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Supercritical fluid technology and its pharmaceutical applications: A revisit with two decades of progress
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Abstract

Over the past two decades, supercritical fluid technology has emerged as one of the most important technologies applied in many fields such as cosmetic, food and pharmaceutical. Supercritical fluid extraction process offers numerous advantages such as easy, effective, inexpensive, high quality of solute extraction and environmentally friendly. This mini-review describes the fundamentals of supercritical fluid technology, the function of supercritical fluid as solvent and anti-solvent, mechanism of supercritical fluid, advantages and disadvantages and revisit the application of supercritical fluid technology in pharmaceutical sciences. In-depth discussion with recent examples of extraction of natural products, particle design in drug delivery, preparation on pharmaceutical powder, drug solubilization, inclusion complex, polymer impregnation, liposomal formulations, purification and polymorphism as well as drug extraction analysis are also presented. Key aspects and processing considerations of supercritical fluid technologies are reviewed to assist scientists to generate other related experimental works. © 2020, Association of Pharmaceutical Teachers of India. All rights reserved.

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Bioavailability enhancement; Biomedical applications; Drug delivery; Polymeric carriers; Supercritical fluids

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