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Developing a LC-MS/MS method for determination of okadaic acid in green mussels

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Summary: *A selective LC-MS/MS method has been developed to determine okadaic acid, the main toxin causing diarrhea shellfish poisoning, in green mussel collected in some coastal regions of Vietnam. In this method, okadaic acid was extracted from sample with methanol, the methanol extraction was then centrifuged at 6000 rpm and gone through the Strata-X SPE column for pre-treatment before analysis by LC-MS/MS. The chromatographic procedure used C18 column as stationary phase and a mixture of acetonitrile and 0.1% (m/v) formic acid as mobile phase in gradient elusion mode. The ESI(-)-MS/MS detection used the precursor ion (m/z = 803.5) and 2 product ions (m/z = 255.1 and 563.3) to identify okadaic acid and one product ion (m/z = 255.1) for quantitative determination of okadaic acid. The limit of quantification (LOQ) and limit of detection (LOD) for okadaic acid of the established method were 5.0 ng/g and 16.5 ng/g in green mussel's tissue, respectively. The method was also validated in terms of specificity, linearity, accuracy and precision, and has been proved to be reliable enough for identification and quantitative determination of okadaic acid in green mussels.*