

3D PRINTING OF COMPLEMENTARY PRE-POLYMERS FOR ORAL DELIVERY

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Current 3D printing techniques of tablets involve destructive UV irradiation or high temperature that limit the use of sensitive drugs. Here, we describe a novel 3D printing technique based on two complementary liquid copolymers that are injected in a coordinate fashion to form a cross-linked 3D tablets. The successful synthesis of the pre-polymers was verified by ¹H-NMR and gel permeation chromatography (GPC). Tablets swelled about 400% over 3 hrs followed by a moderate disintegration. *In-vitro* cytotoxicity studied on 3T3 fibroblast cells demonstrated the safety of the tablets for oral administration. Finally, tablets were loaded with prednisone resulting in 100% drug loading efficiency and a controlled release. Release rate could be controlled by coating with Eudragit®. Thus, this unique method can be empowered to form an efficient oral drug delivery system with controlled release pattern and may provide desirable traits for drugs susceptible to heat or irradiation and possibly to other biomedical applications.

Biography

Tsuf Croitoru Sadger has received her BSc in Chemical Engineering and MSc in Biotechnology and Food Engineering, from the Technion-Israel Institute of Technology. She joined the laboratory for biomaterials under the supervision of Prof Boaz Mizrahi on Mar' 2014. Currently, she is a PhD student. Her research interest focused on 3D printer, using unique printing techniques, which includes injection of liquid bio-polymers.

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