



## **Application of vortex assisted dispersive liquid-liquid microextraction followed by gas chromatography-flame ionization detection for acrylamide determination in fried fruits**

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Acrylamide (AA) is a toxic and probably carcinogenic for humans that is formed in fried food during processing or cooking at high temperature. An efficient, simple, and green vortex assisted dispersive liquid-liquid microextraction (VA-DLLME) followed by gas chromatography coupled with flame ionization detection (GC-FID) has been developed as a new approach for extraction and preconcentration of AA after derivatization in fried fruits. AA in the fried fruit such as potato chips, banana chips, and durian chips was extracted to water phase followed with defatting by hexane. The collected aqueous phase was then treated with Carrze solution for water-soluble carbohydrate and protein removal. AA was subsequently derivatized with xanthyldrol in methanol (a disperser solvent) to xanthyl-AA under an acidic and heating condition. Anisole was added for extraction and preconcentration of xanthyl-AA using VA-DLLME. The cloudy was separated by centrifugation before injection to GC-FID. Under the optimal conditions, a linear calibration curve in the range of 0.5 – 1000 µg/L ( $R^2 \geq 0.9997$ ) and the precision of 2.59 %RSD were obtained. The limits of detection (LOD) and quantitation (LOQ) were 0.1 µg/L and 0.5 µg/L, respectively. The developed method will be applied for analysis of AA in fried fruits purchased from local retail stores in Pathum Thani, Thailand.

**Keywords:** Acrylamide; Fried fruit; Vortex assisted dispersive liquid-liquid microextraction; GC-FID