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Discussion

New assay method for the determination of vinpocetine in human plasma by gas chromatography–mass spectrometry without transesterification caused by solvents: a reply

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In a paper by Lohmann and Dingler [1], on the determination of vinpocetine, the authors state "This paper therefore describes for the first time a validated method..." and "The previously described method [2] shows inadequate reproducibility". Both statements are wrong. Polgár and Vereczkey [3] described a gas chromatographic method with N-FID, which is fine for concentrations down to 1 ng/ml. We published the aforementioned method with a limit of determination of 0.1 ng/ml. Our method was validated by data on the precision, reproducibility, specificity, recovery and stability. Since transesterification is a theoretical possibility, we had checked for that but had never found any signs of conversion.

With authentic standards from the authors we have now found that vinpocetine contains the internal standard as an impurity of *ca.* 1%. This figure was independent of the solvent used: methanol, ethanol or 2-propanol.

EXPERIMENTAL

Vinpocetine and apovincaminic acid methyl ester were supplied by Thiemann Arzneimittel (Waltrop, Germany). Methanol, ethanol and 2-propanol were of analytical grade from Merck (Darmstadt, Germany). Amounts of 100 ng each of both compounds, either alone or in combination, dissolved in 2 μl of one of the three solvents, were injected into the gas chromatograph–mass spectrometer (5990 II/5971 A) from Hewlett Packard (Palo Alto, CA, U.S.A.) using the KAS

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503 from Gerstel (Mülheim, Germany). The KAS was heated to 270°C before the injection, the same injector temperature as reported previously [1]. The chromatographic conditions, too, were identical with those reported [1].

RESULTS AND DISCUSSION

Under conditions similar to those reported by Lohmann and Dingler [1] we found impurities of apovincaminic acid methyl ester in vinpocentine of *ca.* 1%. The nature of the solvent had no influence on this value, showing that with methanol no transesterification took place. The discrepancy between our and their results may be due to geometric differences or other factors of the injector. Concerning the irreproducible recovery found by Lohmann and Dingler we offer two explanations.

(1) Our glassware was cleaned according to an elaborate procedure to prevent contamination. This procedure might have additionally modified the glass surface and thereby prevented adsorption.

(2) We spiked plasma samples by adding standard solutions to plasma, whereas the authors first evaporated the standards to dryness and then added the plasma. We, too, have tried the authors' sequence and also found that the recovery was poor. They are probably right that with AR-Glas their sequence might be used.

In conclusion, we believe that the discrepancies between our results and those of Lohmann and Dingler are due to modifications of our original procedure.

REFERENCES

1 A. Lohmann and E. Dingler, *J. Chromatogr.*, 529 (1990) 442.
2 W. Hammes and R. Weyhenmeyer, *J. Chromatogr.*, 413 (1987) 264.
3 M. Polgár and L. Vereczkey, *Chromatogr. Biochem. Med. Environ. Res.*, 1 (1983) 77.