

B.A.T (U.K. & Export) Ltd.,
Research & Development Centre,
SOUTHAMPTON.

IGMA/BTM/46D

SIMULTANEOUS AND AUTOMATED DETERMINATION
OF NANOGRAM CONCENTRATIONS OF NICOTINE
AND COTININE FOUND IN PLASMA BY
HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY

REPORT NO. RD.2060

22.4.1988

AUTHOR: I.G.M. Anderson

SECTION LEADER: H.F.D. Dymond

ISSUED BY: H.F.D. Dymond

DISTRIBUTION:

Dr. R. Binns	Copy No. 1
Mr. A.L. Heard	" " 2
Mr. M.L. Reynolds -	" " 3, 4
Dr. P.J. Dunn	" " 5
Dr. S.R. Massey	" " 6
Mr. T.I. Wilson	" " 7, 8
Herr E. Rittershaus	" " 9
Dr. E. Kausch	" " 10
Dr. C.J.P. de Siqueira	" " 11
Mr. H.V. Thomsen	" " 12
Mr. R.F. Gilderdale	" " 13
Library	" " 14, 15

COPY NO. _____

© 1986 B.A.T. (U.K. and Export) Limited. This report must not be copied or shown to unauthorised persons

400909736

B.A.T (U.K. & Export) Ltd.,
Research & Development Centre,
SOUTHAMPTON.

IGMA/BTM/46D

22nd April, 1988

SIMULTANEOUS AND AUTOMATED DETERMINATION OF NANOGRAM
CONCENTRATIONS OF NICOTINE AND COTININE FOUND IN PLASMA BY
HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY

REPORT NO. RD.2060

SUMMARY

A sensitive analytical procedure is presented for the simultaneous extraction, and determination of nicotine and its principle metabolite cotinine from plasma.

The method was developed in response to the need for a reliable assay for both compounds applicable to small volumes of plasma (ca. 0.5 ml) and amenable to automation. Automation is particularly necessary when handling large numbers of samples generated by biological studies.

Current extraction systems for nicotine and cotinine have been simplified, utilising a one-step simultaneous extraction procedure for both compounds. This reduces both potential losses of nicotine and cotinine and possible risks of contamination from "environmental" nicotine during work up.

Mean recoveries of 80% for nicotine and 90% for cotinine have been achieved from spiked plasma over the concentration ranges studied.

-i-

© 1986 B A T (U.K. and Export) Limited. This report must not be copied or shown to unauthorised persons

400909737

Using the extraction system described, together with the automated high-performance liquid chromatographic system outlined in this paper, it is possible to obtain a high sample throughput for simultaneous nicotine and cotinine determination - a situation which hitherto has been difficult to achieve.

KEY WORDS

Nicotine
Cotinine
Plasma
High-Performance Liquid Chromatography
Laboratory Automation
Isolation Procedures