

Phytochemical and pharmacological approach for the evaluation of water flower extract activity of four commercial Italian hemp cultivars

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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 water flower extracts from four commercial hemp cultivars (Futura 75, Kc virtus, Carmagnola Cs and Villanova). We evaluated the phytochemical profile of the extract. 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.