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Analysis of 32 toxic natural substances in herbal products by liquid chromatography quadrupole linear ion trap mass spectrometry

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In this study, an LC-MS/MS EPI method was developed for simultaneous determination of 32 toxic natural substances in herbal products. The analytes include aconite alkaloids, lobelia alkaloids, solanaceous alkaloids, digitalis steroid glycosides, strychnine, tetrahydropalmatine etc. They were commonly used in herbal products. The target analytes were extracted from the samples using the QuEChERS method and analysed using AB SCIEX QTRAP 5500 coupled with Agilent HPLC 1260. The column used was biphenyl reversed phase analytical column. Mobile phase A and B were deionized water and methanol respectively, both containing 5 mM Ammonium Formate and 0.1% formic acid. The MRM-IDA-EPI method enabled quantification and confirmation of the analytes in a single run. The EPI was used for the qualitative analysis while the MRM was used for the quantitative analysis. Limits of detection were determined to be below $10\mu g/kg$ for the majority of the analytes. The recoveries for those commonly detected natural substances were in the acceptable range of 70-120%.

Biography

Lan Eng LOW has completed her MSc from National University of Singapore in Applied Chemistry. She is the Senior Analytical Scientist in the Pharmaceutical Laboratory of Health Sciences Authority, the National Regulatory body in Singapore. She has various experiences in biologics manufacturing and pharmaceutical analysis especially in Quality Management and the use of advanced analytical instrumentation for pharmaceutical analysis.

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