CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

ABBREVIATIONS AND SYMBOLS

2OH	diol
a	interception of the straight line
Å	Angstrom
A	eddy diffusion
ACDA	2-amino-1-cyclopentene-1-dithiocarboxylic acid
ADS	alkyldiol silica
AED	atomic emission detector
amu	atomic mass unit
b	slope of the straight line
B	longitudinal molecular diffusion
B/u	longitudinal diffusion
C	mass transfer in the stationary phase
C_1	methyl
C_{18}	octadecyl
C_2	ethyl
C_3	propyl
C_4	butyl
C_6	hexyl
C_8	octyl
CBA	carboxylic acid
CE	capillary electrophoresis
CH	cyclohexyl
CI	chemical ionization
C_L	concentration at limit of detection
C_M	concentration of analyte in the mobile phase
$C_M u$	mass transfer to and from the mobile phase
CN	cyanopropyl

C_S	concentration of analyte in the stationary phase
C_Su	mass transfer to and from the stationary phase
DDDC	diethylammonium-N,N-diethyldithio-carbamate
DEA	diethyl ammoniopropyl tertiary amine
DHHs	Department of Health and Human Services
DIE-SPE	dynamic ion exchange-solid phase extraction
DIP	direct insertion probe
DPPA	ammonium diethyl dithiophosphate
e.g.	for example
ECD	electron capture detector
EI	electron impact
EPA	Environmental Protection Agency
ESI	electrospray ionization
et al.	and others
etc.	and others
EU	European Union
eV	electron volt
EVB	ethyl vinyl benzene
FAB	fast atom bombardment
FDA	Food and Drug Administration
FIA	flow injection analysis
FIA-AAS	flow injection analysis-atomic absorption spectroscopy
FID	flame ionization detector
FPD	flame photometric detector
g m^{-3}	gram per cubic meter
GC	gas chromatography
GC/ECD	gas chromatography with electron capture detector
GC/FID	gas chromatography with flame ionization detector
GC/MS	gas chromatography with mass spectrometer
GCB	graphitized carbon black
H	plate height
HPLC	high performance liquid chromatography

HSSPME	headspace solid phase microextraction
IARC	International Agency for Research on Cancer
ICR	ion cyclotron resonance
I.D.	internal diameter
i.e.	that is
IR	infrared spectroscopy
IS	immunosorbent
IUPAC	International Union of Pure and Applied Chemistry
k	capacity factor (section 1.3.1.3)
k	constant value (section 2.5.3 and Appendix B)
K	distribution constant
kD	kilo dalton
K_{ow}	octanol-water partition coefficient
L	column length
LC	liquid chromatography
LC-APCI/MS	liquid chromatography-atmospheric pressure chemical ionization mass spectrometry
LLE	liquid liquid extraction
LOD	limit of detection
m	meter
mg	milligram
m^2g^{-1}	square meter per gram
mg kg^{-1}	milligram per kilogram
mg l^{-1}	milligram per liter
min	minute
MIP	moleculary imprinted polymer
ml	milliliter
ml min^{-1}	milliliter per minute
mm	millimeter
MS	mass spectrometer
MSPD	matrix solid phase dispersion
m/z	mass-to-charge ratio

n	number of points on the calibration line
N	number of theoretical plates
ND	not detected
NH_2	aminopropyl primaryamine
NICI	negative ion chemical ionization
No.	number
NPD	nitrogen phosphorus detector
NVP	N-vinyl pyrrolidone
Pa	pascal
PBA	phenylboronic acid
PBS	phosphate-buffered saline
PCBs	polychlorinated biphenyls
pH	-log $[H^+]$
Ph	phenyl
PID	photoionization detector
pKa	-log Ka
PLOT	porous-layer open tubular
PRS	propanesulfonic acid
PS	polystyrene
PSA	N-propyl ethylene diamine primary/secondary amine
PS-DVB	poly(styrene-divinylbenzene)
psi	pound per square inch
PTFE	polytetrafluoroethylene
R.S.D.	relative standard deviation
r^2	correlation coefficient
RAMs	restricted access materials
RP-HPLC	reverse phase high performance liquid chromatography
R_s	resolution
SAX	strong anion exchanger
S_B	blank signal standard deviation
SCOT	support-coated open tubular
SCX	strong cation exchanger

SDE	steam distillation-solvent extraction
SFE	supercritical fluid extraction
Si	silica
SPE	solid phase extraction
SPME	solid phase microextraction
TBA	tetrabutyl ammonium sulfite
TCD	thermal conductivity detector
t_M	hold up time
TOF	time of flight
t_R	retention time
t'_R	adjusted retention time
u	linear mobile phase velocity
u_{opt}	optimum flow rate
U.S.A.	United State of America
V_O	void volume
V_M	volume of the mobile phase
V_R	retention volume
V'_R	adjusted retention volume
Vs	volume of the stationary phase
v/v	volume by volume
W_b	peak width at baseline
WCOT	wall-coated open tubular
W_h	peak width at half height
w/v	weight by volume
w/w	weight by weight
x	concentration
y	instrument signals
Y_B	blank signal
Y_i	response value from the instrument corresponding to the individual concentration
$\hat{Y}_i$	value of y on the calculated regression line corresponding to the individual concentration

Y_L	lowest detectable instrument signals
%	percent
e^-	electron
α	selectivity factor
β^-	beta particle
°C	degree Celsius
$\mu g\ kg^{-1}$	microgram per kilogram
$\mu g\ l^{-1}$	microgram per liter
μl	microliter
μm	micrometer
Δt_R	retention time difference