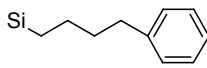
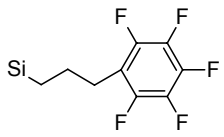


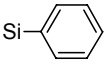
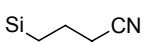
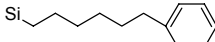
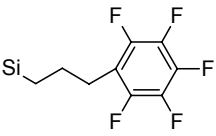
YMC-Triartシリーズ逆相カラムの分離選択性比較

～特有の分離選択性を有するTriart Phenyl/PFPによる
構造異性体・類縁体の分離～

逆相用Triart シリーズ仕様一覧

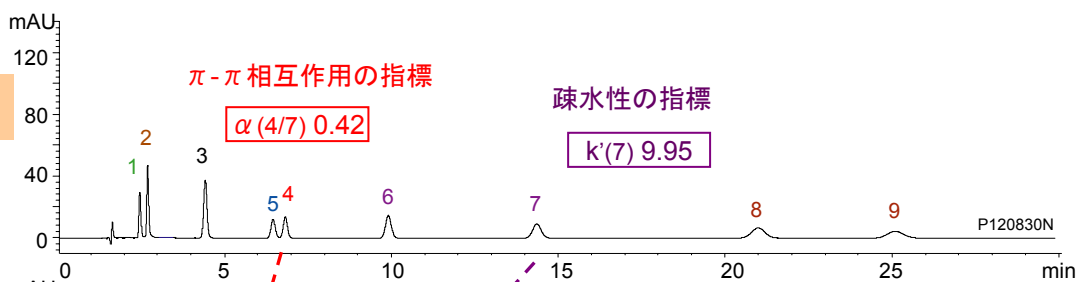
	Triart C18	Triart C8	Triart Phenyl	Triart PFP
官能基	Si-C ₁₈ H ₃₇	Si-C ₈ H ₁₇		
基材	有機シリカハイブリッド			
粒子径	5 μm, 3 μm, 1.9 μm			
細孔径	12 nm			
エンドキャッピング	マルチステージエンドキャッピング			なし
使用pHレンジ	1~12		1~10	1~8
使用温度上限	70°C for pH 1~7, 50°C for pH 7~12		50°C	

その他カラム仕様一覧

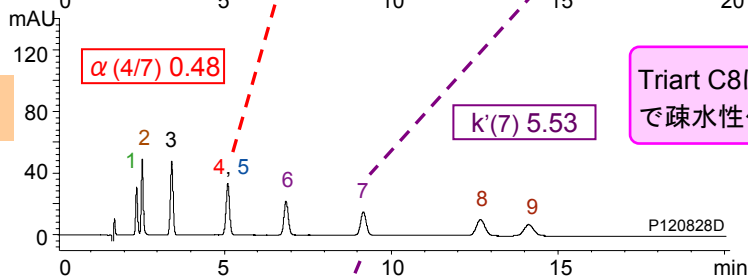
	YMC-Pack Ph	YMC-Pack CN	市販シリカ系 Phenyl-Hexyl	市販シリカ系 PFP
官能基				
基材	シリカ	シリカ	シリカ	シリカ
粒子径	5 μm, 3 μm	5 μm, 3 μm	5 μm, 3.5 μm, 1.8 μm	5 μm, 3 μm
細孔径	12 nm	12 nm	9.5 nm	12 nm
エンドキャッピング	あり	あり	あり	あり
使用pHレンジ	2~7.5	2~7.5	2~8	2~7.5
使用温度上限	50°C	50°C	60°C	75°C

逆相カラムの分離選択性の比較

Triart C18

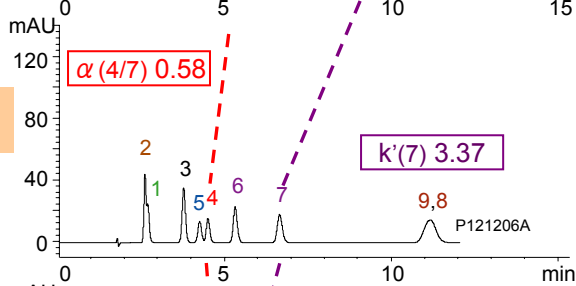


Triart C8



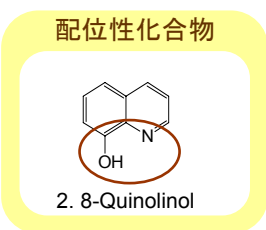
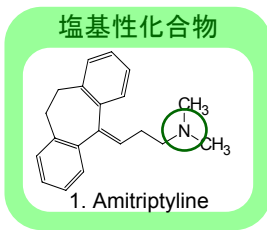
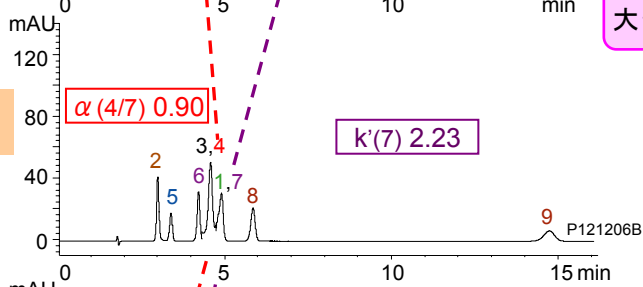
Triart C8はTriart C18と類似した分離パターンで疎水性化合物を早く溶出する

Triart Phenyl

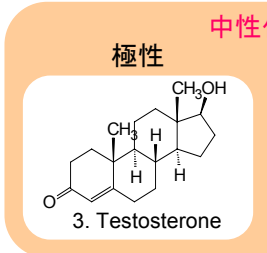
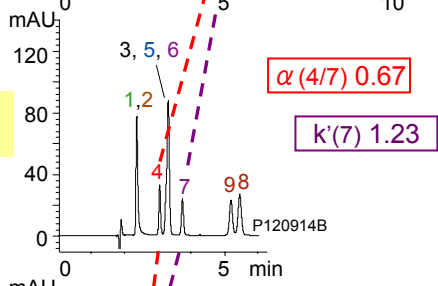


Triart PhenylおよびTriart PFPは疎水性相互作用以外にπ-π相互作用や極性相互作用の寄与が大きく、C18やC8とは異なる分離選択性を示す

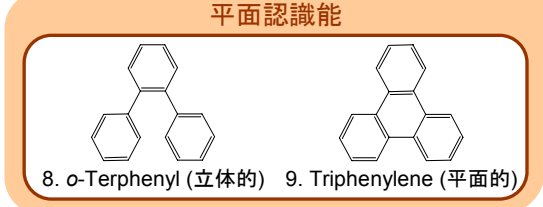
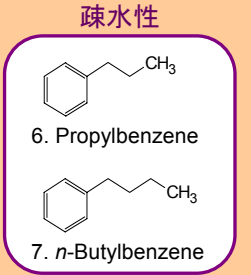
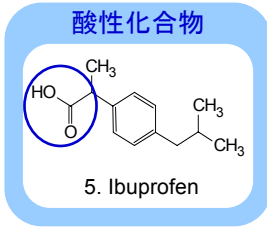
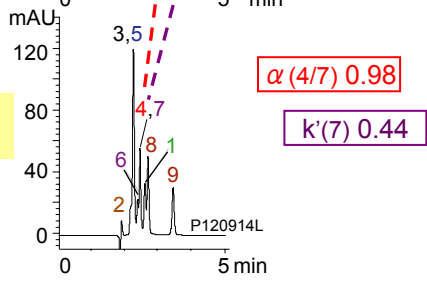
Triart PFP



YMC-Pack Ph

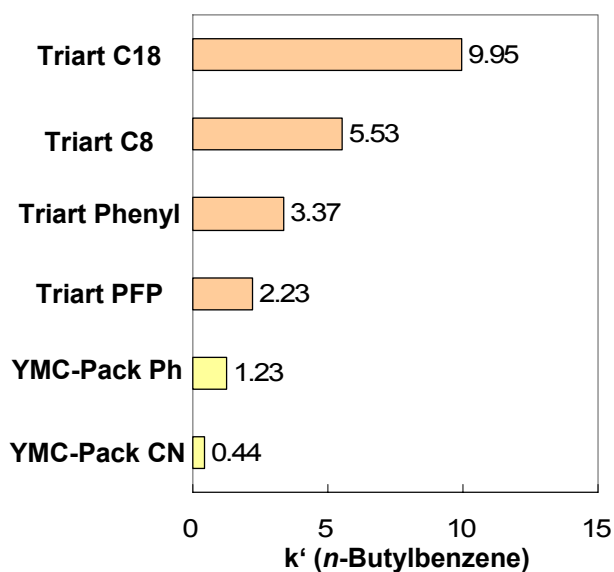


YMC-Pack CN

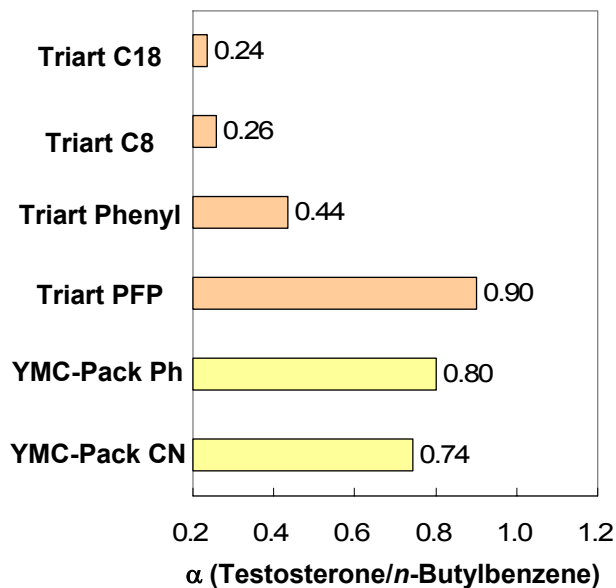


Column : 5 μm, 150 X 3.0 mmI.D.
 Eluent : 20 mM KH₂PO₄-H₃PO₄ (pH3.1)/methanol (25/75)
 Flow rate : 0.425 mL/min
 Temperature : 40°C
 Detection : UV at 265 nm
 Injection : 4 μL

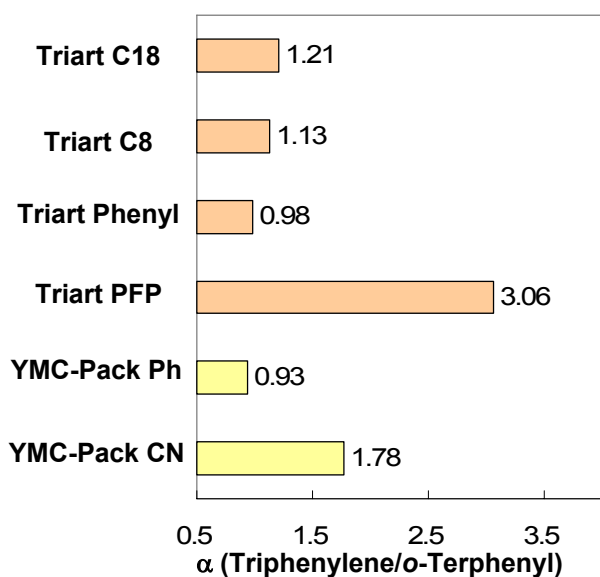
① 疎水性



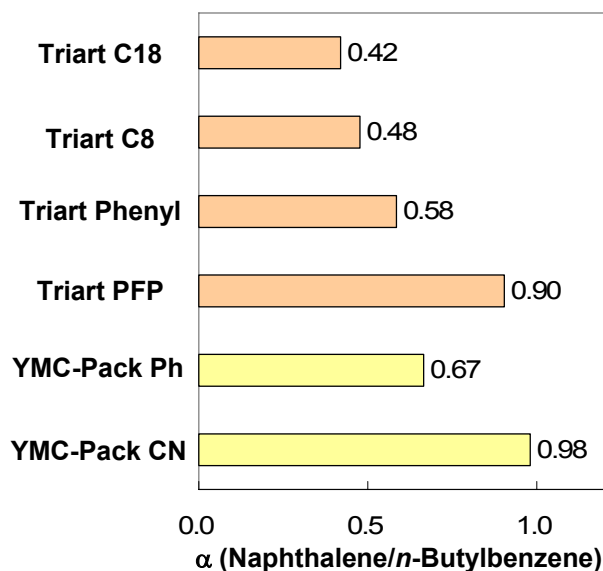
② 極性



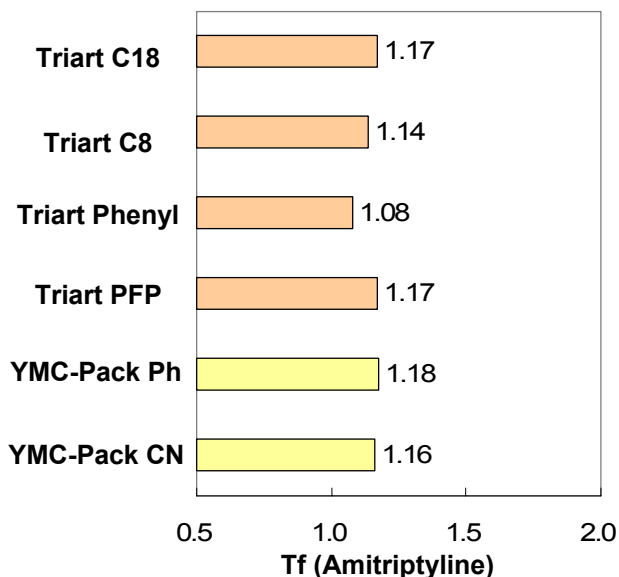
③ 平面認識能



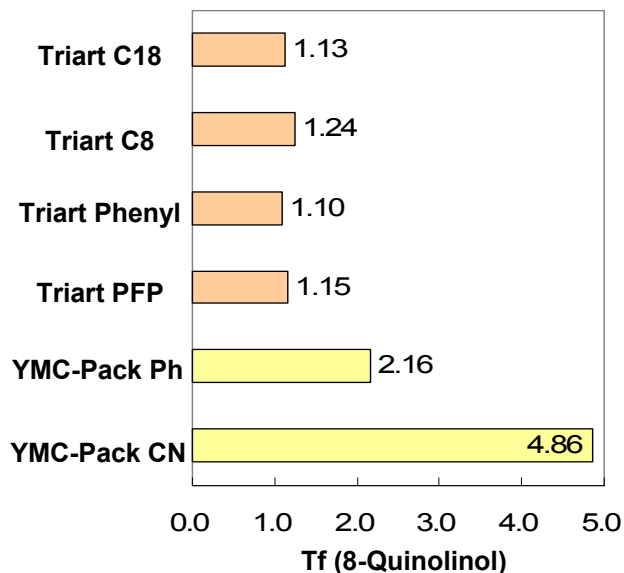
④ π - π 相互作用



⑤ 塩基性化合物



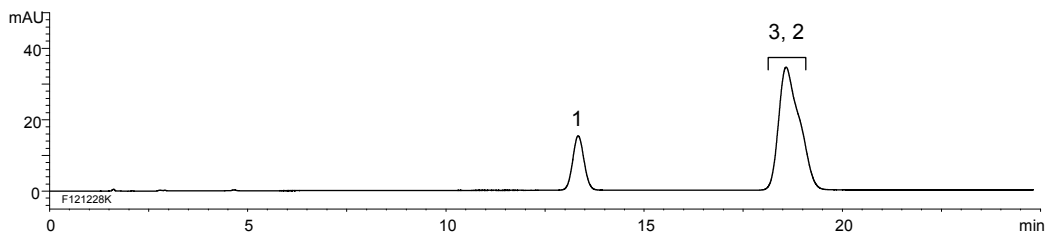
⑥ 配位性化合物



逆相カラムによるTerphenyl位置異性体の分離比較

Triart C18

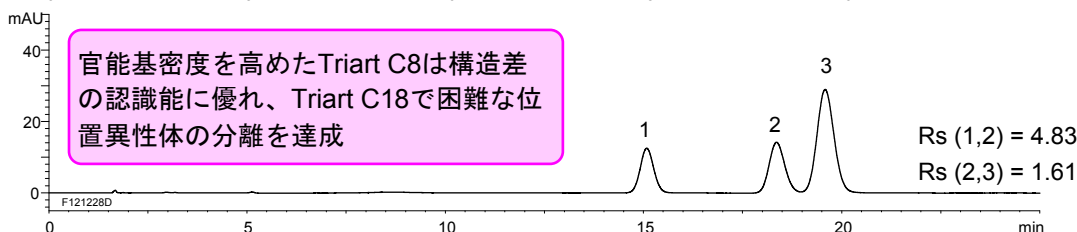
80% methanol



Triart C8

75% methanol

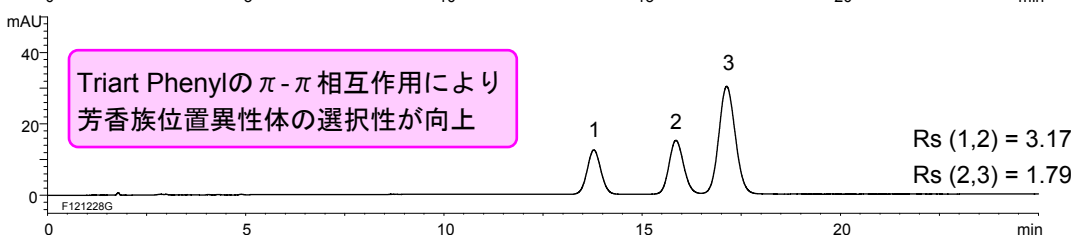
官能基密度を高めたTriart C8は構造差の認識能に優れ、Triart C18で困難な位置異性体の分離を達成



Triart Phenyl

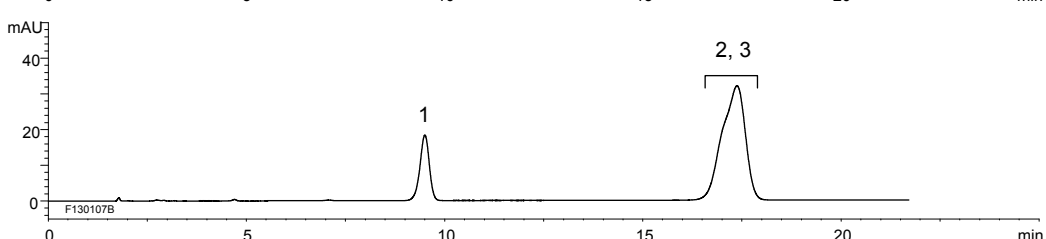
75% methanol

Triart Phenylの π - π 相互作用により芳香族位置異性体の選択性が向上



Triart PFP

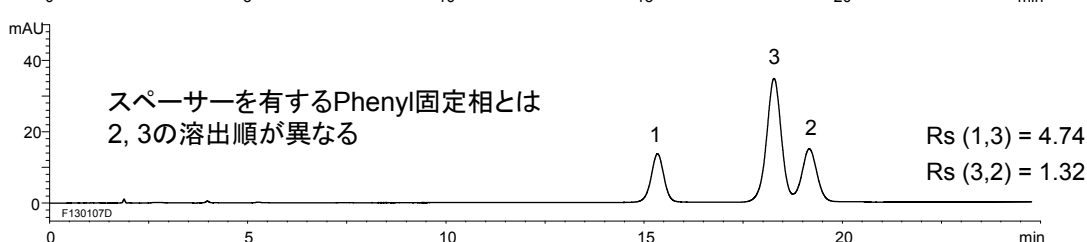
70% methanol



YMC-Pack Ph

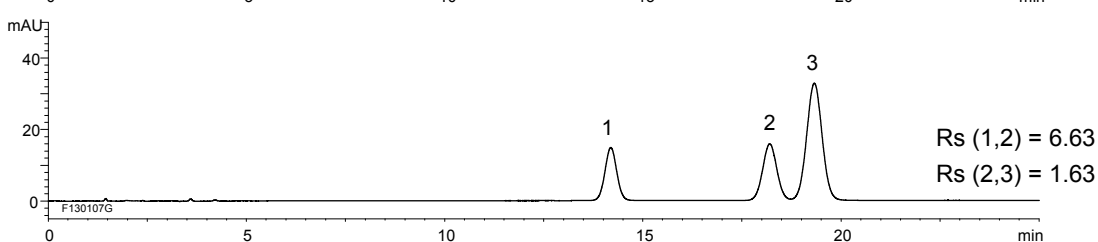
65% methanol

スペーサーを有するPhenyl固定相とは2, 3の溶出順が異なる



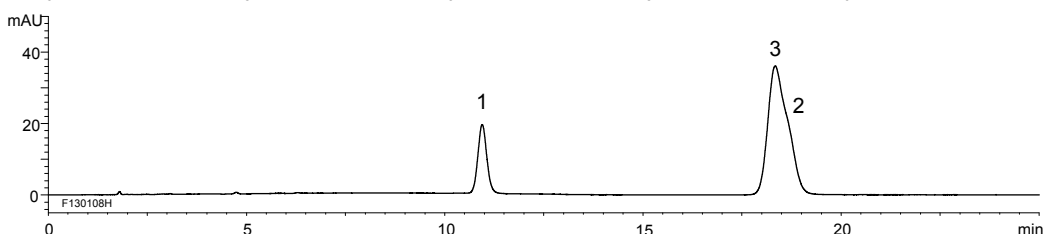
市販シリカ系 Phenyl-Hexyl

75% methanol



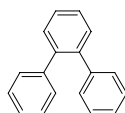
市販シリカ系 PFP

70% methanol



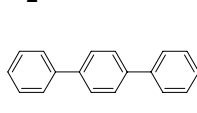
Terphenyl位置異性体

1



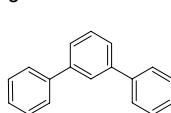
o-Terphenyl

2



p-Terphenyl

3

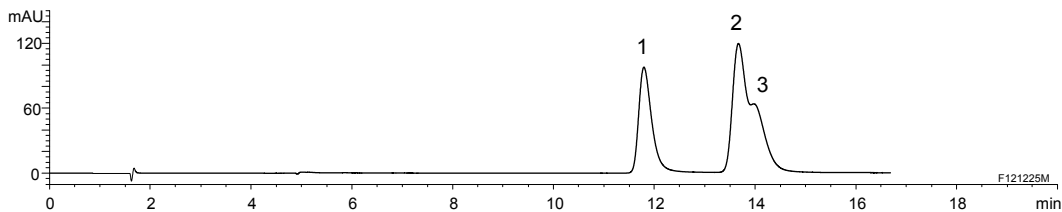


m-Terphenyl

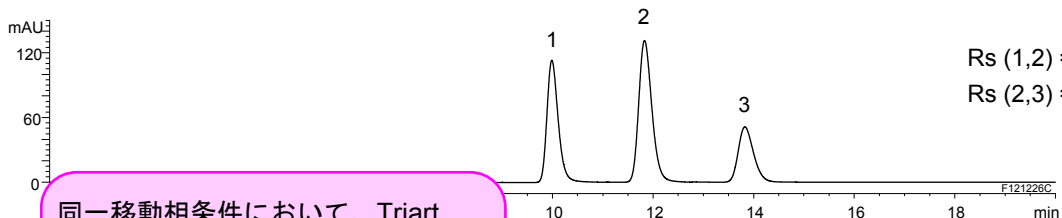
Column	: 5 μ m, 150 X 3.0 or 4.6 mmI.D.
Eluent	: methanol/water
Flow rate	: 0.425 mL/min for 3.0 mmI.D. 1.0 mL/min for 4.6 mmI.D.
Temperature	: 30°C
Detection	: UV at 254 nm
Injection	: 2.0 μ L for 3.0 mmI.D. 4.7 μ L for 4.6 mmI.D.

逆相カラムによるDinitrobenzene位置異性体の分離比較

Triart C18



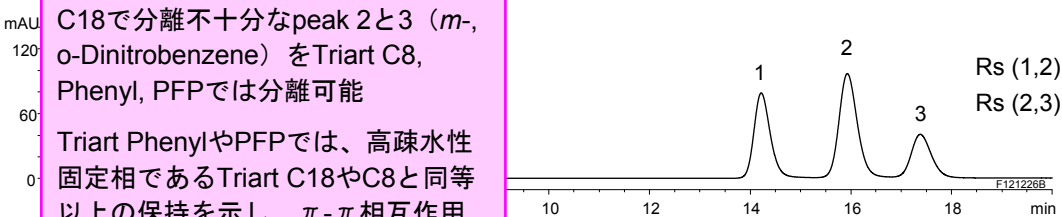
Triart C8



$R_s(1,2) = 4.29$

$R_s(2,3) = 3.93$

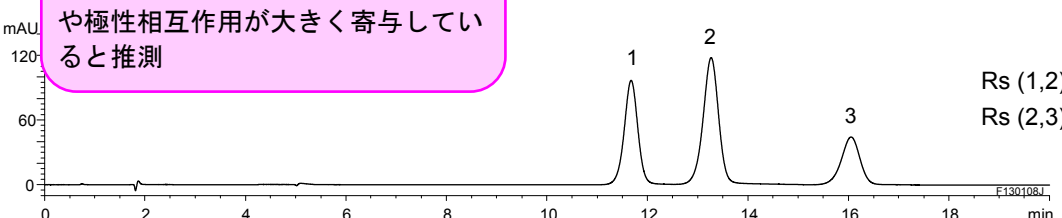
Triart Phenyl



$R_s(1,2) = 2.79$

$R_s(2,3) = 2.11$

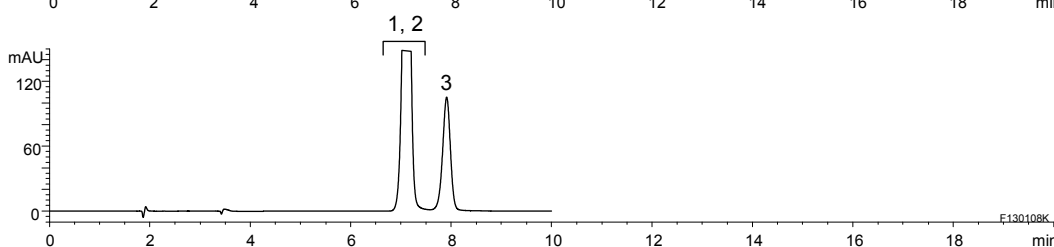
Triart PFP



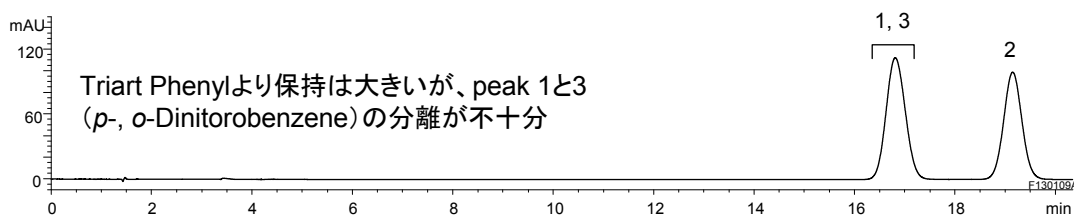
$R_s(1,2) = 3.11$

$R_s(2,3) = 4.62$

YMC-Pack Ph

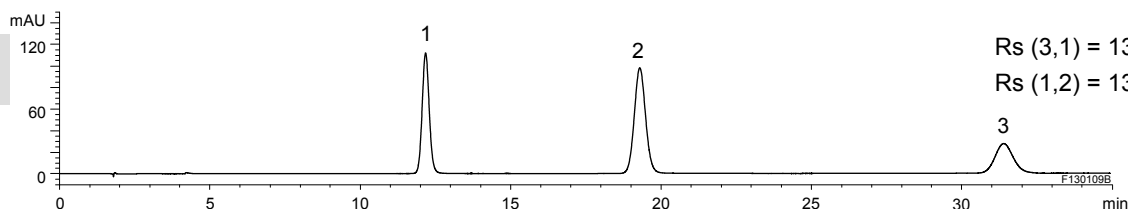


市販シリカ系 Phenyl-Hexyl



Triart Phenylより保持は大きいですが、peak 1と3 (*p*-, *o*-Dinitrobenzene) の分離が不十分

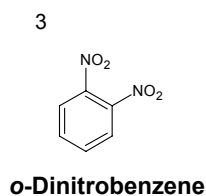
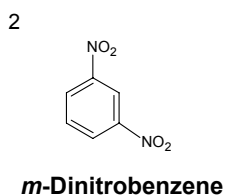
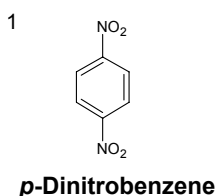
市販シリカ系 PFP



$R_s(3,1) = 13.09$

$R_s(1,2) = 13.80$

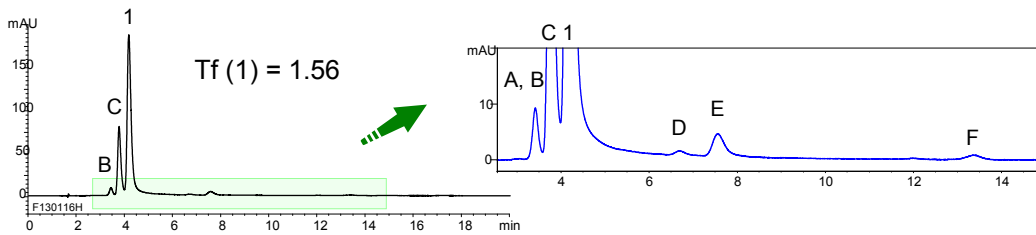
Dinitrobenzene位置異性体



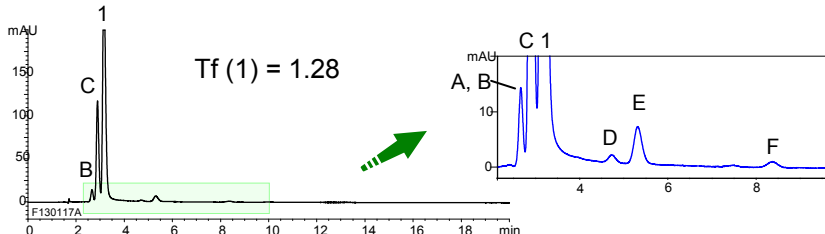
Column	: 5 μ m, 150 X 3.0 or 4.6 mmI.D.
Eluent	: methanol/water (40/60)
Flow rate	: 0.425 mL/min for 3.0 mmI.D. 1.0 mL/min for 4.6 mmI.D.
Temperature	: 30°C
Detection	: UV at 254 nm
Injection	: 2.1 μ L for 3.0 mmI.D. 5.0 μ L for 4.6 mmI.D.

逆相カラムによるBrilliant blue FCFとその不純物の分離比較

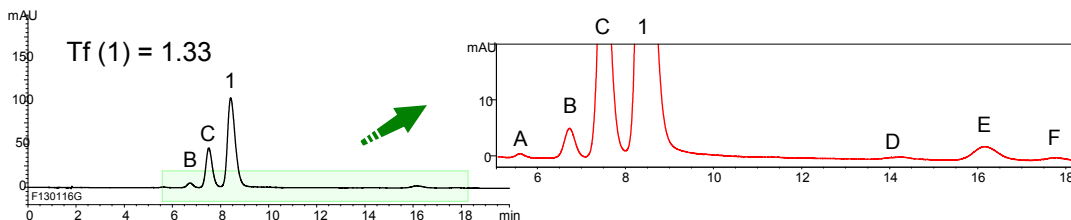
Triart C18
45% methanol



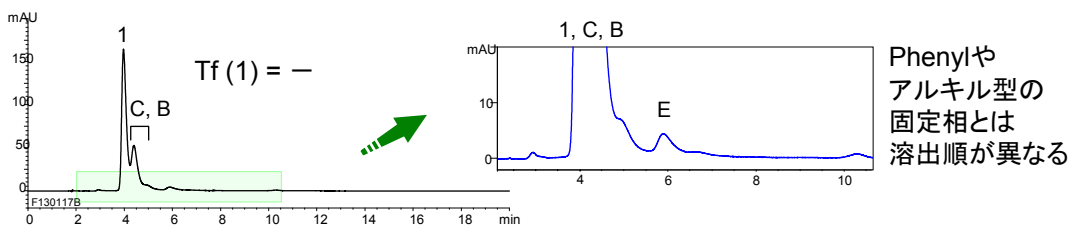
Triart C8
45% methanol



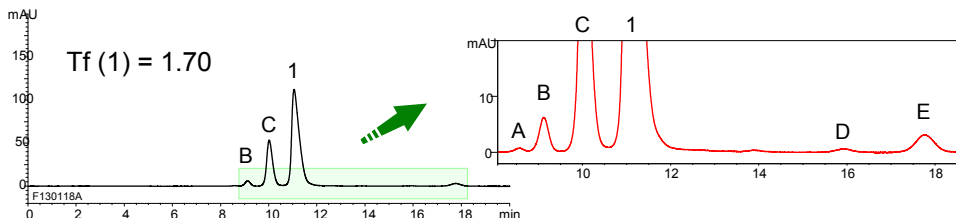
Triart Phenyl
45% methanol



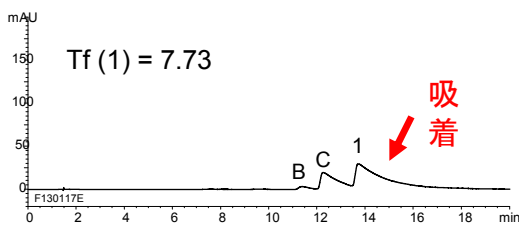
Triart PFP
45% methanol



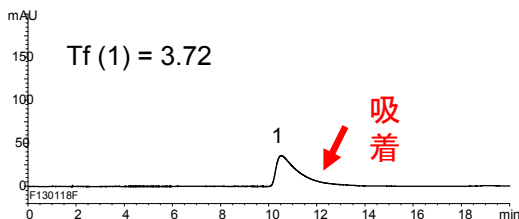
YMC-Pack Ph
55% methanol



市販シリカ系 Phenyl-Hexyl
45% methanol

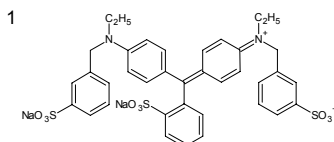


市販シリカ系 PFP
45% methanol



トリフェニルメタン系の酸性色素である Brilliant blue FCFとその不純物（類似構造の副色素と推測）は、Phenyl型固定相で最も良好な保持と分離を示した

Brilliant blue FCF (タール色素)

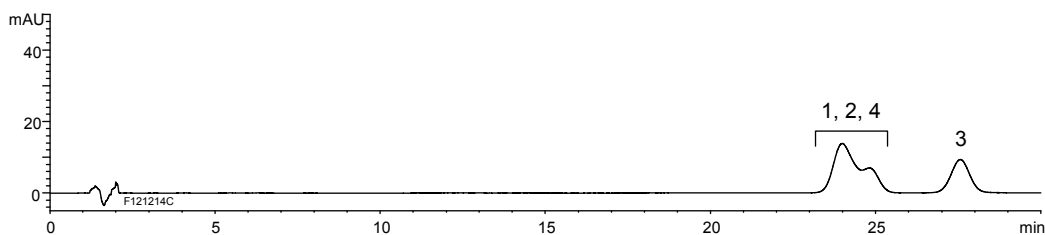


Brilliant blue FCF

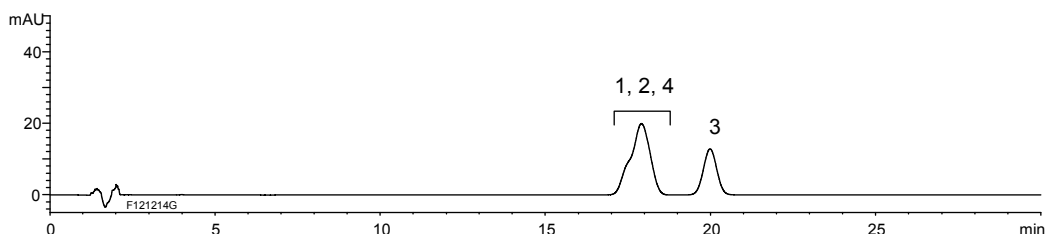
A - E
: Impurities in Brilliant blue FCF reagent

Column	: 5 μ m, 150 X 3.0 or 4.6 mmI.D.
Eluent	: 0.1% phosphoric acid/methanol
Flow rate	: 0.425 mL/min for 3.0 mmI.D. 1.0 mL/min for 4.6 mmI.D.
Temperature	: 40°C
Detection	: UV at 630 nm
Injection	: 2.0 μ L for 3.0 mmI.D. 4.7 μ L for 4.6 mmI.D.

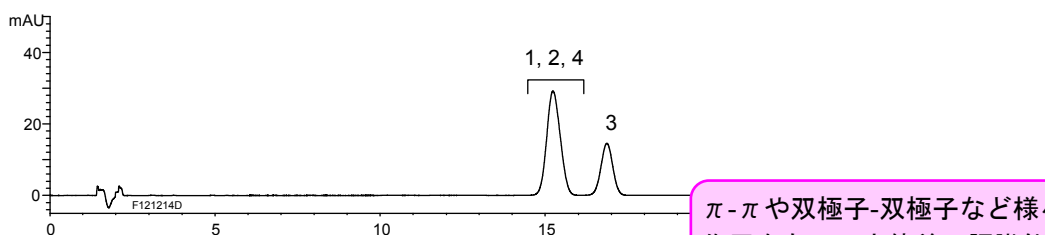
Triart C18



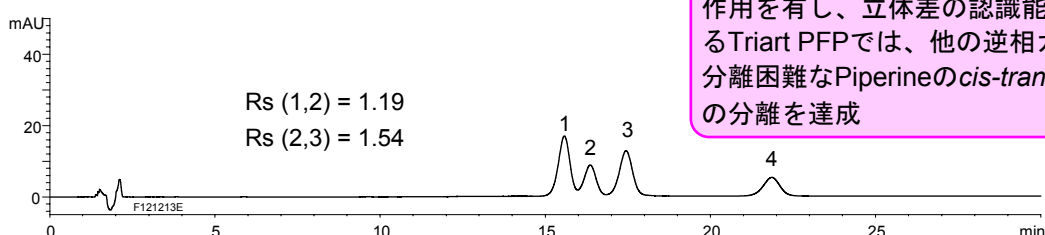
Triart C8



Triart Phenyl

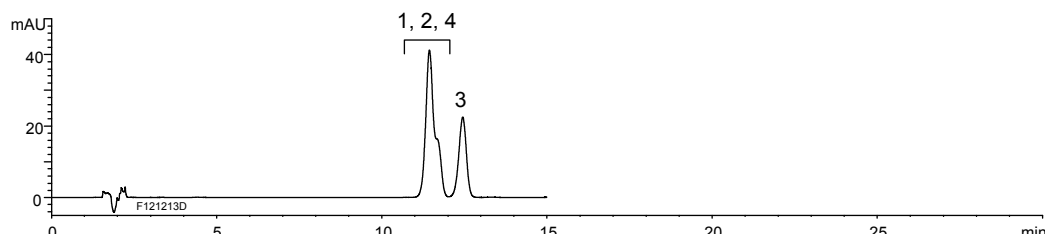


Triart PFP

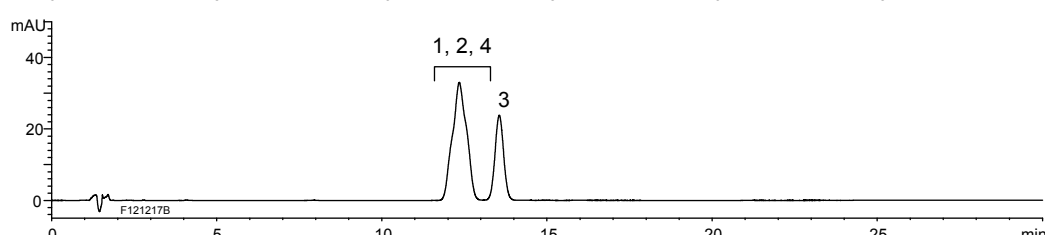


π-πや双極子-双極子など様々な相互作用を有し、立体差の認識能にも優れるTriart PFPでは、他の逆相カラムで分離困難なPiperineのcis-trans異性体の分離を達成

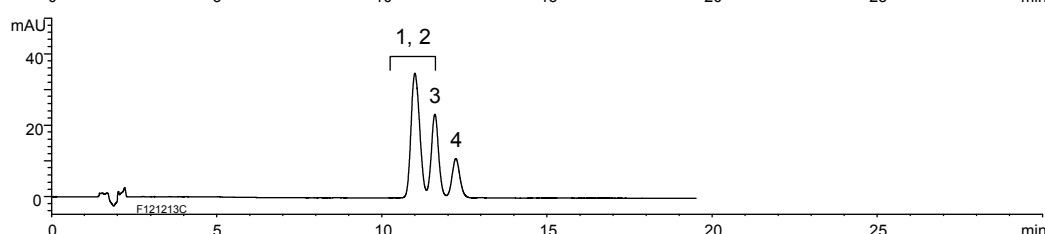
YMC-Pack Ph



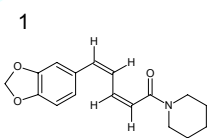
市販シリカ系 Phenyl-Hexyl



市販シリカ系 PFP

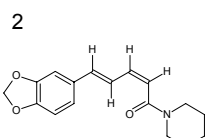


Piperine(コショウ辛味成分)の異性体



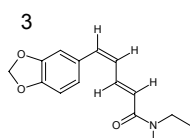
Chavicine

Z,Z-(cis-cis)-piperine



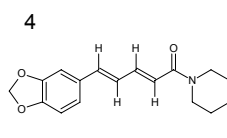
Isopiperine

Z,E-(cis-trans)-piperine



Isochavicine

E,Z-(trans-cis)-piperine



Piperine

E,E-(trans-trans)-piperine

Column	: 5 μm, 150 X 3.0 or 4.6 mm I.D.
Eluent	: 0.1% formic acid/acetonitrile (60/40)
Flow rate	: 0.425 mL/min for 3.0 mm I.D. 1.0 mL/min for 4.6 mm I.D.
Temperature	: 25°C
Detection	: UV at 280 nm
Injection	: 4.25 μL for 3.0 mm I.D. 10.0 μL for 4.6 mm I.D.