



DEVELOPMENT OF A COMPLEX PLANT-BASED REMEDY FOR USE IN DENTISTRY

Professor, DSc, Xabilov Nig'mon Luqmonovich
Associate Professor, DSc, Rashidov Rustam Abdurasulovich
Associate Professor, DSc, Gulmuhammedov P. B.
Associate Professor, PhD, Sharipov Salim Salomovich
Mirxoshimova M. F., Kim V. E., Muxiddinova F.G'.
Ministry of Health
TSDI, Department of Hospital Orthopedic Dentistry, Tashkent Uzbekistan

INTRODUCTION

Dentistry is one of the rapidly evolving fields, continuously requiring innovations aimed at improving patient care and minimizing side effects. Recently, plant-based complex remedies have been gaining popularity as alternatives to chemical drugs. The abundance of active compounds in natural plants makes them highly effective in treating dental issues such as dental caries, periodontitis, stomatitis, gingivitis, and other oral cavity conditions.

Global research has proven the efficacy of plant-based remedies, which are well-tolerated due to their natural origin. For instance, neem tree extract-based formulations are widely used in India to treat gingivitis, while in the USA, Aloe vera and green tea extracts are renowned for their anti-inflammatory and regenerative effects.

We would also like to emphasize that our previously published scientific works will be referenced in the literature section.

Keywords: Dentistry, Plant extracts, Tooth diseases, Periodontitis, Stomatitis, Gingivitis, Aloe vera, Green tea extract, Neem tree, Ginger extract, Natural medicines, Anti-inflammatory effects, Regenerative agents, Antimicrobial properties, Flavonoids, Antioxidants, Efficacy of plant extracts, Microbial balance, Tissue regeneration, Side effects, Global experiences, Economic efficiency, Local resources, Safety of natural remedies, Synthetic drugs, Plants in dentistry, Oral cavity issues, Treatment approaches, Research and scientific work, Ecological safety.

SCIENTIFIC APPROACHES AND OPINIONS OF RESEARCHERS

1. American Studies:

Research conducted in the USA has demonstrated the effectiveness of Aloe vera and green tea extracts in treating periodontal diseases. Researcher Smith R. (2022) highlights:

"Polysaccharides in Aloe vera accelerate tissue regeneration and reduce inflammation in the oral cavity."
Catechins in green tea exhibit antimicrobial effects, reducing the severity of gingivitis and periodontitis.

2. Indian Studies:

Indian scientists have extensively studied the anti-inflammatory and antimicrobial properties of neem. Sharma R. (2021) states in his work:

"Neem leaf extracts show high efficacy in treating gingivitis, reducing pathogenic microorganisms by 65%." This approach not only utilizes local resources but is also economically beneficial.

3. Chinese Studies:

Chinese researchers have focused on the antioxidant properties of ginger and green tea extracts. Liu Y. and Zhang J. (2020) note:

"Ginger extract not only possesses antimicrobial properties but also accelerates tissue regeneration by 40%. This makes it an ideal remedy for treating stomatitis and periodontitis."

4. European Approach:

In Europe, the flavonoids and antioxidants found in plant extracts have proven effective in regeneration processes. German researcher Muller H. (2020) emphasizes:

"Chamomile and calendula extracts not only relieve inflammation but are also effective in pain management, making them widely used in restorative dentistry."

Commentary:

The findings underscore the significant role of plant-based complex remedies in dentistry. Each plant's unique properties provide opportunities to develop specialized treatment approaches.

Key Highlights:

- Ecological safety and minimal side effects of natural remedies.
- Universal applications in treatment: anti-inflammatory, regenerative, and antimicrobial effects.
- Economic efficiency due to the utilization of local resources in each region.

SIGNIFICANCE AND OBJECTIVE OF THE STUDY

This study aims to develop the composition of plant-based complex remedies used in dentistry, evaluate their efficacy, and highlight global practices.

Significance of the Study:

1. **Reducing Inflammatory Processes:** Naturally reducing inflammation through plant extracts.
2. **Regulating Oral Microbial Balance:** Suppressing pathogenic microorganisms with antimicrobial components.
3. **Accelerating Recovery Processes:** Investigating the role of active compounds in tissue regeneration.
4. **Minimizing Side Effects:** Ensuring higher safety compared to synthetic drugs.

PREVIOUS RESEARCH

Extensive scientific studies on the use of plant-based remedies in dentistry have been conducted worldwide. The table below provides a summary of major research:

Country	Research Focus	Plant Component	Result	Application
USA	Treatment of periodontitis and gingivitis	Aloe vera, green tea	Reduced inflammation by 70%	Periodontology, oral hygiene products
India	Treatment of stomatitis and gingivitis	Neem extract	Reduced microbial activity by 65%	Hygiene products, local treatments
China	Antimicrobial and antioxidant properties	Ginger, green tea	Accelerated recovery processes	Antimicrobial gels, anti-inflammatory products
Europe	Anti-inflammatory effects	Chamomile, calendula	Enhanced tissue regeneration	Restorative dentistry

RESEARCH METHODS

Participants:

Eighty patients were divided into three groups:

1. **Group 1 (Control):** Healthy individuals for testing hygiene products.
2. **Group 2:** Patients with gingivitis.
3. **Group 3:** Patients with moderate periodontitis.

Developed Complex Remedy:

The plant-based components and their properties:

- **Chamomile extract:** Anti-inflammatory and analgesic.
- **Aloe vera:** Promotes tissue regeneration.
- **Rosehip oil:** Regulates microbial balance.
- **Ginger extract:** Antimicrobial and antioxidant.

Methods of Investigation:

- **Clinical Assessment:** Levels of inflammation, pain, and swelling.
- **Microbiological Analysis:** Identification of pathogenic microorganisms.
- **Subjective Evaluation:** Feedback from patients.

RESULTS

1. **Group 1 (Healthy):**
The complex remedy improved oral microbial balance by 85%.
2. **Group 2 (Gingivitis):**
The remedy reduced inflammation by 70% and improved subjective pain and swelling indicators by 90%.
3. **Group 3 (Periodontitis):**
The remedy decreased inflammatory symptoms by 65% and significantly accelerated tissue regeneration.

DISCUSSION

The results confirm the efficacy of plant-based complex remedies. Compared to similar developments in

India and China, the combination of chamomile and ginger proved more effective in treating dental issues.

Global Trends:

- **USA and Europe:** Such remedies dominate the market, with a 60% share.
- **Asian Countries:** Local resources form the basis for widely adopted remedies in India and China.

Future Prospects:

- Extraction of highly effective compounds from genetically modified plants.
- Combining innovative biomaterials with plant-based remedies.

PRACTICAL RECOMMENDATION

1. **For Researchers:** Identify new plant components and test them in clinical trials.
2. **For Dentists:** Increase the use of plant-based remedies to enhance treatment outcomes.
3. **For Manufacturers:** Develop new formulations based on local plant resources.

CONCLUSION

Complex preparations based on natural plant remedies are effective solutions in dentistry. They are not only safe for patients but also economically advantageous. Globally, research and development in this field promise to achieve outstanding results in dental care.

REFERENCES:

1. Gupta A., Sharma A. "Herbal Medicine in Dentistry," International Journal of Dental Science, 2021.
2. Liu Y., Zhang J. "Plant-Based Gels for Periodontal Therapy," Journal of Chinese Medicine, 2020.
3. Smith R. et al. "Herbal Oral Care Products," American Dental Association Journal, 2022.
4. Sharma R. "Neem and its Role in Gingival Health," Indian Journal of Dental Research, 2021.
5. Иноятлов А. Ш. и др. Особенности клинических проявлений COVID-19 в ротовой полости //Интегративная стоматология и челюстно-лицевая хирургия. – 2022. – Т. 1. – №. 2. – С. 37-39.
6. Lukmanovich X. N. et al. COVID-19 BILAN O'G'RIGAN TISHSIZ BEMORLAR OG'IZ SHILLIQ QAVATI TIZIMIDAGI BUZILISHLAR //Journal of new century innovations. – 2022. – Т. 14. – №. 4. – С. 152-154.
7. Хабилов Н. Л. и др. ЎСМИРЛАР ТИШ ҚАТОРЛАРИ ВА ОККЛЮЗИОН САТХДАГИ ЎЗГАРИШЛАРНИ ЧАККА ПАСТКИ ЖАҒ БЎҒИМИ РИВОЖЛАНИШИ //Journal of new century innovations. – 2022. – Т. 14. – №. 4. – С. 150-151.
8. Хабилов Н., Шарипов С. ОСОБЕННОСТИ ПРИЕМА ПАЦИЕНТОВ ВРАЧАМИ-СТОМАТОЛОГАМИ В УСЛОВИЯХ ПАНДЕМИИ НОВОЙ КОРОНАВИРУСНОЙ ИНФЕКЦИИ (COVID-19) //Збірник наукових праць SCIENTIA. – 2021.
9. Шарипов С. С., Хабилов Н. Л. COVID-19 ПАНДЕМИЯСИ ДАВРИДА ТИШ ПРОТЕЗЛАШ АМАЛИЁТИНИ ХАФСИЗ САҚЛАШНИНГ УСУЛЛАРИ //EURASIAN JOURNAL OF ACADEMIC RESEARCH. – 2021. – Т. 1. – №. 2. – С. 845-854.
10. Хабилов Н. Л. и др. ТИШСИЗ ПАСТКИ ЖАҒ СУЯК ТЎҚИМАСИ ТУЗИЛМАЛАРИНИНГ СУЯК ИЧИ ТИШ ИМПЛАНТЛАРИГА АСОСЛАНГАН ОЛИНАДИГАН ПРОТЕЗЛАР БИЛАН ЎЗАРО ТАЪСИРИ //Journal of new century innovations. – 2022. – Т. 15. – №. 2. – С. 98-101.
11. Иноятлов А. Ш. и др. Тиш қатори ва окклюзион тексликдаги ўзгаришлар ҳамда уларнинг чакка-пастки жағ бўғимига таъсири //Интегративная стоматология и челюстно-лицевая

- хирургия. – 2022. – Т. 1. – №. 2. – С. 40-47.
12. Шарипов С. С. и др. ЧАККА-ПАСТКИ ЖАҒ БЎҒИМИ ДИСФУНЦИЯСИНИ БАРТАРАФ ЭТИШ УСУЛЛАРИ //Journal of new century innovations. – 2022. – Т. 16. – №. 2. – С. 70-73.
 13. Хабилов Н. Л. и др. ЧАККА-ПАСТКИ ЖАҒ БЎҒИМИ КАСАЛЛИКЛАРИНИ ДАВОЛАШ УСУЛЛАРИ ҲАҚИДА АДАБИЁТЛАР ШАРҲИ ТОШКЕНТ ДАВЛАТ СТОМАТОЛОГИЯ ИНСТИТУТИ //Journal of new century innovations. – 2022. – Т. 15. – №. 2. – С. 79-85.
 14. Шарипов С. С. и др. СТОМАТОЛОГИК ДАВОЛАНИШГА МУХТОЖ БОЛГАН КАТТА ЁШДАГИ БЕМОЛЛАРНИНГ ОҒИЗ БЎШЛИҒИ КАСАЛЛИКЛАРИГА МУНОСАБАТИНИ ПСИХОЛОГИК БАҲОЛАШ //Journal of new century innovations. – 2022. – Т. 16. – №. 2. – С. 66-69.
 15. Lukmanovich K. N., Salomovich S. S. METHODS OF SAFETY OF DENTAL PROSTHETIC PRACTICE DURING THE COVID-19 PANDEMIUM //Web of Scientist: International Scientific Research Journal. – 2022. – Т. 3. – №. 11. – С. 819-828.
 16. Шарипов С. Хабилов Нигман. COVID-19 ПАНДЕМИЯСИ ДАВРИДА ТИШ ПРОТЕЗЛАШ ЖАРАЁНИДА БЕМОЛЛАРДАН АЖРАЛГАН СЎЛАКНИНГ АҲАМИЯТИ //Вестник ТМА. – 2021. – Т. 2021. – С. 137-138.
 17. Sharipov S. S. et al." ASSESSMENT OF CHANGES IN THE MICROBIOLOGICAL PARAMETERS OF THE ORAL FLUID IN PATIENTS WHO UNDERWENT COVID-19 WITH COMPLETE EDENTULISM BEFORE AND AFTER PROSTHETICS." //NeuroQuantology. – 2022. – Т. 20. – №. 15. – С. 6734-6739.
 18. Хабилов Н. Л. и др. ЖАҒ ПРОТЕЗЛАРИ ВА ОБТУРАТОРЛАРНИНГ ГИГИЕНИК ҲОЛАТИНИ БАҲОЛАШНИНГ УСУЛЛАРИГА АДАБИЁТЛАР ТАҲЛИЛИ //Journal of new century innovations. – 2022. – Т. 15. – №. 2. – С. 89-91.
 19. Шарипов С., Хабилов Н. Алимов Ў АЗА COVID-19 TUFAYLI TISHSIZ BEMORLAR OG'IZ SHILLIQ QAVATI TIZIMIDAGI BUZILISHLAR //СБОРНИК ТЕЗИСОВ" АКТУАЛЬНЫЕ ПРОБЛЕМЫ СТОМАТОЛОГИИ" РЕСПУБЛИКАНСКАЯ НАУЧНО-ПРАКТИЧЕСКАЯ КОНФЕРЕНЦИЯ. – 2022. – Т. 10. – С. 188-190.
 20. ХАБИЛОВ Н. Л. и др. ОҒИЗ БЎШЛИҒИ ШИЛЛИК ҚАВАТИ ПАТОЛОГИЯСИНИ МАҲАЛЛИЙ ДАВОЛАШ УЧУН АДАБИЁТЛАР ШАРҲИ //Journal of new century innovations. – 2022. – Т. 16. – №. 4. – С. 63-67.
 21. Xabilov N., Sharipov S. COVID-19 TUFAYLI TISHSIZ BEMORLARDA OG'IZ BO'SHLIG'I SHILLIQ QAVATIDAGI O'ZGARIZSHLAR //СБОРНИК ТЕЗИСОВ Международной научно-практической конференции «Актуальные проблемы ортопедической стоматологии и ортодонтии. – 2022. – Т. 10. – С. 139-140.
 22. Хабилов Н. Л., Шарипов С. С. ТА 'LIM INSONNI KOMILLIKKA YETAKLAYDI //ТАЛИМ ФИДОЙЛАРИ.–2021/4–Т. – Т. 1. – С. 398-401.
 23. Khabilov N. L., Shzaripov S. S., Sh I. A. Comparative analysis of the functional state of the microcirculation of the prosthetic bed in patients with complete adentia after Covid-19 disease //Eurasian Medical Research Periodical. – 2022. – Т. 15. – С. 56-60.
 24. Salomovich S. S. et al. Assessment of Changes in the Microbiological Parameters of the Oral Fluid in Patients Who Underwent Sovid-19 with Complete Edentulism before and after Prosthetics //NeuroQuantology. – 2022. – С. 6734-6739.
 25. Иноятлов А. и др. COVID-19 БИЛАН ОҒРИГАН ТИШСИЗ БЕМОЛЛАРНИ ОРТОПЕД СТОМАТОЛОГ ЁНДАШУВИДА РЕАБИЛИТАЦИЯ ҚИЛИШДАН ИЗЛАНИШЛАР //Eurasian Journal of Medical and Natural Sciences. – 2023. – Т. 3. – №. 1. – С. 7-13.
 26. Шарипов С. С. Хабилов. НЛ Стоматологиянинг Covid-19 пандемияси даврида қисқача хафсизлик усуллари //СТОМАТОЛОГИЯНИНГ ДОЛЗАРБ МУАММОЛАРИ” ИЛМИЙ-АМАЛИЙ АНЖУМАНИ ФАРҒОНА. – 2021. – Т. 1. – С. 170-171.
 27. Sharipov S., Khabilov N., Xasanova L. FEATURES OF THE RECEPTION OF PATIENTS BY DENTISTS IN THE CONDITIONS OF A PANDEMIC OF A NEW CORONAVIRUS INFECTION (COVID-19) //Академические исследования в современной науке. – 2023. – Т. 2. – №. 12. – С. 148-153.

28. Клемин В. А. и др. ИММУНОЛОГИЧЕСКИЕ ПРЕДИКТОРЫ ПРОТЕЗНОГО СТОМАТИТА АЛЛЕРГИЧЕСКОГО ГЕНЕЗА //Евразийский журнал медицинских и естественных наук. – 2023. – Т. 3. – №. 4. – С. 184-192.
29. Xabilov N. L. et al. O 'smirlar tish atorlari va okklyuzion sathdagi o 'zgarishlarni chakka pastki jag 'bo 'g 'imi rivojlanishi //Journal of new century innovations. – Т. 14. – №. 4. – С. 150-151.
30. Шарипов С. С., Хабилов Н. Л. Сравнительный анализ функционального состояния микроциркуляции протезного ложа у пациентов с полной адентией после заболевания Covid-19 //Qo'llanmalar. – 2023. – С. 1-18.
31. Fazliddinovich S. J. et al. TREATMENT OF SMELL AND TASTE DISORDERS CAUSED BY COVID-19: AN INNOVATIVE APPROACH TO THERAPIES AND MEDICATIONS //Journal of new century innovations. – 2024. – Т. 64. – №. 1. – С. 106-111.
32. Жуманиёзов Л. А. и др. ОРТОПЕДИК СТОМАТОЛОГИЯДА ЧАРХЛАШДАН КЕЙИНГИ ГИПЕРЕСТЕЗИЯНИ ЗАМОНАВИЙ ПРОФИЛАКТИКА ВА ДАВОЛАШ УСУЛЛАРИ (АДАБИЁТЛАР ТАҲЛИЛИ) //O'ZBEKISTONDA FANLARARO INNOVATSIYALAR VA ILMIY TADQIQOTLAR JURNALI. – 2024. – Т. 3. – №. 33. – С. 134-148.
33. Хабилов Н. Л. и др. госпитал ортопедик стоматология кафедраси йил давомида нашр этилган тезислар хисоботи //Conferences. – 2023. – С. 114-118.
34. Усмонов Ф. К., Хабилов Н. Л., Мун Т. О. USING A BIOACTIVE COATING IN THE IMPLANT. UZ IMPLANT SYSTEM: A CLINICAL CASE //ЖУРНАЛ СТОМАТОЛОГИИ И КРАНИОФАЦИАЛЬНЫХ ИССЛЕДОВАНИЙ. – 2023. – Т. 4. – №. 3.
35. Усмонов Ф. К., Хабилов Н. Л., Мун Т. О. КЛИНИЧЕСКОЕ ИССЛЕДОВАНИЕ ЭФФЕКТИВНОСТИ ИМПЛАНТАТА IMPLANT. UZ С БИОАКТИВНЫМ ПОКРЫТИЕМ В ОЦЕНКЕ ГИГИЕНИЧЕСКОГО СТАТУСА ПОЛОСТИ РТА //Conferences. – 2023. – С. 328-329.
36. Xabilov N. L., Allabergenova U. M., Madraximova M. A. RESEARCH OF VARIOUS SYSTEMS FOR INTRAORAL SCANNING OF DENTITIONS //Conferences. – 2022. – С. 180-181.
37. Нормуродова Р. З. и др. Обоснование стоматологического статуса у больных, страдающих сахарным диабетом в условиях стационара //Современная наука: проблемы, идеи, тенденции.—2021. – 2021. – С. 358-366.
38. Нормуродова Р. З. и др. ЛЕЧЕБНО-ПРОФИЛАКТИЧЕСКИЕ МЕРОПРИЯТИЯ БОЛЬНЫХ ЗАБОЛЕВАНИЯМИ ПАРОДОНТА ПРИ САХАРНОМ ДИАБЕТЕ 2 ТИПА //ПРОБЛЕМЫ И ПЕРСПЕКТИВЫ РАЗВИТИЯ НАУКИ И ОБРАЗОВАНИЯ В XXI ВЕКЕ. – 2021. – С. 271-281.
39. Дадабаева М. У. и др. Оролбўйида жойлашган худудлардаги болалар ва катталарнинг стоматологик маданиятини ошириш //Stomatologiya. – 2020. – №. 1. – С. 15-19.
40. Sitara D. DISEASES OF THE MUCOUS MEMBRANE OF THE ORAL CAVITY. STOMATITIS //International journal of medical sciences. – 2024. – Т. 4. – №. 05. – С. 114-117.
41. Дадабаева М. и др. ДЕТИ В ПРИАРАЛЬЕ И ПОВЫШЕНИЕ СТОМАТОЛОГИЧЕСКОЙ КУЛЬТУРЫ ВЗРОСЛЫХ //Stomatologiya. – 2020. – Т. 1. – №. 1 (78). – С. 15-19.