

3RD GLOBAL SUMMIT ON

HERBALS & TRADITIONAL MEDICINE

OCTOBER 18-20, 2017 OSAKA, JAPAN

Evaluation of toxicity and pharmacological properties of *Urtica dioica* leaf preparations obtained from hydroalcoholic extraction and differential controlled sieving process**Rachid Soulimani, N Soualeh, A Stievenard, A Dicko, E Baudelaire and J Bouayed**
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Urtica dioica is frequently used in traditional medicine for its antioxidant, anti-inflammatory, analgesic and immune-modulating properties. The leaves of *U. dioica* contain phytochemicals such as caffeic acid, chlorogenic acid, high content of chlorophyll and other pigments. The conventional extraction procedures and their efficiency depend on the choice of solvents, which could be toxic for human health and not environmentally friendly. To overcome these drawbacks, a new method derived from green chemistry and called controlled differential sieving process for the dry extraction of natural active compounds without using solvents was developed. This method allows obtaining many particle size fractions ranging from 20 to 500 µm. This study aims to evaluate the effect of controlled differential sieving process on the safety and the pharmacological properties of *U. dioica* leaf powders in comparison to conventional hydro-alcoholic extraction. To this end, phytochemicals determination and acute and sub-chronic toxicity studies of the different *U. dioica* leaf preparations were performed and their cytoprotective, antioxidant, anti-inflammatory, analgesic and anti-proliferative activities were investigated. The results showed that particle size fractions of *U. dioica* leaves derived from differential controlled sieving process and ranging from 50 to 315 µm had a higher pharmacological potential when compared to the hydro-alcoholic extract. No toxicity was detected in all plant preparations. These results suggest that differential controlled sieving process lead to a differential distribution of bioactive compounds according to particle size and could be a good alternative to traditional methods of extraction.

Biography

Rachid Soulimani is the President of AGRESS association, responsible of "Neurodevtox" anr/europe-feder program, responsible of "Arf Tempus, Europe/Tempus program, header of Research Team Neurotoxicology and Development /Inra, University of Lorraine, France.

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