

LIPOPEPTIDE PROFILING OF A *BACILLUS AMYLOLIQUEFACIENS* STRAIN EXTRACT BY HPLC-HRMS TECHNIQUE

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Cyclic lipopeptides are mainly produced by *Bacillus* spp. and they are proven to possess various biological activities such as antimicrobial, anti-inflammatory and anti-tumor effects. These properties propose various possible therapeutic and environmental applications. Such depsipeptides are surfactin, iturin and fengycin; all of them produced mainly by the Gram-positive *Bacillus amyloliquefaciens*. Structurally these molecules are consisted of a short cyclic peptide linked to a fatty acid chain. While surfactin and iturin have heptapeptide “head” parts, fengycin consists of ten amino acids at this part. The chemical composition of these lipopeptides may vary in terms of the length of the lipid chain and the amino acid sequence of the peptide loop, thus forming a number of homologues and isomers of all three depsipeptides. To characterize the variants produced by a *B. amyloliquefaciens* strain, we examined the crude extracts of its ferment broth by high performance liquid chromatography combined with high resolution mass spectrometry (HPLC/HRMS). To identify the different molecules based on the MS² spectra, we carried out the analyses in parallel reaction monitoring mode. For quantitative measurements full MS mode was applied. The results of the qualitative analyses indicated the presence of all three examined cyclic lipopeptides, in forms of numerous homologues and isomers. The quantitative assessments showed that surfactins were the most dominant in our sample, while the amount of fengycin found in the ferment broth was the smallest, although this amount was enough for their comprehensive identification.

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