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3D Printing of tablets containing multiple drugs with defined release profiles

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Graphical abstract

Abstract

We have employed three-dimensional (3D) extrusion-based printing as a medicine manufacturing technique for the production of multi-active tablets with well-defined and separate controlled release profiles for three different drugs. This ‘polypill’ made by a 3D additive manufacture technique demonstrates that complex medication regimes can be combined in a single tablet and that it is viable to formulate and ‘dial up’ this single tablet for the particular needs of an individual. The tablets used to illustrate this concept incorporate an osmotic pump with the drug captopril and sustained release compartments with the drugs nifedipine and glipizide. This combination of medicines could potentially be used to treat diabetics suffering from hypertension. The room temperature extrusion

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