EFFECT OF HYDRO-ALCOHOL SOLVENT POLARITY ON THE ANTIOXIDANT, ANTIBACTERIAL AND ANTI-INFLAMMATORY ACTIVITIES OF FOUR MOROCCAN LETTUCE VARIETIES (Lactuca sativa L.): A COMPARATIVE STUDY

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This research work aimed to find a correlation between solvent polarity on the extraction yield, on the content of polyphenols and flavonoids as well as on the antioxidant, antibacterial and anti-inflammatory potencies of two red and two green varieties of Lactuca sativa L. hydroalcoholic extracts.

The results showed that extraction with polar solvent (H₂O, 100%) presented maximal yields while the alcohol alone gave the lowest yields. Furthermore, the mixture between these two solvents with different proportions (alcohol with water) showed more other interesting characters than alcohol or water taken separately. Phytochemical contents were affected by varying solvent polarity, within, the extraction with solvent polarity 5.8 (H₂O 25% /Ethanol 75%) showed the highest content of total polyphenols while the polarity of 7.3 (H₂O 50% / Ethanol 50%), was specifically richer in flavonoids. Our results further showed that the extracts of the two red varieties (capitata L nidus tenerrima and crispa) exhibited a broad spectrum of bioactivities more significantly than the two green varieties (longifolia and capitata L nidus jaggeri). The hydro-alcoholic extracts of polarity 5.8 were the most effective in vitro and in vivo in the evaluation of the antioxidant, antibacterial and also anti-inflammatory capacities with the best activity against DPPH was recorded for the red variety Lactuca sativa var. crispa, moreover, this same extract at 1 mg / ml showed a maximal inhibitory activity of 80.8% on the bovine serum albumin denaturation, it showed also a comparable anti-inflammatory effect to dexamethazone which is achieved at high concentrations (2 to 4 g / Kg).