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Analysis of Short-Chain Fatty Acids in Water - Acid Amide Derivatization with DMT-MM

Analyses of short-chain fatty acids in water by gas chromatography can be performed by measuring the sample after derivatization or by introducing the sample directly into a capillary column with a high split ratio. Derivatization methods may result in loss of the target product in processes such as sample drying and solubilization.

In this study, the derivatization reagent DMT-MM* was used because it does not require sample drying or conversion, and the reaction is reliable for samples containing water. DMT-MM can be used to derivatize short-chain fatty acids in water.

* 4-(4,6-dimethoxy-1,3,5-triazin-2-yl)- 4-methylmorpholinium chloride

Derivatization Methods and Measurement Cond

80 µL of a solution of octylamine in methanol (100 mmol/L) and 80 µL of a solution of DMT-MM* 1,2 in methanol (100 mmol/L) was added to a solution of short-chain fatty acids (10 µL per 15 mg) and allowed to stand overnight at room temperature and then measured by GC - FID. DMT-MM (Cat. No. 1022-10005) is a reagent that dehydrates and condenses carboxylic acids and amines at room temperature.

Conditions	
System	: GC - FID
Column	: InertCap 1
	0.25 mm l.D. x 30 m df = 1.0 μm
Col. Cat. No.	: 1010-11145
Col.Temp.	: 160 °C - 10 °C/min - 300 °C (10 min)
Carrier Gas	: He 1.0 mL/min
Injection	: Split 15:1
-	250 °C
Detection	: FID 250 °C
Inj. Vol.	:1μL

Reaction Schemes and Chromatograms

Examples of

Structures created using Chemistry 4-D Draw which is provided by ChemInnovation Software, Inc.



Pharmaceutical Journals 128 (3), 425-438 (2008). 2) Takashi Kunishima, Synthesis and Application Development of a New Triazine-type Dehydrated Condenser, Wako Junyaku Journal 72(2), (2004)

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