



**BOOK OF
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Dear colleagues and

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We are honored and delighted to welcome you for the 4th time to the International scientific and expert conference "Natural resources, green technology and sustainable development/4-GREEN2022" organized by Croatian Forest Research Institute and Faculty of Food Technology and Biotechnology, University of Zagreb and supported by Faculty of Forestry and Wood Technology, University of Zagreb, Institute for Adriatic crops and karst reclamation, Croatian Society of Biotechnology, Croatian Chamber of Forestry and Wood Technology Engineers, Academy of Forestry Sciences and "Zeleni prsten" Public Institution of Zagreb County.

We are pleased that the Conference is taking place once more in Zagreb, the capital city of the Republic of Croatia.

We feel very proud to organize this Conference with the support of International organizations IUFRO, EFI and EBTNA.

leagues friends,

The conference is dedicated to challenges, risks and opportunities in environment and ecosystem management, while emphasizing potential of plant extracts, functional food and useful products coming from nature as well as implementation of green technology and biomass in general.

Beyond any expectations, more than 150 abstracts written by experts from 19 countries have been acknowledged for the presentation at GREEN2022. Researchers from eminent institutions will present their recent achievements, give their valuable insights and provide predictions for the future. This sharing of cutting edge knowledge will serve to help fighting challenges, reduce risks and enlighten the best way to capitalize on the opportunities which await us. The multidisciplinary approach will bring together scientists and experts to exchange and discuss the latest achievements in science, illustrate new policies, demonstrate innovative techniques and

outline sustainability of natural resources and new challenges rising with the climate change.

We use this opportunity to express gratitude to our patrons and Auspices, International Scientific and Organizing Committee as well as to all of you for your scientific involvement which will certainly contribute to the success of the Conference. Special thanks are addressed to sponsors who enabled the preparation of this event.

Thank you for joining us!

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Ivana Radojčić Redovniković



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Session C:

SUPERCRITICAL CO₂ EXTRACTION FROM DANDELION: THE EFFECT OF PRESSURE ON EXTRACTS YIELD AND COMPOSITION

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total flavonoid
content,
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content*

Dandelion (*Taraxacum officinale*) is becoming an industry valuable crop due to the increase in its utilization in the food and phytopharmaceutical industry. Nonetheless, its application is still limited especially considering its extracts. Therefore, this study was aimed at exploring dandelion seeds as a source of bioactive compounds. For this purpose, an environmentally friendly supercritical CO₂ extraction technique was employed and extracts were separated at pressures of 10–45 MPa and a temperature of 313 K. Obtained extracts were characterized using a gas chromatograph equipped with mass spectroscopy (GC-MS), a gas chromatograph equipped with flame ionization detector (CG-FID), as well as by Folin–Ciocalteu and DPPH assays using a UV/VIS spectrophotometer. It was shown that the selection of process pressure determined both extract yield and extract composition. An increase in pressure increased extraction yield from 7.4 to 25.2% and the content of dominant linoleic and oleic fatty acids (from 536.3 to 658.3 mg/g and 125.8 to 161.7 mg/g, respectively). Total phenolic and flavonoid content in obtained extracts ranged from 5.5 to 9.0 mg GAE/g and from 208.6 to 497.5 mg QE/g, respectively. The strongest DPPH radical scavenging activity with inhibition of 64.4% was recorded for extract obtained at 10 MPa for extract solution concentration of 20 mg/mL. Obtained results confirmed that extracts obtained from dandelion seeds are a valuable source of bioactive compounds.

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