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Emergence of 3D printed dosage forms: A focus on FDM 3D Printing and Multi-material Printing

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Since its initial use, 3D printing technology has evolved to such an extent that it is currently being used in a wide range of applications including in tissue engineering, dentistry, construction, automotive and aerospace. However, in the pharmaceutical industry this technology is still in its infancy and its potential yet to be fully explored.

The presentation provides a highlight review of previous attempts at using 3D printing technologies on the manufacturing dosage forms with a particular focus on multi-drug oral tablets and capsules. An insight into the technical challenges facing 3D printing technologies with particular focus on FDM and multi-material 3D printing. The author will present the disruptive and ground breaking potential of this technology for transferring personalizing dosage form for pediatrics and geriatrics.

Recent Publications

Rycerz, Alhnan et al, Embedded 3D printing of novel bespoke soft dosage form concept for pediatrics Pharmaceutics, 2019, 11 (12), 630

A Isreb, Alhnan et al., 3D printed oral theophylline doses with innovative 'radiator-like' design: Impact of polyethylene oxide (PEO) molecular weight International journal of pharmaceutics. 2019, 564, 98-105

Pereira, Alhnan et al., 'Temporary Plasticiser': A Novel Solution to Fabricate 3D Printed Patient-Centred Cardiovascular 'Polypill' Architectures European Journal of Pharmaceutics and Biopharmaceutics, 2019, 135, 94-103

Sadia, Alhnan et al., Channelled tablets: An innovative approach to accelerating drug release from 3D printed tablets Journal of Controlled Release 269, 355-363

Okwuosa, Alhnan et al., On demand manufacturing of patient-specific liquid capsules via co-ordinated 3D printing and liquid dispensing, European Journal of Pharmaceutical Sciences 118, 134-143

Biography

Mohamed A Alhnan joined KCL as a Senior Lecturer in Pharmaceutical Medicine in the School of Cancer

& Pharmaceutical Sciences in Sep 2018. Mohamed has been a registered pharmacist in the UK since 2011. He worked on site-specific oral drug delivery for this PhD project in London School of Pharmacy (now UCL School of Pharmacy). After working on several industrial projects, he worked as lecturer then as a senior lecturer in the School of Pharmacy and Biomedical Sciences in University of Central Lancashire.

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