

Abstract Submitted
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Electro-hydrodynamic printing of drugs onto edible substrates¹

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While most existing drugs are manufactured as tablets using powder processing techniques, there is growing interest in printing drops containing pharmaceutical actives on edible substrates. We have developed a drop-on-demand (DOD) printing method appropriate for either replacing existing manufacturing platforms or enabling personalized medicine that overcomes the various critical challenges facing current DOD technologies. To eliminate adverse effects of electro-chemical reactions at the fluid-electrode interface, the fluid is infused into an electrically insulating nozzle to form a pendant drop that serves as a floating electrode capacitively coupled to external electrodes. A liquid bridge is formed and broken as the voltage applied at the electrode is varied in time. This gentle method for drop deposition has been demonstrated to operate with fluids spanning over three orders of magnitude in viscosity and conductivity. The proposed method has the potential for the evolving field of pharmaceutical and biomedical applications requiring the deposition of fluids at the exact locations with high volume accuracy.

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