

CHP material series

Analytical and preparative chromatography columns and materials for pharmaceutical applications

MCI GEL™ CHP material series are chromatography materials of porous type polymers.

Because polymeric materials are chemically stable, wide pH range, from acidic to alkaline eluents are able to be applied to MCI GEL™ CHP material series.

MCI GEL™ CHP50 series and CHP20 series are both ST/DVB polymers, but they differences in porosity. Pore size of CHP20 series is fairly larger than that of CHP50 series. Appropriate packing material can be selected in accordance with molecular size of injection samples.

● CHP material series

Base polymer	Functional group	Product name	Particle size [μm]	Pore diameter [nm]	Main application	Equivalent HPLC column
Styrene Divinylbenzene	None	CHP20/P20	20	45	drug compounds Peptides Proteins	CHP20/C04 CHP20/C10
		CHP20/P30	30			
		CHP20/P50	50			
		CHP20/P70	70			
		CHP20/P120	120			
		CHP50/P20	20	25		—
	CHP50/P30	30				
	CSP50/P10	10	25	CHP20/C10		
	Br	CHP07/P120	120	25		CHP07/C04 CHP07/C10
Polymethacrylate	None	CMG20/P10	10	25	CMG20/C04 CMG20/C10	
		CMG20/P30	30			
		CMG20/P150	150			

Fig. 5-34 Phthalic acid esters

Conditions
 Column : MCI GEL™ CHP50/P20, 10mm I.D.×250mmL
 Eluent : H₂O/CH₃CN=20/80
 Flow rate : 0.75 ml/min
 Column temp. : 25°C
 Detection : 254nm
 Sample : 1. Dimethyl phthalate 0.5%
 2. Dipropyl phthalate 0.5%
 3. Dibutyl phthalate 0.5%
 Injection : 100µl

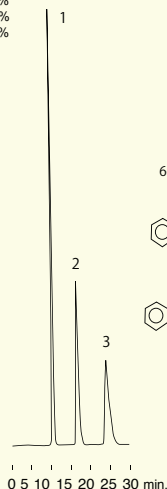
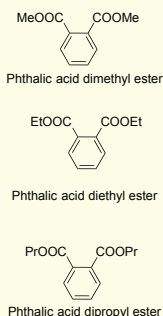


Fig. 5-35 Penicilin antibiotics

Conditions
 Column : MCI GEL™ CHP series, 10mm I.D.×250mmL
 Eluent : CH₃OH/0.05M Phosphate buffer (pH8.0)=60/40
 Flow rate : 2.18 ml/min
 Column temp. : 25°C
 Detection : 254nm
 Sample : 1. 6-Aminopenicillanic acid 1000ppm
 2. Penicillin G 1000ppm
 3. Penicillin V 1000ppm
 Injection : 100µl

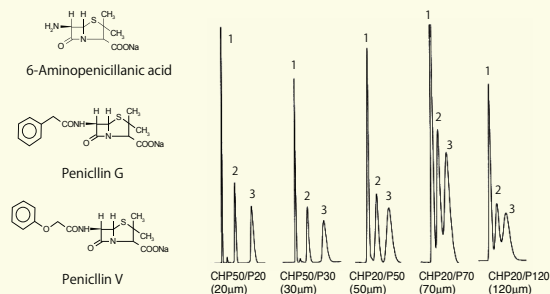
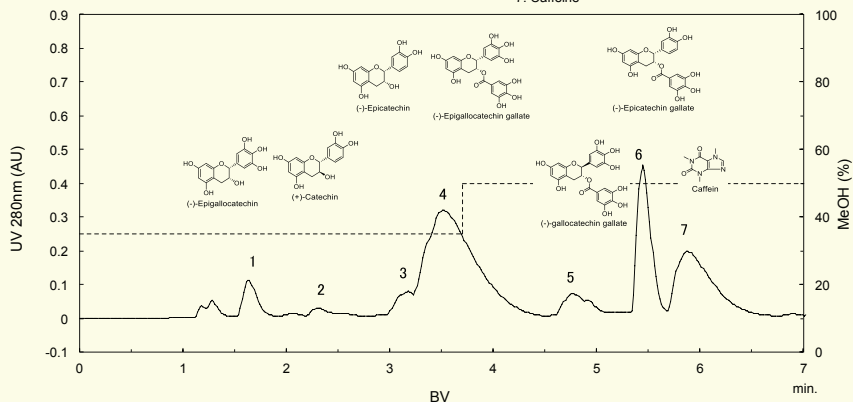


Fig. 5-36 Extract of green tea leaves

Conditions
 Column : MCI GEL™ CHP50/P20, 32mm I.D.×465mm
 Eluent : 0–185min, CH₃OH/0.01M Acetic acid(35:65)
 185–350min, CH₃OH/0.01M Acetic acid(50:50)
 Flow rate : 7.48 ml/min
 Detection : 280nm
 Sample : extract of green tea leaves, injection volume 18.7 ml

1. Epigallocatechin
 2. Catechin
 3. Epicatechin
 4. Epigallocatechin gallate
 5. Gallic acid
 6. Epicatechin gallate
 7. Caffeine



Application data of CHP 20

Fig.5-37 Senna pulv. extract

Conditions

Chromatogram A

Column : MCI GEL™ CHP20/C10

4.6mm I.D.×250mm

Eluent : CH₃OH/1% Acetic acid = 60/40 (vol.)

Flow rate : 0.5 mL/min

Detection : 270nm

Sample : Extract of senna pulv. 10μL

Chromatogram B

Column : MCI GEL™ CHP20/P20

10.0mm I.D.×250mm

Eluent : CH₃OH/1% Acetic acid = 60/40 (vol.)

Flow rate : 2.4 mL/min

Detection : 270nm

Sample : Extract of senna pulv. 80μL

Chromatogram C

Column : MCI GEL™ CHP20/P30

10.0mm I.D.×250mm

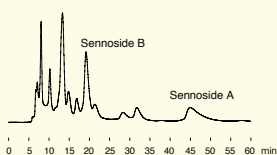
Eluent : CH₃OH/1% Acetic acid = 60/40 (vol.)

Flow rate : 2.4 mL/min

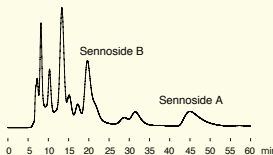
Detection : 270 nm

Sample : Extract of senna pulv. 80μL

(A) CHP20/C10 (10μm)



(B) CHP20/P20 (20μm)



(C) CHP20/P30 (30μm)

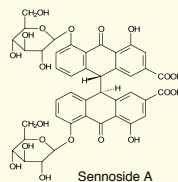
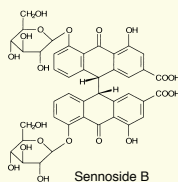
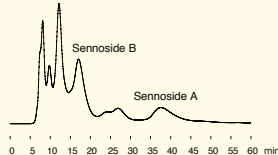


Fig. 5-38 Elution profile of senna pulv. extract separated on MCI GEL™ CHP20/P30

Conditions

Column : MCI GEL™ CHP20/P30

32mm I.D.×490mm

Eluent : CH₃OH + 1% Acetic acid
= 60 + 40 (vol.)

Flow rate : 7.88 mL/min

Detection : 270 nm

Sample : Extract of senna pulv., partially purified by Diaion HP20
injected amount : 39.4 mL

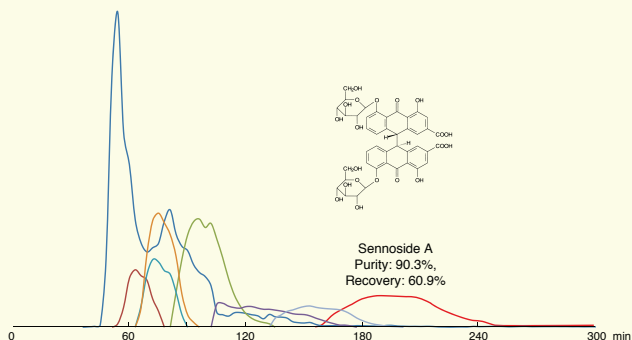


Fig. 5-39 Elution profile of gardenia fructus extract separated on MCI GEL™ CHP20/P30

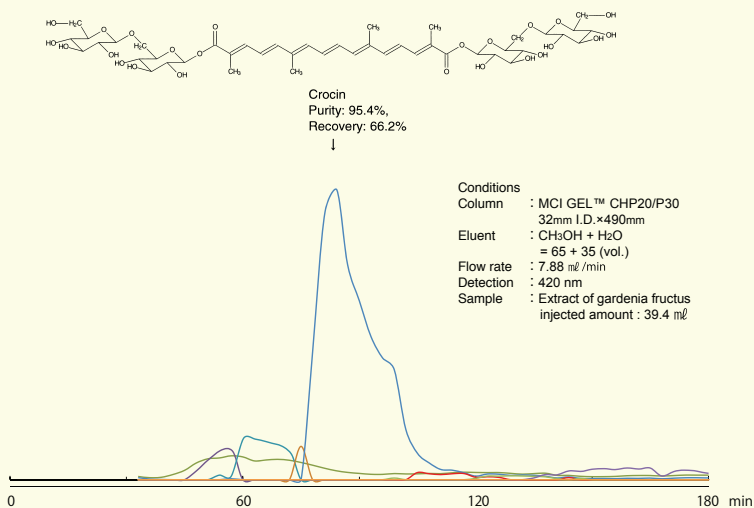
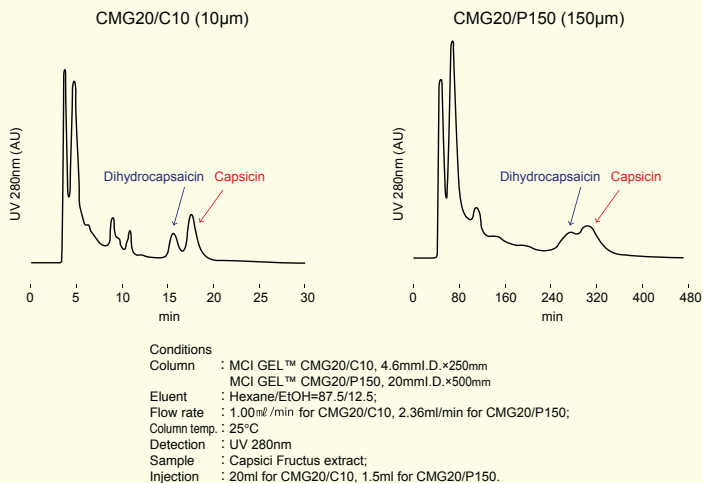
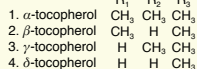


Fig. 5-40 Capsicin





Tocotrienol

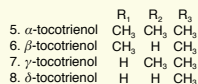


Fig. 5-42 Elution profile of Rice Bran Oil in preparative scale

Conditions
Column : MCI GEL™ CMG20/P30
20mm I.D.×500mm
Eluent : Hexane/CzH₅OH = 98/2 (vol.)
Flow rate : 4.7 ml/min
Detection : 295 nm
Sample : Rice Bran Oil, 50 mg/ml
Injection : 1260 µL

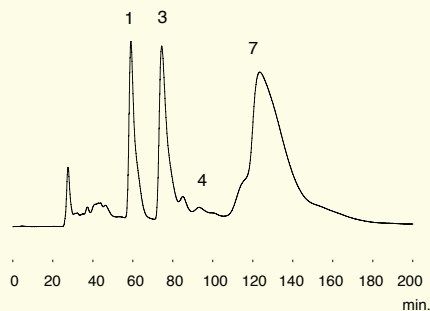
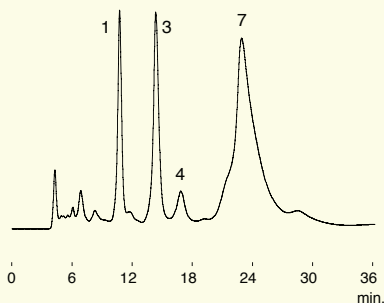


Fig. 5-43 Mixture of tocopherol and tocotrienol : Comparison with silica gel column

Conditions	
Column	1. Silica gel 5SIL, 4.6mm I.D. x 250mm 2. MCI GEL™ CMG20/C04, 4.6mm I.D. x 150mm
Eluent	1. Hexane/EtOH = 99/1 2. Hexane/EtOH = 98/2
Flow rate	1.0 mL/min
Column temp.	25°C
Detection	UV 292nm
Sample	Mixture of tocopherol and tocotrienol
Injection	10 µl (1 mg/mL)

Fig. 5-44 Elution profile of tocopherol and tocotrienol in preparative scale

Conditions
Column : MCI GEL™ CMG20/P150, 41.2mmI.D.×550mm, ×4
Eluent : Hexane/EtOH = 90/10
Flow rate : 49.0mL/min (SV=1.0)
Column temp. : 25°C
Detection : UV 292n
Sample : Mixture of tocopherol and tocotrienol
Injection : 150 mL (50g/L)

