as active ingredients in lozenges.

Tea tree oil, obtained from the leaves of the Australian tree *Melaleuca alternifolia*, contains such active ingredients as 1,8-cineole; terpinene, terpinene-4-ol. Terpinene-4-ol provides antiseptic effect of oil, the effect of this substance on microorganisms is on average 13 times stronger compared to the action of pure synthetic phenol. Tea tree oil inhibits the growth of *Streptococcus beta haemolyticus*, *Staphylococcus aureus*, *Ps. aeruginosa*, *Malassezia furfur*, *Tr. mentagrorhutes* and *Tr. rubrum*, *C. albicans*, *A. niger*, *Legionella pneumophilla*. The oil also has antiviral, anti-inflammatory effect, stimulates the secretion of sputum [2, p. 59].

Rosemary essential oil has a wide range of antiseptic action (antimicrobial, antiviral, antifungal), as well as expectorant and mucolytic action [3].

The main properties that determine the use of pine essential oil are antiseptic action in the respiratory tract and stimulating the peripheral circulation. Pine essential oil is prescribed for acute respiratory diseases, influenza, bronchitis, as an anti-inflammatory and expectorant [4, p. 34].

The basis of the lozenges was isomalt. Isomalt is a polyol of semi-synthetic origin, obtained from sucrose, has a pure sweetness, similar to the sweetness of sucrose, without side tastes and aftertaste, the degree of sweetness – 0.4 – 0.5. Caries prevention is one of the advantages of isomalt as an excipient in lozenges. After all, when using sugar, bacteria ferment carbohydrates with the formation of acids, which then corrode tooth enamel and caries develops. Because most microorganisms living in the oral cavity cannot feed on isomalt, the pH level remains above the critical level. In addition, isomalt can not serve as a structural component of plaque and reduces the intensity of its formation. Hydrolysis of isomalt in the human body is 4-5 times slower than sucrose, polyol is absorbed in the gastrointestinal tract in small quantities. The only known limitation of the isomalt use is that its consumption of more than 15-20 g per day can cause a laxative effect [5, p. 133].

Isomalt galenIQ from Beneo Palatinit (Germany), provided by Witec (Ukraine), has been used in the present work. Pharmaceutical grade isomalt galenIQ has high chemical stability at melting point, low hygroscopicity, has a pleasant sweet taste, masks the bitter taste of active ingredients.

Thus, lozenges with a complex of essential oils based on isomalt galenIQ have been developed.

References:

1. Siham Abdoun A., Reem Alenizi. Formulation and evaluation of metronidazole lozenges for oral thrush. *Journal of Innovations in Pharmaceutical and Biological Sciences*. 2019. Vol. 6 (3). P. 5–10.
2. Salvatori C., Barchi L., Guzzo F., Gargari M. A comparative study of antibacterial and anti-inflammatory effects of mouthrinse containing tea tree oil. *ORAL & Implantology*. 2017. Vol. 10(1). P. 59–70.
3. Nieto G., Ros G., Castillo J. Antioxidant and Antimicrobial Properties of Rosemary (*Rosmarinus officinalis*, L.): A Review. *Medicines (Basel)*. 2018. V. 5 (3). 98.
4. Козименко Т. М., Дудченко Л. Г., Грабова Т. Ю., Пилипчук А. Б., Петріщева В. О. Застосування рослин класу хвойні у медицині. Родина соснови (огляд літератури). *Фітотерапія. Часонус*. 2014. № 2. С. 34–39.
5. Sentko A. Innovative low-glycaemic carbohydrates: an update. How a smart choice can contribute to a healthier life. *Nutrafoods*. 2013. Vol. 12. P. 127–135.

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**STUDY OF THE FOAM-FORMING CAPACITY OF THE FINE
OF DRY EXTRACT OF QUAWS AND DRY EGG WHITE
FOR THE PREPARATION OF PHYTOCOCTAILS**

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One of the forms of implementation of new medical technologies in phytotherapy is the development of new foam therapeutic systems as methods of delivery of medicinal compositions in the form of intragastric foam phytococktails. Foam systems provide contact with the mucous membrane of the gastrointestinal tract, providing deep penetration of medical drugs into all gastric folds, herewith the total surface area of the films increases