

Comparison of Benzylation and Isobutoxycarbonylation for the Determination of Phenol Using GC/MS

(페놀의 GC/MS 분석을 위한 benzylation과 isobutoxycarbonylation에 의한 유도체화 비교)

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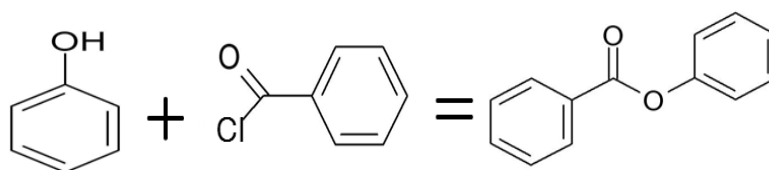
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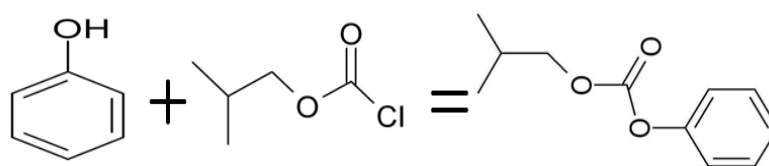
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An efficient method is described for the determination of phenol containing in aqueous samples and complex matrix sample such as agricultural products. The benzylation method is a very simple method, low detection limits and good reproducibility, by the extractive derivatization in samples. The recoveries by this method were 87.4-91.0 % and standard deviation were ≤ 2.5 % in aqueous samples. However, benzylated phenol was not detected in the complex matrix sample such as agricultural products. The isobutoxycarbonylation method is based on extractive two-phase isobutoxycarbonyl derivatization with subsequent solid-phase extraction (SPE) for the direct analysis by gas chromatography-mass spectrometry (GC/MS). The recoveries by this method were 82.4-86.7 % and standard deviation were ≤ 6.4 % in aqueous samples. Also, recoveries in the complex matrix sample such as agricultural products indicated 82.6-89.7 % and standard deviation indicated ≤ 5.1 %. The benzylation method allowed rapid screening for phenol when applied to aqueous samples spiked with phenol. The isobutoxycarbonylation method is effective for the determination of phenol present in aqueous samples and complex matrix sample.

Benylation



Isobutoxycarbonylation



Keywords : benzylation, isobutoxycarbonylation, derivatization, GC/MS

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