EuroSciCon

29th International Conference on
Dentistry and Dental Practice

March 17-18, 2022
London, UK

Journal of Oral Hygiene & Health
ISSN: 2332-0702 Volume: 10

Nano-drug Delivery from PMMA Denture Base Material

Asmaa N. Elboraey
Oral and Dental Research Institute.

The need for removable prostheses will continue due to the increase in human aged population. Poly(methyl methacrylate) (PMMA) is the denture based material of choice for more than 50 years and up to now owing to its applicable mechanical, physiochemical, and working properties. However, denture PMMA may be colonized by some oral microorganisms. These oral microorganisms may contribute to oral infections as denture stomatitis, systemic infections, and pneumonia. Denture cleansers alone are ineffective against denture plaque removal and also, may cause significant damage to dentures. Systemic antibiotic has been specified for management of oral infections; however, excessive use of systemic drugs led to the development of microbial resistant strains.On the other hand, the topical application of antibiotics may be ineffective due to its inability to maintain physical contact with oral mucosal tissue, limiting anatomical features of the oral cavity as well as constant washing effect caused by the salivary flow. Therefore, there is a need for a technology that permits controlled drug delivery with optimal concentration at the required site. the introduction of nanoparticle-based drug delivery technologies allows an effective and targeted drug delivery without undesirable side effects. Local drug delivery technology is more appropriate to patients as it does not require frequent application regimes. In addition, direct delivery of the drug to the site of infection reduces the risk of systemic side effects or drug-drug interactions. For a material to be used as a drug carrier, it must have the ability to carry a drug either physically or chemically. Drug carrier must preserve the drug until it reaches the targeted site, being progressively degraded, and deliver the drug in a controllable manner over time. Conclusion: Removable dental prosthesis fabricated from PMMA can be used as a vehicle for drug nanocarriers for management of oral infections. PMMA can incorporate additives up to 20% w/w without significantly altering the surface micro-hardness.

1-Elboraey AN, Abo-Almaged HH, El-Ashmawy AA, Abdou AR, Moussa AR, Emara LH, El-Masry HM, El Bassyouni GE, Ramzy MI. Biological and Mechanical Properties of Denture Base Material as a Vehicle for Novel Hydroxyapatite Nanoparticles Loaded with Drug. Advanced Pharmaceutical Bulletin. 2021 Jan;11(1):86.

2-Khalil MF, Sanad ME, Ahmed GA, Elboraey AN. Effect of Two Types of Surface Treatment of Dental Implants Retaining Mandibular Complete Overdenture on Bone Density Changes. Al-Azhar Dental Journal for Girls. 2020 Jan 1;7(1):23-9.

3-Elmorsy, Ayman A., Mohamed Zaki, Hafiz Elbahnaswi, Amani R. Moussa, and Asmaa N. Elboraey. "The Effect of Alteration of Vertical Dimension of Occlusion on Brain Activity in Complete Denture Wearers." Open Access Macedonian Journal of Medical Sciences 9, no. D (2021): 108-112.

4-Moussa, Amani R., Eman M. Ibraheem, and Asmaa N. Elboraey. "Evaluation of changes in brain activity and cognitive function of diabetic patients wearing removable partial dentures." Journal of The Arab Society for Medical Research 15, no. 2 (2020): 42.

5-Amani R.Moussa, Abeer M El-kady, Asmaa N Elboraey, Dalia Y Zaki, Hanaa M Elgamily, Magda I Ramzy and Gehan T El-Bassyouni., Antimicrobial properties of tissue conditioner containing silver doped bioactive glass nanoparticles: in vitro study. Adv. Nat. Sci.: Nanosci. Nanotechnol. 9, 035003 :1-10, August 2018.

Biography:

Associate professor of removable prosthodontics, Fixed and Removable Prosthodontics Department, Oral and Dental Research Institute, National Research Center Cairo, Egypt. Principle investigator of research project "Anti-Microbial Drug Loaded Nano-particles As a New Drug Delivery System for Dental Applications. Project ID: 11010201(2016-2019).

asmaanabil10@yahoo.com

Received: 11-02-2022; **Accepted:** 15-02-2022; **Published:** 18-03-2022