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**Anthocyanins and Copigments from fruits,
vegetables and flowers**

Characterization, Separation and Isolation by Membrane
and Countercurrent Chromatography



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fruits, vegetables and flowers:
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Membrane and Countercurrent Chromatography



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Abbreviations

AcOH	Acetic acid
AF	Anthocyanin-fraction
AJ	Concentrated aronia juice
arab	arabinoside
AP	Aronia pomace
A20	Actiplants® Aronia 20 %
Conc.	Concentration
CCC	Counter-current chromatography
CH ₃ CN	Acetonitrile
CF	Copigment-fraction
CQA	Caffeoylquinic acid
Cy	Cyanidin
δ	Chemical shift in ppm (Parts per Million)
d	Doublet
dd	doublet of doublets
ddd	doublet of doublet of doublets
DAD	Diode array detector
DEPT	Distortionless enhancement by polarisation transfer
Del	Delphinidin
diglc	diglucoside
DM	Dry matter
ESI	Electrospray ionization
EtOAc	Ethyl acetate
EtOH	Ethanol
FW	Fresh weight
GAE	Gallic acid equivalent
gal	galactoside
glc	glucoside
H	Head
HCl	Hydrochloric acid
Hz	Hertz
HPLC	High-performance liquid chromatography
HSCCC	High-Speed Counter-current chromatography
i. D.	inside diameter
J	J-coupling in Hertz (s-1; Hz)



Abbreviations

k	Partition coefficient
λ	Wavelength in nm
LC	Liquid Chromatography
LP	Lower phase
LSRCCC	Low Speed Rotary Countercurrent Chromatography
m	Multiplett
M	Molar
[M] ⁺	Pseudo-molecular ion (pos. Modus)
[M-H] ⁻	Pseudo-molecular ion (neg. Modus)
max	Maxima
MC	Membrane chromatography
MeOH	Methanol
min	Minutes
MS	Mass spectrometry
Mv	Malvidin
<i>m/z</i>	Mass-to-charge-ratio
n-BuOH	n-Butanol
n.d.	Not detected
nm	nanometer
NMR	Nuclear magnetic resonance
No.	Number
p. a.	per Analysis
Pg	Pelargonidin
Pn	Peonidin
ppm	Parts per million
Pt	Petunidin
q	quartet, quadruplet
rpm	Revolutions per minute
RP-18	Reversed-phase 18
rut	rutinoside
s	Singlet
samb	sambubioside
soph	sophoroside
T	Tail
t	triplet
tBME	<i>tert</i> -butyl methyl ether
TFA	Trifluoroacetic acid



Abbreviations

TFA-d ₁	Trifluoroacetic acid- d ₁
TLC	Thin-layer chromatography
t _R	Retention time
UV	Ultraviolet
Vis	Visible
v/v	Volume ratio
xyl	xyloside

