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Experimental design of supercritical fluid extraction - A review (Review)

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Abstract

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Supercritical fluid extraction (SFE), a sustainable green technology leads a wide range of applications since the past decade. Like many other processes, SFE is sometimes criticized for its large number of factors which need to be properly adjusted before every single run. Experimental design and proper statistical analysis with small number of trials in adjusting the SFE parameters become popular in this regard. This paper is aimed to review the common experimental designs that are frequently used in the SFE process. Utilizations of different experimental designs in SFE with the intention of either screening the most influential factors or optimizing the selected factors are briefly reviewed. Strategies and recommendation addressing the choice of appropriate design, constructing design matrix, experimental trial and data analysis are discussed in this paper. For more application oriented readers of SFE, an effective and easy chart on choosing proper experimental design and a list of experimental design software are also included. © 2013 Published by Elsevier Ltd.

Author keywords

Experimental design Optimization design Screening design Supercritical fluid extraction

Indexed keywords

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Appropriate designs
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Screening design
Supercritical fluid extraction (SFE)

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