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Taraxacum officinale as a bioactives source with antimicrobial properties useful for urinary tract infections

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Currently, the most effective treatment for recurrent urinary tract infections in women is the use of antibiotics. However, limitation for this treatment is the duration and dosage of antibiotics and the resistance that bacteria develop after a long period of administration. Therefore, alternatives approaches need to be considered. The most common is the use traditional botanical remedies or preparations, in which the use of dandelion (*Taraxacum* sp.) has several references in treating bacterial infections. These properties have been attributed to the large number of bioactive compounds in their tissues, particularly triterpenes such as amyrin and lupeol, antioxidants and phenolics compounds. Antibacterial activity was evaluated *in vitro* by serial microdilution using a hexane extract from *T. officinale* leaves against *Escherichia coli, Klebsiella pneumoniae* and *Proteus mirabilis* as uropathogens, showing 100% inhibition at 400 mg/L for *E. coli* and 1600 mg/L for the other tested strains. Phytochemical analysis of plant tissue grown *in vitro* revealed the presence α-amyrin and lupeol both in leaves and in callus cultures, which extract would be further tested in rats. These results corroborate the folkloric use is given to the use of dandelion against bacterial infections and suggest the potential of these compounds for its potential use in the pharmaceutical industry, related to the formulation of natural products associated with improving urinary tract diseases. On the other hand, it can set the groundwork for a potential production system of these compounds for medicinal purposes, using biotechnology techniques that stimulate the synthesis and accumulation of these triterpenes into the plant cell.

Biography

Maria Eugenia Martínez is a Doctoral candidate in Biochemical Engineering Sciences, focusing her thesis in Plant Biotechnology using *Taraxacum* as a scientific model for bioactives compounds recuperation and biomass valorization. She is currently working in the FP7 DISCO Project for bioactives production under "green chemistry" and further market commercialization.

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