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PROFILE PROTEINS/PEPTIDES COMPOSITION IN ZEIN EXCIPIENT BY SILVER STAINING SDS-PAGE AND LC-MS/MS

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Zein, one of the most critical protein products extracted from maize seeds, is extensively used in oral controlled drug and biomedical delivery systems as protein-based polymers. The commercial zein products usually form a mixture of zein types. According to the general idea, zein was differentiated into α, β, δ, and γ zein. However, zein being of protein origin, it still has limited application due to the possible immunogenicity. To ensure its safety, comprehensive analysis of its proteins/peptides component is necessary. Here we used proteomics analysis to uncover the proteins/peptides components in zein products. By using silver staining SDS-PAGE and in-gel digestion coupled with LC-MS/MS, we identified nine distinct proteins in zein products. The zein peptidome was also explored by MS and further analyzed by PEAKS Studio. In total 399 peptides originated from 69 proteins were discovered. Among of these, 70 peptides were predicted to have biological activity. Our research uncovered the complex component in zein excipient. Knowledge of these identified proteins/peptides has the potential to improve its safety and expand its application as a biomaterial.

Biography

Menglin Li is an assistant professor of National Research Center for Analysis of Drugs and Metabolites at PUMC & CAMS. I have many years of research experience in the field of proteomics. The projects which I performed include establishment of multidimensional chromatographic separation technique, in-depth identification of urinary proteome, and injury mechanism of triptolide in the rat model by using quantitative proteomics and targeted fatty acids analysis. At the same time, I participated in a variety of new drug research, including the anti-tumor mechanism of chlorogenic acid, the safety evaluation of pharmaceutical excipients and other projects. Research interests are proteomics, lipodomics, protein separation method.

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