



## **PROJECT COMPLETION REPORT**

1. **Project Number** : 6242
2. **Title of the Project** : Development of Mucoadhesive bandages for the treatment of desquamative gingivitis
3. **Funding Agency Name** : TDF, SCTIMST
4. **Project Reference Number provided by the Funding Agency:**  
IRC No-204 dated 17/11/2020
5. **Principal Investigator (Name & Address) :**  
Dr. Manju S., Scientist E, Division of Dental Products, Department of Biomaterial Science and Technology, Biomedical Technology Wing, SCTIMST
6. **Co-Investigators (Name & Address):**
  1. Dr. Rekha M.R (Co-PI)  
Scientist G, Division of Biosurface Technology, Department of Biomaterial Science and Technology, Biomedical Technology Wing, SCTIMST
  2. Dr. Lizymol P.P. (Co-PI)  
Scientist G, Division of Dental Products, Department of Biomaterial Science and Technology, Biomedical Technology Wing, SCTIMST
7. **Implementing Institution** : Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum
8. **Collaborating Institutions** : SCTIMST
9. **Date of Commencement** : 12-11-2020
10. **Duration** : 2 years
11. **Date of Completion** : 11-11-2022
12. **Objectives as approved :**

1: Preparation of triamcinolone acetonide and lidocaine impregnated multilayered mucoadhesive bandages capable of controlling the drug release kinetics and its mucoadhesive properties.

2: *In vitro* / *Ex vivo* evaluation of mucoadhesive bandages for its water absorption, mucoadhesive characteristics, mechanical properties, *in vitro* drug release kinetics, *in vitro* cytotoxicity, stability and *ex vivo* drug permeation through oral mucosa.

**13. Deviation made from original objectives if any, while implementing the project and reasons thereof :**

Nil

**14. Field/Experimental work giving full details of summary of methods adopted, data collected supported by necessary tables, charts, diagrams and photographs :**

Desquamative gingivitis (DG) is a manifestation of many disease processes in gingiva characterized by the presents of erythema, erosion and ulceration. Major causes of DG are related to mucous membrane pemphigoid (MMP), oral lichen planus and pemphigus vulgaris. As evident from clinical studies, DG plays a major role in increasing the long-term risk of plaque induced periodontal disease that can even leads to a number of other health problems including respiratory diseases and increasing the risk of heart diseases. Different treatments strategies are used for DG depending on its severity including surgery, gingival grafting, laser therapy, systemic and topical medications etc. Among them drug therapy using topical steroids or immunosuppressive is preferred in most cases. Multiple gel formulations for the treatment of various stages of desquamative gingivitis are available in the market. However, the retention of these drugs in the target gingival region is challenging as those common gel formulations can be easily wipe down from the oral moist environment by food, liquids and even saliva. The study optimised the formulation for mucoadhesive thin film bandage that can simultaneously deliver triamcinolone acetonide and lidocaine for a period of 24 h -72h to ease symptoms.

**15. Detailed analysis of results :**

**16. Summary sheet of not more than 2 pages under following heads :  
(Title, Introduction, Rationale, Objectives, Methodology, Results, Translational Potential)**

**17. Contributions made towards increasing the state of knowledge in the subject :**

**18. Conclusions summarising the achievements and indication of scope for future work :**

As periodontist is actively looking for formulations that can enhance the retention of drugs in the target gingival region for various localised drug delivery applications including oral cancer, oral candidiasis, dry mouth, oral ulcers etc, optimized mucoadhesive bandages have translational potential. Biocompatibility evaluations of Drug eluting mucoadhesive bandage is yet to start with TRC, SCTIMST grant sanctioned on 30/11/2023

**19. Science and Technology benefits accrued :**

**a. List of research publications with complete details :**

**b. Manpower trained on the project :**

- i. Research Scientists or Research Fellows** : Nil
- ii. No. of PhD's produced** : nil
- iii. Other Technical Personnel trained** : 1 MTech Project student

**c. Patents taken, if any** :

Manju Saraswathy, Rekha M.R.;  
Drug  
eluting Mucoadhesive Bandage;  
Indian patent application #  
202341056012. Filed on 21-08-  
2023

**d. Products developed, if any** :

Optimised the formulations for  
“Drug eluting mucoadhesive  
bandage for localised oral drug  
delivery”. Biocompatibility  
evaluation of the optimized  
bandage is yet to start

**20. Abstract: (In 300 words for possible publication in ..... Bulletin)**

**a. Background:**

**b. Materials:**

**c. Results:**

**d. Conclusion:**

**21. Procurement/Usage of Equipment:**

**a. Details of Equipment:**

Sl. No.	Name of Equipment	Make/ Model	Cost (Rs.)	Date of Installation	Utilisation	Remarks regarding maintenance breakdown
1						

**b. Suggestions for disposal of equipment(s):**

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**Dr. Manju S.**



**(Name and Signature of PIs with date)**

**Routing:** Signed copy of "Project completion Report" by PI → [root@sctimst.ac.in](mailto:root@sctimst.ac.in), [rpc@sctimst.ac.in](mailto:rpc@sctimst.ac.in)