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Recent developments in the application of membrane technologies for concentration of plants extracts.

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For a long time, plants and their medicinal properties have attracted human interest, there is ample evidence that humans have used many plants during their long struggle against disease. With the development of scientific research, it has been proven that plants are the source of bioactive ingredients, which have many positive effects on health and disease prevention. The main method to obtain these bioactive components is the extraction. The efficiency of the extraction processes mainly depends on the choice and selectivity of the solvents and the conditions of the process. Several solvents have been used and methods are followed starting by simple soaking processes to supercritical fluid extraction (SFE) and ultrasound-assisted extraction (UAE). But the most difficult aspect of the process of obtaining the active compounds is recovering them from the solvent. To over this challenge, many traditional methods were followed which had many negative downsides, such as consuming large amounts of energy, disintegrating and escaping the active ingredients, especially those sensitive to heat, forming unwanted compounds, and producing highly polluting liquid waste. Due to the above and other reasons, the membrane technology has been followed as an environmentally friendly technology for the purification of plant extracts. Membrane technology has proven effective in separating and recovering bioactive compounds from plant extracts such as sage, rosemary, green and black tea, citrus peels, seeds and fruit juices, ginseng extracts, etc. In addition to its advantages in reducing operation and maintenance costs, moderate operating conditions of temperature and pressure, and the absence of industrial waste, scientific studies have shown its high ability to reject active compounds such as polyphenols, flavonoids. Therefore, this post aims to provide a review of academic studies that dealt with the use of different membrane techniques to concentrate plant extracts