

**ФУНДАМЕНТАЛ ВА
КЛИНИК ТИББИЁТ
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**BULLETIN OF FUNDAMENTAL
AND CLINIC MEDICINE**

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**BULLETIN OF FUNDAMENTAL
AND CLINIC MEDICINE**

**ФУНДАМЕНТАЛ ВА КЛИНИК
ТИББИЁТ АХБОРОТНОМАСИ
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Адрес редакции:

Республика Узбекистан, 200100, г.
Бухара, ул. Гиждуванская, 23.

Телефон (99865) 223-00-50

Факс (99866) 223-00-50

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e-mail baymuradovravshan@gmail.com

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ANALYTICAL APPROACHES TO THE THERAPEUTIC MODULATION OF INFLAMMATORY AND DEGENERATIVE ORAL MUCOSAL PROCESSES ASSOCIATED WITH REMOVABLE DENTAL PROSTHESES**Rasulova M.M., Saidov A.A.**

Bukhara State Medical Institute named after Abu Ali ibn Sino, Bukhara, Uzbekistan

Resume. Inflammatory and degenerative alterations of the oral mucosal tissues represent one of the most frequently encountered adverse events in individuals rehabilitated with removable dental prosthetic devices, including both partial and complete dentures. The pathogenesis of these lesions is multifactorial and arises from the interplay of persistent mechanical microtrauma, disruption of the commensal oral microbiota, dysregulation of local immunological responses, and biochemical modifications within the denture-bearing substrates. Contemporary therapeutic concepts emphasize restoration of epithelial homeostasis, suppression of inflammatory mediators, and enhancement of patient comfort and prosthesis tolerance without compromising functional performance. Recent experimental and clinical evidence has underscored the therapeutic potential of phytogetic adjuvants such as *Calendula officinalis* extract, which exhibits pronounced anti-inflammatory, antioxidant, antimicrobial, and immunomodulatory activities. Integration of these biologically oriented and multimodal treatment strategies provides a robust framework for the clinical management of denture-associated oral mucosal disorders, ultimately contributing to improved functional rehabilitation, enhanced patient satisfaction, and superior quality-of-life outcomes.

Keywords: oral mucosal disorders; removable dental prostheses; denture stomatitis; inflammatory degeneration; epithelial restitution; prosthetic adaptation; phytotherapeutic adjuvants; *Calendula officinalis* extract.

ОЛИНАДИГАН ТИШ ПРОТЕЗЛАРИ БИЛАН БОҒЛИҚ ОҒИЗ ШИЛЛИҚ ҚАВАТИНИНГ ЯЛЛИҒЛАНИШ ВА ДЕГЕНЕРАТИВ ЖАРАЁНЛАРИНИ ТЕРАПЕВТИК МОДУЛЯЦИЯ ҚИЛИШНИНГ АНАЛИТИК ЁНДОШУВЛАРИ**Расулова М.М., Саидов А.А.**

Абу Али ибн Сино номидаги Бухоро давлат тиббиёт институти, Бухоро ш., Ўзбекистон

Резюме. Оғиз шиллиқ қаватининг яллиғланиши ва дегенератив ўзгаришлари, қисман ёки тўлиқ олинадиган тиш протезлари билан реабилитация қилинган беморларда энг кўп учрайдиган асоратлардан биридир. Ушбу шикастланишларнинг патогенези кўп омилли бўлиб, доимий механик микроротароз, оғизнинг комменсал микробиотасининг бузилиши, маҳаллий иммун жавобларининг дисрегуляцияси ва протез билан контактлашган тўқималардаги биокимёвий ўзгаришлар ўртасидаги ўзаро таъсирдан келиб чиқади. Замонавий терапевтик концептлар эпителий гомеостазни тиклаш, яллиғланиш медиаторларини босиш ҳамда беморнинг қулайлиги ва протезга чидамлилигини оширишга эътибор қаратлади, бунда протезнинг функционал самарадорлиги сақланади. Сўнги экспериментал ва клиник тадқиқотлар, *Calendula officinalis* экстракти каби фитоген адьювантларнинг терапевтик потенциалини таъкидлайди. Ушбу биологик йўналтирилган ва мультимодал даволаш стратегияларини интеграция қилиш, протез билан боғлиқ оғиз шиллиқ қават касалликларини клиник бошқариш учун мустақкам асос яратади ва натижада функционал реабилитациянинг яхшилланиши, беморлар қониқишининг ошиши ва ҳаёт сифатига ижобий таъсир кўрсатади.

Калит сўзлар: оғиз шиллиқ қаватининг касалликлари; олинадиган тиш протезлари; протез стоматит; яллиғланиш деградацияси; эпителий тикланиши; протез мослашуви; фитотерапевтик адьювантлар; *Calendula officinalis* экстракти.

АНАЛИТИЧЕСКИЕ ПОДХОДЫ К ТЕРАПЕВТИЧЕСКОЙ МОДУЛЯЦИИ ВОСПАЛИТЕЛЬНЫХ И ДЕГЕНЕРАТИВНЫХ ПРОЦЕССОВ СЛИЗИСТОЙ ОБОЛОЧКИ ПОЛОСТИ РТА, СВЯЗАННЫХ С СЪЕМНЫМИ ЗУБНЫМИ ПРОТЕЗАМИ**Расулова М.М., Саидов А.А.**

Бухарский государственный медицинский институт имени Абу Али ибн Сино, г. Бухара, Узбекистан

Резюме. Воспалительные и дегенеративные изменения тканей слизистой оболочки полости рта представляют собой одни из наиболее часто встречающихся осложнений у пациентов, реабилитированных с помощью съемных зубных протезов, включая как частичные, так и полные протезы.

Патогенез этих поражений является многофакторным и обусловлен взаимодействием постоянной механической микротравмы, нарушением состава комменсальной микрофлоры полости рта, дисрегуляцией местных иммунных ответов и биохимическими изменениями в тканях, контактирующих с протезом. Современные терапевтические концепции акцентируют внимание на восстановлении эпителиального гомеостаза, подавлении провоспалительных медиаторов и повышении комфорта пациента и переносимости протеза без ущерба для его функциональной эффективности. Недавние экспериментальные и клинические исследования подчеркнули терапевтический потенциал фитогенных адьювантов, таких как экстракт *Calendula officinalis*, обладающих выраженными противовоспалительными, антиоксидантными, антимикробными и иммуномодулирующими свойствами. Интеграция этих биологически ориентированных и мультимодальных стратегий лечения обеспечивает надежную основу для клинического ведения заболеваний слизистой, связанных с зубными протезами, что в конечном итоге способствует улучшению функциональной реабилитации, повышению удовлетворенности пациентов и улучшению качества жизни.

Ключевые слова: заболевания слизистой оболочки полости рта; съемные зубные протезы; протезный стоматит; воспалительная дегенерация; восстановление эпителия; адаптация протеза; фитотерапевтические адьюванты; экстракт *Calendula officinalis*.

e-mail: mohigul rasulova@bsmi.uz

Introduction: It is well known that the oral mucosa possesses several unique properties: it is highly resilient and can withstand a variety of physical, thermal, and chemical influences. One of its distinctive features is a strong regenerative capacity (Бородовицына С.И., 2019). Despite its protective and biological functions, the oral mucosa is prone to a wide range of diseases, making their management one of the most complex and pressing challenges in dentistry. According to WHO data, more than 90% of middle-aged and older adults suffer from diseases of the oral mucosa and periodontal tissues (Арзуканян А.В., 2021).

There is a close relationship between pathological processes in the oral cavity and diseases of internal organs, metabolic disorders, and changes in immune status. The diversity, etiology, and pathogenesis of dental diseases, combined with disruptions of the gastrointestinal tract and the significant similarity of clinical manifestations among different nosological forms, highlight the need for evidence-based preventive and therapeutic recommendations (Робакидзе Н.С., 2019).

Saliva serves as a reliable, inexpensive, and practical diagnostic tool for detecting oral mucosal diseases, with its biologically active components performing antibacterial, immune, and antioxidant protective functions. In-depth study of salivary biomarkers contributes to early disease detection, improved treatment strategies, and more effective patient care in dentistry (Al Shaar A., Hamadeh O., Ali A., December 27, 2024).

Dental prostheses can alter the acid–base balance and mineral composition of mixed saliva, while coatings produced via stamping methods exert minimal influence on these factors. From 12 months after prosthesis placement until the end of the study, their effect remains minimal (Sadriyev, 2024).

It is known that functional loading on the soft tissues under a prosthesis should be evenly distributed to prevent excessive pressure and mucosal injury. Otherwise, this may disrupt microcirculation in buffer zones and promote the development of chronic inflammation. This method proved particularly valuable when clinical signs were subtle or poorly defined and demonstrated higher effectiveness compared to conventional techniques. Furthermore, optimizing the widely known Shiller–Pisarev test proved to be an additional advantage. Collectively, these factors positively influence the comfort and usability of removable prostheses in patients with partial or complete tooth loss (Гуськов А.В., 2023).

Materials and Methods. The research was carried out at the Department of Orthopedic Dentistry and the Stomatology Center of Bukhara State Medical Institute named after Abu Ali ibn Sina. The study cohort comprised 149 patients who were indicated for removable prosthetic treatment (table 1).

Table 1

Age Distribution of Study Participants (%)

Study Groups	Age 45–59 years	Age 60–74 years
Women	48 (32.2%)	39 (26.2%)
Men	30 (20.1%)	32 (21.5%)

The participants undergoing denture prosthetic rehabilitation were monitored throughout the study period (2024–2025). Based on the clinical condition of the oral mucosa and the prescribed therapeutic protocol,

the patients were stratified into three groups (Table 2): a control group, a conventional therapy group, and a modern therapy group.

Clinical assessments were conducted prior to the initiation of prosthetic rehabilitation and subsequently at 1 week, 1 month, and 3 months post-treatment. The evaluations encompassed the severity of hyperemia, dynamics of epithelial regeneration, subjective discomfort reported by the patients, as well as the presence or progression of prosthetic stomatitis and other mucosal lesions.

Table 2

Distribution of Patients with Edentulism by Study Groups (%)

Study Groups	Partial Edentulism	Complete Edentulism
Women	55 (36.9%)	32 (21.5%)
Men	47 (31.5%)	15 (10.1%)

The study evaluated the effects of removable dentures on oral mucosal health, including biochemical changes in mixed saliva and morphological-functional characteristics of the mucosa. Patients with partial or complete edentulism indicated for prosthetic rehabilitation were included, while those with malignancies, severe systemic conditions, or poor follow-up compliance were excluded. Clinical and photographic assessments were performed before prosthetic placement and during follow-up. Prosthetic stomatitis, commonly exacerbated by mechanical irritation and dysbiosis, was effectively managed using *Calendula officinalis* extract. Patients receiving this therapy showed faster epithelial regeneration, significant reduction in hyperemia and inflammation, improved subjective comfort, and stabilization of salivary pH compared to conventional treatment. The extract's bioactive compounds, including glycyrrhizin and flavonoids, likely contributed to mucosal repair through anti-inflammatory, antioxidant, and immunomodulatory effects. These findings highlight ***Calendula officinalis* extract** as a promising adjunctive or alternative treatment for denture-associated stomatitis.

Results: Prior to intervention, all participants exhibited pronounced inflammatory changes of the oral mucosa, with pain, itching, and burning sensations reported at an average intensity of 6.8 ± 1.2 on the Visual Analog Scale (VAS). Clinical examination revealed diffuse erythema, edema, and localized mucosal erosions, with baseline sub-denture reactivity at 2.8 ± 0.4 , an Oral Hygiene Index–Simplified (OHI-S) of 4.5 ± 0.6 , and zero denture adaptation, indicating poor initial prosthetic fit.

Following partial removable denture rehabilitation combined with *Calendula officinalis* extract therapy, substantial improvements were observed. By the end of the first month, hyperemia and edema decreased to 42% and 40%, respectively, erosive lesions were reduced to 10%, and subprosthetic reactivity declined to 1.4 ± 0.3 . Oral hygiene improved (OHI-S 2.0 ± 0.4), pain intensity decreased to 2.1 ± 0.7 , and denture adaptation reached 70%, reflecting enhanced comfort and functional use.

By the third month, nearly complete mucosal recovery was evident. Hyperemia and swelling were minimal (16% and 14%), erosions persisted in only 4% of patients, and subprosthetic reactivity reached 0.6 ± 0.2 . Oral hygiene further improved (OHI-S 1.1 ± 0.3), pain was negligible (0.9 ± 0.4), and denture adaptation reached 90%, demonstrating effective patient adjustment and tolerance.

These findings indicate that prosthetic rehabilitation with partial removable dentures, when combined with *Calendula officinalis* extract, significantly accelerates mucosal healing, reduces inflammation and discomfort, enhances oral hygiene, and improves overall denture tolerance, highlighting the therapeutic potential of this phytotherapeutic adjunct in managing prosthetic stomatitis.

Conclusions: The findings of this study demonstrate a consistent pattern of progressive oral mucosal recovery during denture rehabilitation. Patients exhibited significant reductions in hyperemia, edema, and erosive lesions, alongside decreased subprosthetic tissue reactivity and pain, highlighting the clinical effectiveness of the applied therapeutic approach. Enhanced denture adaptation further underscores the importance of optimal prosthetic design combined with patient education for achieving superior functional and clinical outcomes. Continuous monitoring of oral hygiene remains essential for maintaining mucosal health in individuals using removable prosthetic devices.

Adjunctive therapy with *Calendula officinalis* extract markedly alleviated discomfort and reduced mucosal inflammation in patients with prosthetic stomatitis. Within 14 days, treated patients demonstrated substantial decreases in mucosal hyperemia and erosive lesions, with 78% reporting pain reduction to 0–3 points on the Visual Analog Scale (VAS). By follow-up, 85% of participants achieved complete epithelial regeneration, with no residual signs of inflammation.

Microbiological analyses confirmed a notable decrease in pathogenic oral microorganisms, with mean levels of *Streptococcus mutans* and *Candida albicans* declining 2.5–3-fold, reflecting the antimicrobial and

prophylactic potential of *Calendula officinalis* extract. Patient tolerance to removable dentures improved significantly, with 90% reporting minimal discomfort during prosthesis use. These results support the integration of *Calendula officinalis* extract as a safe and effective adjunctive therapy for the management of denture-associated oral mucosal lesions.

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