

## Analysis of aflatoxins in nonalcoholic beer using liquid-liquid extraction and ultra performance LC-MS/MS

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Aflatoxins AFB<sub>1</sub>, AFB<sub>2</sub>, AFG<sub>1</sub>, and AFG<sub>2</sub> are toxic secondary metabolites produced by *Aspergillus flavus* and *Aspergillus parasiticus* and poses a potential threat to food safety. In the present work, liquid-liquid extraction and ultraperformance LC-MS/MS method has been applied for the determination of four naturally occurring aflatoxins AFB<sub>1</sub>, AFB<sub>2</sub>, AFG<sub>1</sub>, and AFG<sub>2</sub> in nonalcoholic beer. Aflatoxins extraction from nonalcoholic beer was carried out using liquid-liquid extraction procedure. The effects of solvent-types were studied to obtain maximum recovery of the target analytes with minimum contamination. Among different solvents, the aflatoxins extraction was best achieved using ethyl acetate. The obtained recoveries were ranged from 85 to 96% with good quality parameters: LOD values between 0.001 and 0.003 ng/mL, linearity of the calibration curve ( $r^2 > 0.999$ ), and repeatability (run-to-run) and reproducibility (day-to-day) precisions with RSDs lower than 5% ( $n=5$ ) achieved at 0.50 ng/mL concentration. The optimized liquid-liquid extraction in combination with ultraperformance LC-MS/MS was applied successfully to the analysis of AFB<sub>1</sub>, AFB<sub>2</sub>, AFG<sub>1</sub>, and AFG<sub>2</sub> aflatoxins in 11 nonalcoholic beers and were detected up to 15.31 ng/L in some of the samples.

### Biography

Zeid A Alothman has completed his Ph.D. from Oklahoma State University 2006 and joined as an Assistant pProfessor in King Saud University. He is the director of Advanced Materials Research Chair in College of Science, KSU. He has published a few books and more than 50 papers in reputed journals and serving as an editorial board member of various reputed journals.

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