Balunkeswar Nayak, J Food Process Technol 2015, 6:7
http://dx.doi.org/10.4172/2157-7110.S1.020

OMICS International
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6th Global Summit and Expo on
Food & Beverages
August 03-05, 2015 Orlando-FL, USA

Techniques for the extraction of bioactive compounds from plants

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The "ideal" extraction method must provide high extraction rates and should be non-destructive and time saving. In addition, as per the environmental requirements and economic impact, the food and nutraceutical industry prefer green extraction and processing to ensure a safe and high quality extract/product. Recently, more rapid and automated methods including supercritical fluid extraction (SFE), pressurized liquid extraction (PLE) or microwave-assisted extraction (MAE), ultrasound extraction (UAE) and accelerated solvent extractor (ASE) have been used. The above extraction methods are advantageous compared to conventional methods because they can be carried out in the absence of light and oxygen, cope with the demand for a reduction in organic solvent consumption and improve the extraction time due to the possibility of working at elevated temperatures or pressures in inert atmospheres. The use of bioactive compounds in different commercial sectors such as pharmaceutical, food and chemical industries signifies the need of the most appropriate and standard method to extract these active components from plant materials. Along with conventional methods, numerous new methods have been established but till now no single method is regarded as standard for extracting bioactive compounds from plants. The efficiencies of conventional and non-conventional extraction methods mostly depend on the critical input parameters; understanding the nature of plant matrix; chemistry of bioactive compounds and scientific expertise. This talk is aimed to discuss different extraction techniques along with their basic mechanism for extracting bioactive compounds from medicinal plants.

Biography

Balunkeswar Nayak is an Assistant Professor of Food Processing at the School of Food & Agriculture in the University of Maine, United States. Prior to joining at the University of Maine, he has worked as a Postdoctoral Fellow in the Food Allergy Research and Resources Program at the University of Nebraska-Lincoln. He has received his PhD in Food Engineering from Washington State University, WA. He has more than 10 years of experience in agricultural, post-harvest and food engineering studying on vegetable bioactive compounds during various bioprocesses.

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