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Determination of organic acid preservatives in shrimp paste by headspace solid-phase micro-extraction combined with gas chromatography**Nuttanee Tungkijansin and Puttaruksa Varanusupakul**
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Organic acids, which are benzoic acid, sorbic acid and propionic acid, are the most common preservatives used in foods because of their low cost, high efficiency and having antimicrobial property. However, these preservatives at very high level can cause health problems. Hence, the analytical method for determination of benzoic acid, sorbic acid and propionic acid in food is necessary. In Thailand, shrimp paste (Kapi) is an integral ingredient in many Thai dishes because it gives a depth of flavor in curry pastes. Owing to complex matrix in shrimp paste, sample preparation is required. In this work, Headspace Solid-Phase Micro-Extraction (HS-SPME) which is a green method analysis was developed for extraction of organic acid preservatives in shrimp pastes and analyzed by Gas Chromatography with Flame Ionization Detector (GC-FID). The Polyacrylate coated fiber (PA) was used to extract the analytes from headspace and were desorbed by thermal desorption at 250°C in the GC injection port. The optimum condition for HS-SPME was extraction temperature of 60°C, extraction time of 30 min and the addition of 0.5 mol L⁻¹ sulfuric acid and 4% w/v of anhydrous sodium sulfate. Under the optimum condition, high accuracy and precision of the determination of three organic acid preservatives in shrimp paste were achieved.

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