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Матеріали

*II Науково-практичної Internet-конференції
з міжнародною участю*

ФАРМАЦЕВТИЧНІ ТЕХНОЛОГІЇ, СТАНДАРТИЗАЦІЯ ТА ЗАБЕЗПЕЧЕННЯ ЯКОСТІ ЛІКАРСЬКИХ ЗАСОБІВ

Харків, 22 травня 2025

JUSTIFICATION OF THE COMPOSITION OF BUCCAL FILMS WITH KALANCHOE JUICE

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Introduction. Periodontal tissue disease is a common dental problem in both adults and children, against the background of untimely consultation with a doctor. Herbal medicines are distinguished in a separate group of medicines with different types of action among the pharmaceuticals for treating inflammation of the oral mucosa and gums. These medicines have a high pharmacological effect; their administration is almost not accompanied by side effects.

The phytopreparation prescribed for aphthous stomatitis and gingivitis treatment is Kalanchoe juice from the plant *Kalanchoe pinnata* (genus *Kalanchoe*), which has anti-inflammatory activity, also helps cleanse wounds of necrotic tissues, and stimulates their healing. Kalanchoe juice is applied to the oral mucosa 3–4 times a day in the form of applications, which is uncomfortable when used.

Buccal films are the perspective drug delivery system due to their ability to deliver drugs directly to the place of the action in the oral cavity, and they are capable of facilitating local delivery. Mucoadhesive buccal films are the preferred dosage form amongst patients, owing to their superior flexibility which enhances comfort.

The aim of research. The main objective of our research was to justify the composition of buccal films with Kalanchoe juice for topical application in the oral cavity for the treatment of periodontal tissue diseases.

Methods of research. The buccal films were prepared using the solvent casting method. The main polymer was hydroxypropyl methylcellulose (HPMC) and the plasticizer was glycerol. Fresh leaves and the green part of the stems of *Kalanchoe pinnata*, that contains biologically active substances such as organic compounds from the flavonoid group, catechins, and tannins, were used for the research. The physicochemical properties of the developed films, including weight, thickness, tensile strength, folding endurance, and percentage elongation at break, were evaluated.

Results of research. The results showed that the obtained films were transparent and had good mechanical properties. The thickness of the films ranged from 0.2 to 0.3 mm, and the weight ranged from 45 to 60 mg. The folding endurance was found to be greater than 300, indicating good flexibility of the films. The tensile strength was found to be in the range of 7.5–9.0 MPa, and the percentage elongation at break was found to be in the range of 80–90%. These properties indicated that the films were flexible and strong enough to be applied to the buccal cavity.

Conclusions. Buccal films containing Kalanchoe juice were successfully prepared using the solvent casting method. The films had good mechanical properties and drug release characteristics, indicating their potential for use in the treatment of periodontal tissue diseases. Further studies are needed to develop methods of qualitative identification and quantitative determination of active substances.