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## Mucoadhesive electrospun fibers in oral drug delivery

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The necessity of new systems for drug delivery in children due to the difficulty of the correct dose administration when the drug carrier is not easy to administrate. Mucoadhesive electrospun fibrous systems are an interesting alternative for the treatment of pathologies in the oral cavity due to their capacity to release pharmaceutical drugs at a fast and sustained rate. Electrospun fibers have many characteristics that make them ideal drug carriers for local delivery. Mucoadhesives fibrous systems of poly (vinyl alcohol) (PVA) and poly (vinyl pyrrolidone) (PVP) loaded with propranolol and dexamethasone phosphate will be discussed for their potential application in the oral cavity. Physicochemical (SEM, FTIR, TGA, DSC) and biological (MTT assay) characterization will be described in order to present the morphology, chemical composition, and thermal behavior of the fibrous mats, and cytotoxicity in fibroblast will be visualized, drug delivery rate, mucoadhesive and degradation rate will be also discussed. The evaluated mucoadhesive loaded fibers presented potential characteristics to be used in the oral cavity, where successfully tridimensional fibrous scaffolds were fabricated with an average fiber diameter of about  $368 \pm 161$  nm, thermal stability higher than 250°C, fibers were degraded completely before 15 min and high mucoadhesive and biocompatibility in fibroblast were observed. PVP loaded fibers with dexamethasone phosphate are proposed for endodontic procedures avoiding injection of the anti-inflammatory drug and PVA loaded fibers with propranolol for the treatment of hemangiomas in children.

**Keywords:** Mucoadhesives fibrous systems, Dexamethasone, Tridimensional fibrous scaffolds.

### Biography

Luis Jesús Villarreal-Gómez, studied Chemistry-Biology at the University of Sonora, Hermosillo, México and graduated in 2004. He then received his Ph.D. degree in 2013 at the University Autonomous of Baja California, Tijuana, México where he joined as a full research professor. Dr. Villarreal is founder and editor in chief of the Revista de Ciencias Tecnológicas (RECIT) (ISSN 2594-1925) and is editorial board member of several journals edited from MDPI, Hindawi, BenthamOpen, amongst others. Until now, he has published 35 papers and has reviewed more than 139 reviews. His research lines are biomaterials, tissue engineering, drug delivery systems, and biotechnology.

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