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Chromatographic separation and detection methods of *Aloe arborescens* Miller constituents: A systematic review

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Aloe arborescens Miller (Family Asphodelaceae) is a member of genus Aloe, which is used in traditional medicine to cure various diseases. The extracts of the plant have been reported to possess anticancer, immunomodulator, antidiabetic, anti-inflammatory and antioxidant activities. The phytochemical investigations have revealed diverse chemical constituents, including phenolics [anthraquinones, anthrones, pyrones, chromones and coumarins], polysaccharides [arborans [(1-4) linked glucomannans, polysaccharide (A, B and C): (A: a linear (1-6)-O- α -glucan, B: a branching (1-2)-O-L-arabinose with (1-2)-O-D-galactose linkages and C: (1-4)-O- β -mannan with 18% acetyl group)], glycoproteins and carboxypeptidase enzyme. There are many reports, describing the different methodologies developed to perform chemical analysis as well as, separation, detection, and identification of these constituents. Different chromatographic techniques were applied such as gas chromatography (GC), high-performance liquid chromatography (HPLC), liquid chromatography-electrospray ionization coupled with mass spectroscopy (LC-ESI/MS/MS) and gel filtration chromatography. Also, the isolated compounds were identified based on the spectroscopic analysis; ultraviolet-visible spectroscopy (UV-vis), infrared spectroscopy (IR), mass spectroscopy (MS) and nuclear-magnetic-resonance (NMR). This study aims to pinpoint the active components besides finding out new structural leads for future drugs. Therefore, the review is targeted to provide evidence reported in the relevant literature on qualitative and quantitative research to assist scientists in the isolation and characterization of bioactive compounds in *Aloe arborescens*.

Biography

Jilan A Nazeam received her PhD. and MSc. degree in pharmaceutical sciences from the University of Ain Shams, Egypt. She teaches separation techniques and advanced chromatography to postgraduate students. Her main research interests are focused on the discovery, the characterization and the optimization of novel anti-cancer drugs and the development of molecular and chemical tools to support natural product drug discovery and the identification of potential new therapeutics as polysaccharides and alkaloids. She contributed to a number of projects in this area of HYPERLINK "<https://www.researchgate.net/project/Drug-Discovery-and-Development-Research-Faculty-of-Pharmacy-Ain-Shams-University>" development research in oncology and HYPERLINK "<https://www.researchgate.net/project/Cancer-stem-cell-3>" cancer stem cell assays. She has published in systematic reviews and natural medicine journals, including, phytotherapy research, medicinal food, natural product research, chromatography B and other medical journals.

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