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Letter to the Editor

Simultaneous determination of glyceryl trinitrate and its metabolites, 1,2- and 1,3-glyceryl dinitrate, in plasma using capillary gas chromatography

Sir,

In a recent (1988) paper, Lee et al. [1] described a novel method as "... the first selective and sensitive gas chromatographic method with electron-capture detection which is capable of simultaneously measuring picogram levels of glyceryl trinitrate (GTN), 1,2-glyceryl dinitrate (1,2-GDN) and 1,3-glyceryl dinitrate (1,3-GDN) in 1 ml of plasma, thereby not requiring a second analytical procedure for the metabolites as has been used previously ...". However, a paper describing the simultaneous quantitation of the nitrates was published in December 1986 by Langseth-Manrique et al. [2].

The method [2] involves a single extraction step with benzene, with a recovery of 75% for the GDNs and 92% for GTN, compared with 45% (1,2-GDN) when dichloromethane-pentane (3:7, v/v) is used as the extraction solvent [1]. A rather large solvent peak due to dichloromethane is observed in the chromatogram of the latter, as electron-capture detection is used. The chromatograms are similar regarding 'purity'. The separation of the nitrates is better in the method of Lee et al. [1]; however, the authors did not report the retention times. The lower limits of detection are 0.05, 0.5 and 0.1 nmol/l for GTN, 1,2-GDN and 1,3-GDN, respectively [2], compared with 0.1 (GTN) and 0.5 nmol/l (GDN) reported by Lee et al. [1]. The method [2] has been used to determine the concentration of the nitrates in plasma after intravenous infusion of GTN.

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