

ANALYSIS OF VOLATILE COMPOUNDS FROM HOUSEHOLD PLASTIC
PRODUCTS USING SOLID PHASE MICROEXTRACTION (SPME) AND GAS
CHROMATOGRAPH WITH MASS SPECTROMETRY DETECTOR (GC-MSD)

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ABSTRACT

ANALYSIS OF VOLATILE COMPOUNDS FROM HOUSEHOLD PLASTIC PRODUCTS USING SOLID PHASE MICROEXTRACTION (SPME) AND GAS CHROMATOGRAPH WITH MASS SPECTROMETRY DETECTOR (GC-MSD)

A method for the identification of volatile compounds from some household plastic products (i.e. food packaging bag, microwaveable food container, and mineral water bottle) using solid phase microextraction (SPME) and gas chromatography with mass spectrometry detector (GC-MSD) was developed. SPME fiber coated with 100 μm polydimethylsiloxane was used in this study. Optimization of SPME parameters such as extraction temperature, extraction time, and desorption time on the amount of compound extracted were studied using block design and statistical software package Design-Expert 6.0.6. The optimum experimental condition was determined using response surface method. In this study, the optimized condition for SPME technique was 80°C extraction temperature, 40 minutes extraction time with desorption time of 80 seconds. Using the optimized condition, the profile of volatile compounds for each type of plastic products was obtained and compared. SPME method was found to be a solventless, rapid, and simple method in studying the profile of volatile compounds from household plastic products.