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A New Enrichment Method for Quantification of 5-Hydroxymethylfurfural by Indirect Flame Atomic Absorption Spectrometry in Honey and Jam Samples

By: Gurkan, R (Gurkan, Ramazan) [1]

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(F) in processed foods and the available methods. Hence, an concentration of 5-HMF from the

ing ultrasound-assisted-cloud spectrometry (FAAS), was samples.

the presence of Mn(II) and an anionic surfactant, SDS for extraction of 5-HMF at pH 5.0. For dispersing reagents in sample solution, low amounts of mixed surfactant, triton X-45 and SDS were mixed and fast-injected into the extraction media. A cloudy solution formed, and after reaction of 5-HMF with reagents, the cloudy solution was centrifuged. The extracted 5-HMF in the surfactant-rich phase was dissolved in acidic acetone and indirectly analyzed by FAAS.

Results: The method showed a detection limit of 1.27 µg/L in linear working range of 4-240 µg/L, good precision (2.3-6.5%), and recovery rates (93.5-97%) after preconcentration of 70-fold.

Conclusions: Within this study, an accurate and reliable method for the indirect quantification of 5-HMF in selected samples was successfully developed with a sensitivity improvement factor of 30.6.

Highlights: The figures of merit for the developed indirect method were appropriate. The applicability of the method for the analysis of 5-HMF in processed foods was excellent.

Keywords

Keywords Plus: PERFORMANCE LIQUID-CHROMATOGRAPHY; FURANIC COMPOUNDS; CLOUD POINT; MICROEXTRACTION; SEPARATION; HPLC; HMF

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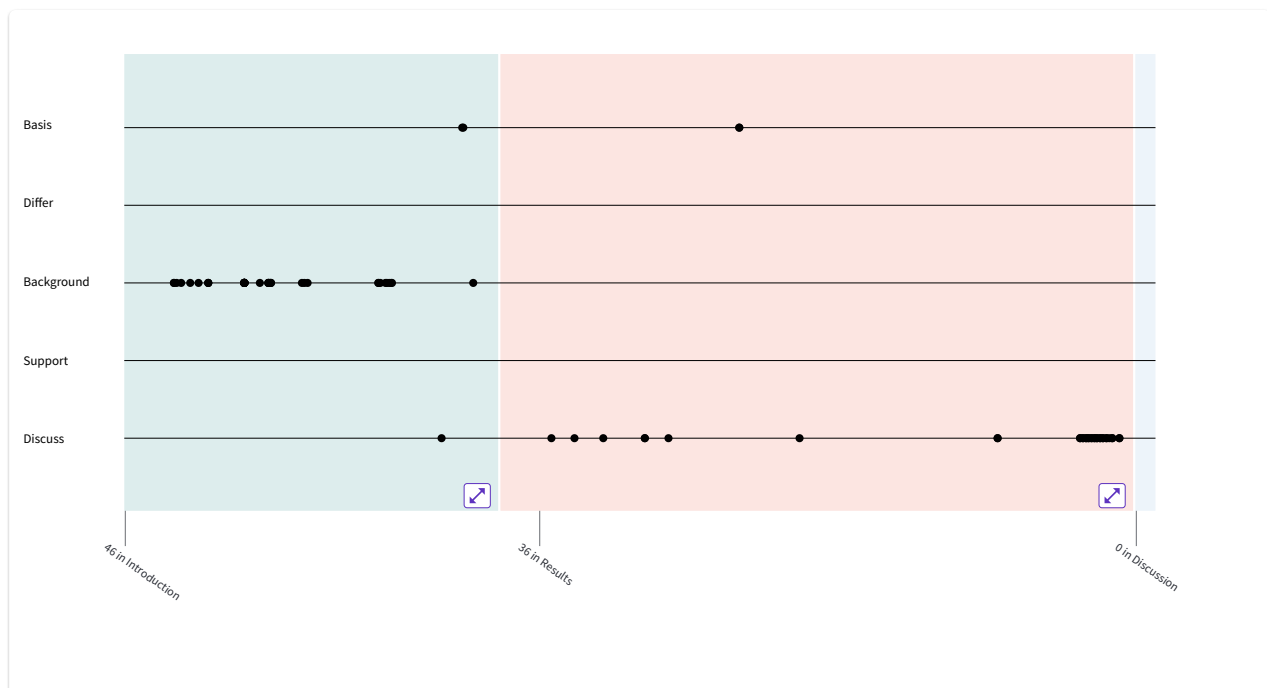
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