COST ACTION GREENERING – DATA COLLECTION

First name, Family Name: Marie Sajfrtová
Type (Academic or Industrial): Academic
Country: Czech Republic
Leadership position in the COST: ITC CG Coordinator on CA18224
Working Group in which you are involved: WG3
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Laboratory/Company:
Supercritical Technologies Group/ Institute of Chemical Process Fundamentals of the Czech Academy of Sciences, v.v.i.

Laboratory/Company info:
Supercritical Technologies Group has rich experience in the field of extraction of biologically active substances from plants using $scCO_2$, pressurized liquids and conventional solvents. To increase added value of extracts, the current research is focused on various applications of $scCO_2$: extract micronization, impregnation, fractionation on sorbents and modification using enzymatic reactions.

Link to the home page of the Laboratory/Company: www.icpf.cas.cz

Fields of expertise:
- supercritical fluid extraction and fractionation
- pressurised and conventional liquid extraction
- crystallization of TiO_2 using supercritical and pressurized fluids

5 Main publications or patents:
- Sajfrtová M.: Equipment for Fractionation of Cannabinoids. Pat. No. 32450/PUV 2018-35668. Applied: 18.11.28, Patented: 18.12.18. (utility model)
- Pavela R., Sajfrtová M.: Preparation Based on Trichilia Extract for Protection of Plants from Insect. Pat. No. 27687/PUV 2014-29627. Applied: 14.06.02, Patented: 15.01.12. (utility model)
- Sajfrtová M., Ličková I., Wimmerová M., Sovová H., Wimmer Z., Beta-Sitosterol: Supercritical Carbon Dioxide Extraction from Sea Buckthorn (Hippophae rhamnoides L.) Seeds. Int. J. Mol. Sci. 2010, 11(4), 1842-1850. (Jimp)
- Sajfrtová M., Sovová H., Karban J., Rochová K., Pavela R., Barnet M., Effect of Separation Method on Chemical Composition and Insecticidal Activity of Lamiaceae Isolates. Ind. Crop. Prod. 47, 69-77 (2013). (Jimp).
- Sajfrtová M., Cerhová M., Dřínek V., Daniš S., Matějová L.: Preparation of Nanocrystalline Titania Thin Films by Using Pure and Water-modified Supercritical Carbon Dioxide. J. Supercrit. Fluids 117, 289-296 (2016). (Jimp)

Collaborations:
University of Chemistry and Technology Prague, CR
Technical University of Ostrava, CR

Facilities:

- 4 laboratory and 1 pilot plant for supercritical fluid extraction and fractionation (interchangeable extractors of volumes from 4 to 1.5 L and with maximal operating pressure 69 MPa)
- laboratory plant for pressurized liquid extraction
- laboratory instruments for enzymatic and chemical reactions in supercritical carbon dioxide
- laboratory apparatus for particle design using supercritical CO_2 (RESS, SAS)
- laboratory apparatus for polymer foaming
- high pressure columns for preparative supercritical chromatography/supercritical adsorption
- high-pressure view cell equipped with sapphire windows