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PII: S0896-8446(15)30061-9
DOI: http://dx.doi.org/doi:10.1016/j.supflu.2015.07.008
Reference: SUPFLU 3380

To appear in: *J. of Supercritical Fluids*

Received date: 16-5-2015
Revised date: 5-7-2015
Accepted date: 6-7-2015

Please cite this article as: David Villanueva Bermejo, Elena Ibáñez, Guillermo Reglero, Tiziana Fornari, Effect of cosolvents (ethyl lactate, ethyl acetate and ethanol) on the supercritical CO2 extraction of caffeine from green tea, The Journal of Supercritical Fluids http://dx.doi.org/10.1016/j.supflu.2015.07.008

Effect of cosolvents (ethyl lactate, ethyl acetate and ethanol) on the supercritical CO_2 extraction of caffeine from green tea

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Highlights

- Static and dynamic SFE of caffeine from green tea was studied at 30 MPa and 343 K.
- Pure CO_2 and green cosolvents ethyl lactate, ethanol and ethyl acetate were used.
- Higher recovery of caffeine was achieved with ethyl lactate in both extraction modes.
- The overall extraction curves were adjusted using Sovová's model.
- Ethyl lactate fluid phase mass transfer coefficient was the highest.

Graphical abstract

Abstract

This paper reports experimental data to analyze the effect of different green cosolvents, namely ethyl lactate, ethyl acetate and ethanol, on the supercritical carbon dioxide ($SCCO_2$) extraction of caffeine from green tea leaves.