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Commentary

Determination of Aloin Content by HPLC method

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DESCRIPTION

Aloin is a bitter, yellow-brown colored compound and also known as Barbaloin. It is usually prepared by extraction from aloe latex, the bitter yellow exudate that seeps out from just underneath the skin of aloe leaves. The latex is then dried and powdered to make the final product, often made into tablets or a beverage. Chromatographic patterns in the genus *Aloe* have been investigated by several workers. A recent chemotaxonomic study of the genus has revealed various chemical groups at the infrageneric level. The largely artificial nature of the present classification system for the genus *Aloe*, as presented in the two major works of Reynolds and Reynolds, is in need of revision with the aid of additional characters. Leaf exudates chemistry provides additional evidence in a multidisciplinary approach to assessing possible natural relationships. Analytical HPLC is used for separation and identification of a small amount of samples but the pure isolated compound cannot be collected. However, crude extracts consists of a mixture of numerous components. ESCA (Expert Systems Applied to Chemical Analysis), started research in March 1987, with the aim of building prototype expert system for HPLC method development. The HPLC method can be applied directly to analyze the chemical constituents of aloe without any modification. Although some Reverse-Phase Liquid Chromatographic methods for the analysis of a few phenolic compounds have been reported, these mainly focused on the chemotaxonomic data of C-glycosyl anthrones, their profiles, chromatographic patterns, or identification of aloin A and B in aloe powders. Aloin (or barbaloin) is known as the main laxative component of aloe preparations, and it has generally been used as a key component for the quality control of pharmaceuticals containing aloe. There are several methods for the determination of aloin content. Some methods were developed for the determination of barbaloin in Aloe, such as colorimetry, fluorometry and HPLC. Barbaloin has been estimated as its trimethyl derivatives by gas chromatography and mass spectrometry. The dry exudates analysed for aloin content per 100 ml of latex by the usual colorimetric method. Volatile compound from the peel of Aloevera (L.) was analyzed using Gas Chromatography and Mass Spectroscopy (GCMS) and Fourier Transform Infra-Red (FTIR). Aloin analyses were carried out by two dimensional liquid phase chromatography coupled with tandem mass spectrometry detection (HPLC-MS/MS). HPLC plays an important role not only in science research field but also in the pharmaceutical industry. Recently, some species of aloe, including *A. barbadensis*, have also been widely used, not only as laxatives, but also as ingredients of health foods and cosmetics. Aloesin shows less seasonal variation than aloin, and is also more stable and resistant toward hydrolysis (by acid or base) and to high temperatures. Moreover, aloin has also been reported in other plants, while aloesin has not been found in any other plants except *Aloe* species and can be easily analysed. This method would be useful in the quantitative and quantitative analysis of the major compounds in *Aloe* species. It would also be useful for analyzing bulking samples, and for the quality control in the cosmetics, pharmaceutical or health food industries. Moreover, the results obtained by means of the technique suggested a reason for the prevailing use of Mosselbay and Port Elizabeth aloes in bitter spirits formulation. A Reserved Phase HPLC method was developed by Jun for the determination of barbaloin in *Aloevera L. var. chinensis* (Haw.) Berger and *Aloe barbadensis* Miller and whether there was a close relationship between the contents of barbaloin and their environments in which they were growing was decided. The contents of barbaloin of 12 samples ranged from 61160 to 31911μg-g. HPLC has been used by Yuan to study the leaf structure, content and the storage location of aloin in the leaves of six species of *Aloe L.* for study by means of semi-thin section, High Performance Liquid Chromatography (HPLC) and fluorescent microscope.

CONCLUSION

HPLC has also been used to detect toxicity in purified Aloevera gel fractions using the Artemia nauplii lethality bioassay. Results not only detect toxicity in gel extracts, but also assigned this toxicity to individual fractions. Methanol extraction and RP-HPLC were used to purify fractions from Aloevera gel leading to the isolation of 13 major components. Of these 13 fractions tested using the Artemia nauplii lethality bioassay, one proved to be toxic. A High-Performance Liquid Chromatography (HPLC) method has been developed for the first time by Hu to simultaneously quantify the four active ingredients, namely aloin, baicalein, aloe-emodin and wogonin, in Dangguilonghui tablet. Nowak studied the phenolic acids in the leaves of several Aloe species.

The current study demonstrates the aloin content of Aloevera latex in 30 accessions by RP-HPLC. The variety of biologically active compounds found in Aloe species still draws scientists' attention and remains a rich source of investigations. Within these constituents, phenolic compounds, especially phenolic acids, seem to be poorly investigated. Phenolic acids are pharmacologically active compounds. Their occurrence may exert a crucial impact on the herb's activity.