

Multiple pharmaco-toxicological characterization on hemp commercial cultivars: focus on aqueous inflorescence extract activity

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Abstract

One of the most promising economic perspectives of hemp production chain is female inflorescence valorization. By contrast, scientific literature lacks on chemical composition or biological activity data from aqueous fraction obtained from industrial hemp flowers, which have long been considered as waste products. In this context, the main focus of the following study is the evaluation of protective effects related to aqueous flower extracts from four commercial hemp cultivars (Futura 75, Kc virtus, Carmagnola Cs and Villanova). We evaluated the extract phytochemical profile. Then, we studied the water extracts both in vitro and ex vivo in order to assay protective effects in an experimental model of ulcerative colitis, constituted by isolated LPS-stimulated colon. All cultivar extracts displayed similar total phenol and flavonoid content. On the other hand, Futura 75 cultivar extract displayed a better antioxidant and anti-inflammatory profile. Considering this, Futura 75 extract has been subsequently assayed to evaluate its effect on pathogen bacterial and fungal species involved in ulcerative colitis, finding a significant inhibition on the growth of *C. albicans* and selected Gram positive and negative bacterial strains. Taken together, our results support the potential efficacy of Futura 75 water extracts in managing the clinical symptoms related to ulcerative colitis.

"Effect of bilayer composition on 5-6 carboxyfluorescein release from unilamellar vesicles".

From 20th November 2003 to 20th November 2003: PhD in Drug Sciences at the Department of Pharmacy of University G. d'Annunzio, CHIETI-PESCARA (formerly Faculty of Pharmacy) discussing a thesis entitled "Neuropeptides and appetite regulation" (SSD: BIO/14 Pharmacology).

2004-2006: participation to the three-year European School of Medicinal Chemistry (ESMEC)-Advanced Course in Medicinal Chemistry and "E. Duranti" National Seminar for PhD Students.

2004-2017: Participation to the National Congresses organized by the Italian Society in Pharmacology (SIF).

From 1st March 2007 to 30 September 2008: Postdoc fellowship at the Department of Pharmacy of University G. d'Annunzio, CHIETI-PESCARA. He was PI of the project entitled "Role of gastrointestinal peptides in appetite regulation".

From 1st October 2008 to date: Researcher, SSD BIO/14 – Pharmacology, at the Department of Pharmacy (formerly Faculty of Pharmacy), "G. D'Annunzio University", Chieti-Pescara.

From 2008 to date: Relator and member of the organizing committee of multiple scientific and didactic workshops in Pharmacognosy.

From 15th June 2009 to date: Member of the Italian Society in Pharmacology (SIF) and national SIF work group in Pharmacognosy and Phytotherapy.

From 2011 to date: scientific collaborations with several foreign universities including:

-Johns Hopkins of Baltimore (USA): In collaboration with the division of Endocrinology directed by Professor Roberto Salvatori, we characterized a novel GHRH knockout mouse model.

-Department of Biology of Seluck University (Konya, Turkey): In collaboration with Professor Gokhan Zengin, we are studying the mechanism of action of herbal extracts from Turkey flora, with particular regards to potential protective effects against inflammatory and degenerative disorders.

-Department of Pharmacognosy, Faculty of Pharmacy and Biochemistry, Zagreb University (Zagreb, Croatia): In collaboration with Professor Sanda Vladimir-Knezevic, we are performing comparative studies of endemisms of Croatian and



Biography:

EDUCATION AND WORK EXPERIENCE

Degree in Pharmaceutical Chemistry and Technology with a score of 110/110 cum laude on 07.17.2003 at the University G. d'Annunzio, CHIETI-PESCARA, discussing a thesis entitled

Middle Italy flora with particular regards to differences in phytochemical composition and potential protective effects against inflammatory and degenerative disorders.

-From 2017 to date: Review Editor of the journal “Frontiers in Pharmacology-Section Inflammation”.

-Reviewer of many journals including: European Journal of Pharmacology, Phytotherapy Research, Phytomedicine, Molecules, International Journal in Molecular Sciences, Nutrients, Physiology and Behavior, Neurochemistry International, Food and Chemical Toxicology, Industrial Crops and Products,

RESEARCH ACTIVITY

The pharmacological research activity of Prof. C. Ferrante is focused on the following main research fields:

-Role of endogenous peptides on food intake and energy expenditure control;

-Protective effects of medicinal plants and extracts, with particular regards to inflammatory and neurodegenerative diseases.

-Pharmacology of central monoaminergic system.

-Optimization of preclinical pharmacological models for the study of the mechanism of action of drugs.

Speaker Publications:

1. “Antiinflammatory, antioxidant, and behavioral effects induced by administration of growth hormone-releasing hormone analogs in mice”; Scientific Reports /Volume 10/Issue 1

2. “Antimicrobial, Antioxidant, and Antiproliferative Effects of *Coronilla minima*: An Unexplored Botanical Species”; Antibiotics /Volume 9/Issue9

3. “Network analysis, chemical characterization, antioxidant and enzyme inhibitory effects of foxglove (*Digitalis cariensis* Boiss. ex Jaub. & Spach): A novel raw material for pharmaceutical applications”; Journal of Pharmaceutical and Biomedical Analysis/Volume 191.

4. “Pharmacological Properties and Chemical Profiles of *Passiflora foetida* L. Extracts: Novel Insights for Pharmaceuticals and Nutraceuticals”; Processes/Volume 8/Issue9

5. “Evaluation of Antioxidant, Antimicrobial and Tyrosinase Inhibitory Activities of Extracts from *Tricholosporum goniospermum*, an Edible Wild Mushroom”; Antibiotics /Volume 9/Issue8

[8th International Conference and Expo on Pharmacognosy, Medicinal Plants and Natural Products](#); Webinar- October 21-22, 2020.

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