

TWENTY-SECOND ANNUAL CONFERENCE

# YUCOMAT 2021

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**TWENTY-SECOND ANNUAL CONFERENCE**

# **YUCOMAT 2021**

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**August 30 - September 3, 2021**

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**3D printed mucoadhesive gelatin based buccal films**

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The oral mucoadhesive film is a novel and attractive formulation for local and/or systemic drug delivery through the mucosal membrane of the oral cavity. Certain active pharmaceutical ingredients (API) in conventional formulations (tablets, capsules, syrups) are absorbed in the gastrointestinal tract and undergo first-pass metabolism through the liver, thereby reducing their bioavailability. This problem can be overcome by using intraoral formulations, such as mucoadhesive buccal films that disintegrate and dissolve in the oral cavity where the absorption of API occurs. In this work, the mucoadhesive films were prepared by 3D paste printing and the influence of processing parameters on film properties and the release rate of a drug was investigated. Gelatin (GA) and the blend of gelatin/polyvinylpyrrolidone (GA/PVP) were used because of their biocompatibility. Propranolol hydrochloride (PRH) was used as a model substance because it has high first-pass metabolism and is soluble in water. Film morphology and drug distribution were followed by SEM analysis. Dissolution test in simulated saliva was done to see how PRH was released from films. Mucoadhesion test revealed that the GA/PVP films with PRH have the highest adhesion force. Obtained results introduce GA/PVP as a promising material with good adhesion and rate of drug release.

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