

“Determination of Thiamin in Cooked Sausages”

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Thiamin is the water-soluble vitamin B₁ involved in the energy metabolism of proteins, lipids, and carbohydrates. Vitamin B₁ commonly exists in most animal products as its coenzyme, thiamin pyrophosphate. A reliable and cost-efficient high-performance liquid chromatography (HPLC) method has been developed to determine thiamin content in difficult sample matrices such as cooked sausages. The investigation of various acidic and enzymatic conditions found the incubation of samples with 6% clara-diestase at 50 °C for 3 hours best released the vitamin from its phosphate ester. Following the oxidation of thiamin to its fluorescent derivative thiochrome, sample extracts were purified using a C₁₈ Sep-Pak cartridge. Final determination utilized reversed-phase HPLC with fluorescence detector (excitation 360 nm, emission 430 nm) on a low-cost 25 cm x 4 mm i.d. Spherisorb C₈ cartridge using a mixture of acetonitrile (70:30, v/v) and 5 mM phosphate buffer pH 7.0 as the mobile phase. Precision of the method was 1.5% within a day and 5.2% between days. The detection limit was 0.015 mg/100g. Of the thiamin hydrochloride added to samples of cooked sausage, all recoveries were better than 90%. The mean value for thiamin was between 0.039 and 0.508 mg/100 g fresh weight for samples analyzed.

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