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Characterization and distinction of species the genera *Gnaphalium* and *Achyrocline* using chromatographic profiles (HPLC-DAD) and pattern recognition techniques

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Plants of the genera *Gnaphalium* and *Achyrocline*, belonging to the family Asteraceae are used in various parts of the world as medicinal plants due to their recognized applications in the therapeutic treatment of various pathological conditions. Additionally, it has been found that its extracts have activities such as antioxidants, anti-inflammatory, antimicrobial and even anti-tumor. Several species belonging to these genera have similar morphological characteristics which leads to sometimes confused between these genera, there are, however, significant differences in the class and quantity of flavonoids and other molecules with biological potential present in them. In this work a chromatographic study was performed by HPLC-DAD, for the leaf and flower ketone extracts in the species *Gnaphalium elegans, Achyrocline satureioides* and *Achyrocline bogotensis*, through which it was possible to establish signal patterns, specific for each one of them, thus allowing to have a tool for its rapid identification and that it can be used to evaluate the biological potential of other species the family Asteraceae. By pattern recognition techniques, it was established that these profiles show significant differences between them, which allows a quick and unambiguous characterization of these species. The methodology developed for the establishment of chromatographic profiles, which includes a gradient with 2% acetic acid and methanol, on a RP-18 column, it also allows the identification and quantification of at least 10 flavonoids that may be present in these species. These results contribute to the optimization of time and resources around the investigations that will lead to the establishment of therapeutic treatments from extracts of these plants.

Biography

Sergio Cuervo-Escobar is Chemist and PhD from Universidad Nacional de Colombia. He has experience as a Professor at the undergraduate, master's and doctoral levels in the areas of general chemistry, biochemistry, analytical chemistry and quality control. He has extensive experience in HPLC, instrumental analysis, development and validation of analytical methodologies. He also worked as a researcher in the area of Biochemistry, Analytical Chemistry and Phytochemistry. He has published several articles in recognized journals and has been editor of the journal of Sciences Faculty of the U.D.C.A.

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