GC-MS based Probiotic Metabolite Profiling

Bharti M[1], Ashish C[2]*

[1]Department of Biotechnology, Punjabi University, Punjab, India

[2]Department of Chemistry, Small and Medium Pharmaceutical Industry Centre, Punjab, India

*Corresponding author: Ashish Chauhan, Department of Chemistry, Small and Medium Pharmaceutical Industry Centre, Punjab, India E-aashishchauhan26@gmail.com

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Editorial

Probiotics are highly beneficial to us and a lot of researchers are proving its immense potential for bio medical applications. With increase in the research on probiotics the need of a technique for its metabolite profiling emerged.

Gas chromatography–mass spectrometry (GC-MS) is a useful analytical tool that combines gas chramatography and mass spectroscopy. GC couples with the detection properties of MS to provide a higher efficiency in sample analyses. As, MS helps to fragment the components and help in identification of sample components on the basis of their mass (Ashish Chauhan et al, 2014). GCMS plays an effective role in metabolite profiling. Metabolite profiling evaluate the change of metabolites, which could be considered as the ultimate responses of biological systems to the environmental variations. Metabolic fingerprinting is explained as the semi-quantitative investigation of extracellular (exo-metabolome) and intracellular (endo-metabolome) metabolites, respectively (Villas-Boas et al., 2005).

Gas chromatography-mass spectrometry provides a relatively high reproducibility, high resolution, good sensitivity needed for analyzing the primary metabolism products including amino acids, organic acids, carbohydrates and fatty acids (Park et al., 2016, Park et al., 2019). Most of the metabolites are nonvolatile in nature, thus derivatization must be carried out before analysis by GC-MS (Mastrangelo et al., 2015).

A GC-MS based metabolic profiling can be carried out to study metabolic differences of probiotic lactic acid bacteria isolated from different sources. Compounds can be identified to differentiate the usefulness of probiotic lactic acid bacteria. In this way the metabolites identified have been reported earlier as a defrosting agent, antioxidant, flavor agent, antimicrobial, natural food additive, anti-inflammatory, anti-sleep disorder agent and anti-cancer agents. GC-MS based metabolite analysis is a useful technique to facilitate the future investigations into the characterization of probiotic lactic acid bacteria.

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