



# Bonna-Agela

## Flash Chromatography



Official Website

Best Value  
Guaranteed Product Quality  
Innovation to Benefit Customers

Best Value  
Guaranteed Product Quality  
Innovation to Benefit Customers

**Sample  
Preparation**

**Better  
Solutions for  
Chromatography**

**Chemical  
Analysis**

C  
Pu



## Bonna-Agela Technologies — A Global Supplier for Chromatography Solutions



Chemical  
Purification

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As Bonna-Agela is poised to enter its new development stage with confidence and pride in its innovative separation, purification, and sample preparation products, we would like to thank our many loyal customers for your continuous support and trust. With your support and our effort in delivering the highest quality products to you, our company has grown remarkably. This has allowed us to expand our research and development effort, and thus introduce more innovative products to better service your application needs.

We had tremendous accomplishments: We cataloged over one thousand different products. Our manufacturing and R&D operation were certified in compliance with ISO 9001 and passed many quality audits by customers and distributors, including VWR International. As a global wide company, this will allow us to reach higher goals and to provide our customers with even better quality products and faster service in the new year.

Our mission statement and commitment:

- Provide products with our innovative technologies at the best performance to cost ratio.
- Deliver products with guaranteed quality.
- Provide global support with quick responses.

# How to Place Orders

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Our office is open from 9:00 am to 6:00 pm Eastern Standard Time, Monday through Friday.

To place an order or receive a quote, you may choose from the following contacts:

## ***Bonna-Agela Technologies US***

2038A Telegraph Rd.

Wilmington, DE 19808, USA

Tel: (302) 438 8798

Fax: (302) 636 9339

Website:<http://www.bonnaagela.com>

E-mail: [info@bonnaagela.com](mailto:info@bonnaagela.com)

## ***Bonna-Agela India***

G-212, Second Floor , Sector-63 , Noida-201301 (U.P) , India

Phone : 91-120-4225466-71

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## ***Bonna-Agela China***

179 South Street, Teda West Zone, Tianjin 300462, China

Tel:+86(22)25321032/7023

Fax:+86(22)25321033

Please include the following information with your order or request: Account number (if you have one), purchase order number, contact name, organization name, shipping and billing address, telephone number, fax number or email address, product number, brief description and quantity, method of payment and preferred method of delivery. A written confirmation will be sent to you by email or fax. We accept business checks, wire transfers and major credit cards as methods of payment.

### **Checks:**

Please make checks payable to:

Bonna-Agela Technologies Inc. and send to:

Bonna-Agela Technologies Inc.

2038A Telegraph Road, Wilmington, DE 19808, USA

### **Wire Transfer:**

Please contact us by phone, fax or email for account information.

### **Credit Cards: (USA Only)**

Please include card type and number, expiration date, and card holder name. Due to security concerns, please do not email the information. Please call or send a fax to provide your credit card information.

# Terms and Conditions

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PLEASE READ THESE TERMS BEFORE ORDERING. IF YOU HAVE ANY QUESTIONS, PLEASE DO NOT HESITATE TO CONTACT US AND OUR STAFF WILL BE GLAD TO ASSIST YOU.

## **Acceptance and Availability**

All orders placed are subject to the agreement of Bonna-Agela Technologies Inc. The catalogue does not constitute an engagement of the company to sell all listed products. You are guaranteed to be notified at the time of ordering if the ordered items are in back-order or discontinued.

## **Price and Payment**

The prices are in effect at the time of printing. Bonna-Agela Technologies reserves the right to change the prices without notice, though we do our best to provide our customers with advance notice. The prices quoted at the time of ordering will be guaranteed. The general payment term is net 30 days, F.O.B., Newark, Delaware, USA. However we reserve the right to ask for prepayment if customers' account information is not satisfactory. A 1.5% per month service charge will be added to delinquent accounts. If a purchase order is less than \$1000.00, a \$50.00 extra charge will be added to the invoice.

## **Changes**

Bonna-Agela Technologies reserves the right to change product specifications, quantities, designs or prices without prior notice and without liability for such changes.

## **Shipping Policy**

The standard shipping method is 2-day FedEx within the United States and Canada. We will try to accommodate requests for other shipping methods if they are available. All shipping and handling charges will be billed separately. Should you receive damaged goods, it is imperative that you notify us immediately and save all packing materials for inspection by the carrier.

## **Application**

All products in this catalog should be used for laboratory or manufacturing use only. They are not intended for direct medicinal or food use. Bonna-Agela Technologies assumes no liability for any misuse of the products.

## **Returns**

Bonna-Agela Technologies tries to accommodate all requests for returns of unused goods. However, return of some items may be restricted by the original manufacturers. Please contact us for return authorization before returning any items. A restocking charge may apply to certain products.

## **Warranty**

All Bonna-Agela Technologies products are warranted to be free of defects in materials and workmanship. They are not warranted for any other particular purpose. Bonna-Agela Technologies shall not under any circumstance be liable for any incidental, consequential or compensatory damage in conjunction with its products. The maximum liability shall not exceed the invoice price of the product.



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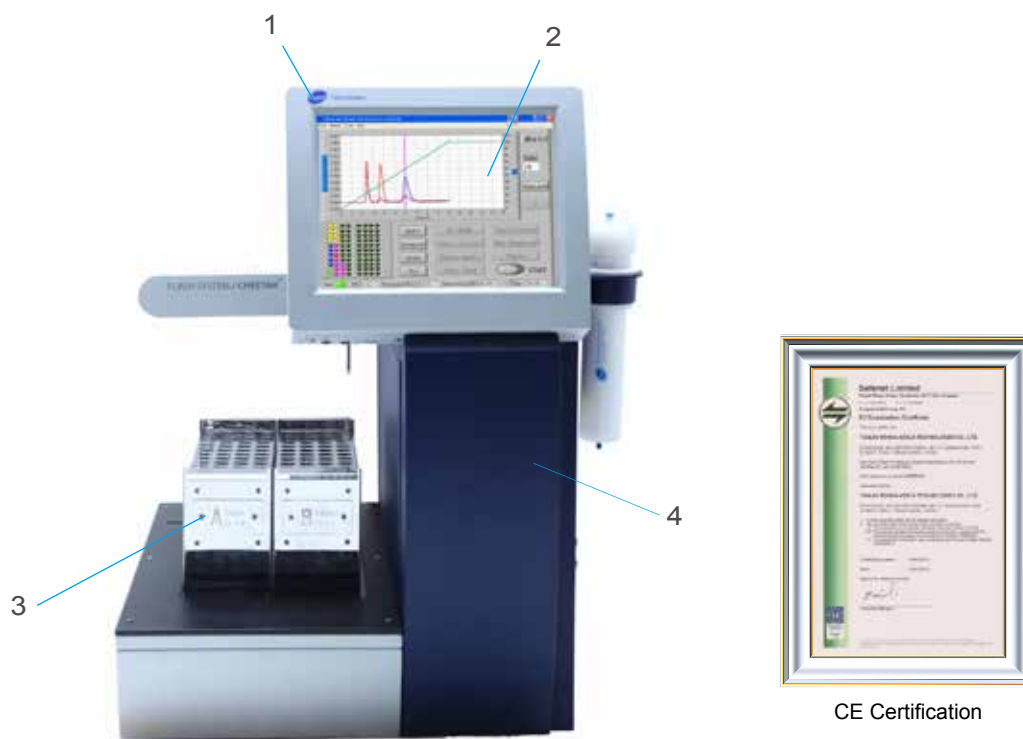
# CHEETAH<sup>®</sup> Series Purification Systems

## CHEETAH<sup>®</sup> MP Series Purification Systems

Bonna-Agela Technologies introduce CHEETAH<sup>®</sup> MP Series preparative chromatography system to significantly improve the throughput of purification in synthetic and natural product chemistry. CHEETAH<sup>®</sup> MP Series are designed to automate purification process with online peak detection and fraction collection. The systems are the revolutionized replacement of traditional column chromatography.

### Features

- ◆ User-friendly interfaces
- ◆ Binary or quaternary gradient elution
- ◆ Built-in method conversion from TLC Rf values to column gradient
- ◆ Fraction management: All/Volume, Knee Point, Slope, Threshold or Time Windows



1. Centered control of purification with 12.1 inch touch screen computer
2. Dual UV wavelength detection and peak-to-tube tracking
3. Oxidized coating to avoid solvent corrosion
4. Integrated design for convenient bench-top operation

## Specifications

CHEETAH® MP				
MP 200	FS-9200	FS-9204T	FS-9200S	FS-9204S
Solvent Delivery Pump	Binary	Quaternary	Binary	Quaternary
	CHEETAH® MP 200: Max.Flow Rate: 200 mL/min; Max. pressure: 200 psi			
Solvent Management	Leakage alarm.			
Gradient	Linear or step or linear/step elution with on-the-fly editing feature			
Detector	Wavelength Range: 200-400 nm; Wavelength Accuracy: ±1 nm; Absorbance Range: ≤5 AU		Wavelength Range: 200-800 nm; Wavelength Accuracy: ±1 nm; Absorbance Range: ≤5 AU	
	UV-Vis / Dual variable wavelength detector (VWD) - (Standard) Compatible with other detectors such as ELSD and RI			
Light Source	Deuterium Lamp (200-400 nm) and Deuterium-tungsten lamp (200-800 nm)			
System Control	CHEETAH® purification software: Integral instrument control, data acquisition and fraction collection management; Windows 7 operating platform. Computer: 4 GB memory, 12.1 inch touch screen, Processor: 1.8 GHz			
Collector	13, 15, 18 or 25 mm tube; and 100 mL tube rack is optional round-bottomed flask; self defined coordinates for customized collection. No-Limit collection volume; Large volume collection up to 1L.			
Dimensions	59.33 × 60.2 × 69.52 cm			
Weight	60 kg			
Power	110 V /220 V, 50/60 Hz, 360 W			
Certifications	CE Certified			



Column Holder



Injector

## Functions

Description	
Co-solvent	In Quaternary system, a co-solvent can be added at any time during the run (as a fixed or user set percentage) to avoid sample precipitation during purification.
Column History	In built feature in method tab to select column size and stationary phase according to method requirement, this feature enables in all column format like pre -pack, empty or glass columns of Bonna-Agela and other maufacturers.
System protection	Alarm will be triggered if pressure exceeds maximum setting to protect the system.
Multi Detector Option	System has a facility to attach with second detector externally like ELSD (Evaporative Light-scattering), RI(Refractive Index).
Compatibility	Compatible with any flash columns available in the market such as disposable and glass columns from 4 gm to 1500 gm pre-pack or empty columns depending on sample nature and stationary phase. Cheetah <sup>®</sup> MP is compatible with maximum stationary phases from Bonna-Agela or other manufacturer like Stan dard Silica, Deactivated Silica, Reverse Phase (C18), HILIC, NH <sub>2</sub> , C8, SAX, SCX, Alumina Neutral, Alumina Basic, Alumina Acidic, AQ C18, Spherical Silica with particle size of 40 - 60 µm and 20 - 35 µm with customize scalability.
System Washing	Washing Step can be added during gradient setting for automated system washing at the end of run according to column specifications ( like Pre-pack, Reusable or Glass columns).
Loading Capacity	Delivers a wide range of sample loading facility from 0.1 gm to 80 g (Depending on the sample nature & Stationary phase)
Parameters Editing	Maximum parameters can be edited during run like Flow rate, Collection volume, Collection or fractionation mode, Solvent composition.
Initial Waste	This function is used to directly discharge any left-over fluid from previous experiment to the first test tube known waste to avoid any carryover of fluid or cross contamination to concurrent experiment.



## CHEETAH<sup>®</sup> HP Series Prep HPLC

CHEETAH<sup>®</sup> HP 100 is an automated high pressure preparative LC system from Bonna-Agela Technologies. It is an integrated system featuring binary gradient pump, UV detector and fraction collector. The maximum backpressure of the system is 20 MPa, and the max flow rate is 100 mL/min. The design of the system emphasized small footprint and simple operation. It is a solution to purify complex sample employing high-solutions columns packed with small particle media.

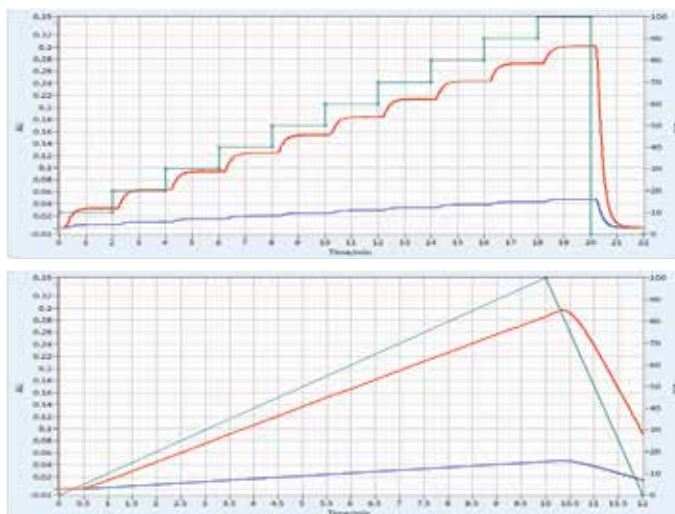
### Main Features

- ◆ One point control via touch screen PC
- ◆ User friendly interfaces
- ◆ Dual wavelength detection/monitor via UV detector, ELSD and RI detector is optional
- ◆ Intelligent fraction collecting: All/Volume, manual, slope/threshold and time windows.

### Applications

- ◆ Purification of synthetic compounds
- ◆ Purification of complex mixture of synthetic compounds
- ◆ Isolation of biopolymers such as peptides and nucleotides
- ◆ Separation of combichem arrays
- ◆ Purification of natural products

### Pump



- ◆ Cam compensation produces low delivery pulse
- ◆ Multiple-point calibration ensure accurate flow delivery
- ◆ Floating design of plunger extends lifetime of seals

### Injection Valve

- ◆ 6 port manual valve
- ◆ 2 mL Loop (Standard), 1-10 mL is optional
- ◆ Max Pressure 5000 psi, 1/16" tubing



## Specifications

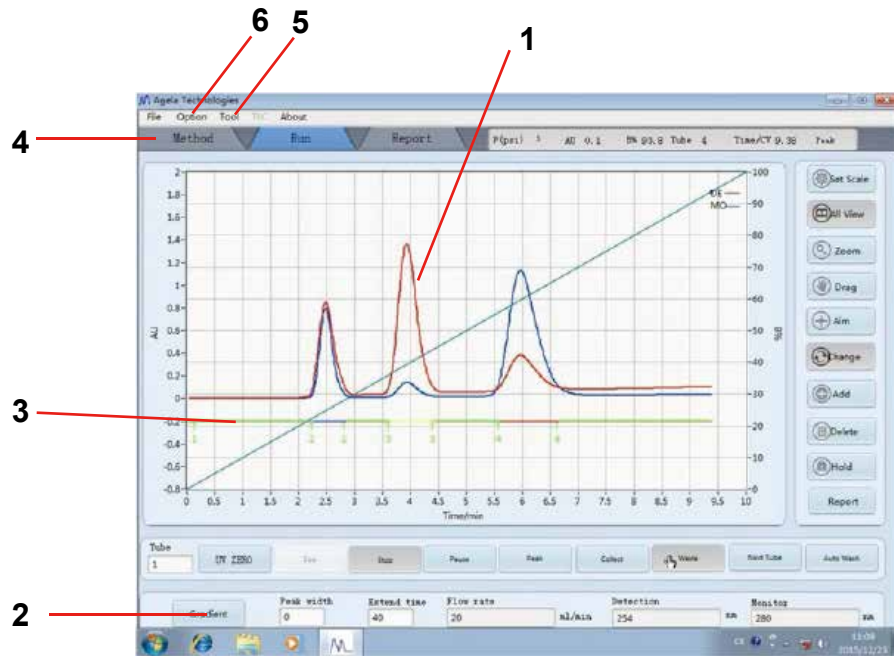
CHEETAH® HP 100		
Cat. No	HS-1000	HS-1000S
Solvent Delivery Pump	Binary Flow Rate: 1 -100 mL/min; Max. pressure: 20 MPa Increment:1 mL/min	
Detector	Wavelength Range: 200-400 nm Wavelength Accuracy: ±1 nm; Absorbance Range: ≤5 AU	Wavelength Range: 200-800 nm Wavelength Accuracy: ±1 nm; Absorbance Range: ≤5 AU
Control system	RAM 4 GB, Screen 12.1'	
Collection container	13, 15, 18 or 25 mm tube; and 100 mL round-bottomed flask customized test tube rack is available. No-Limit collection volume; Large volume collection is optional.	
Collection mode	By peak, Volume/All, Window, Manual.	
Safety	Leakage alarm.	



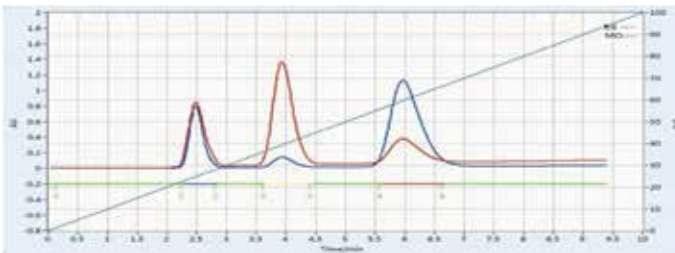
CE Certification

# CHEETAH<sup>®</sup> Software

## Applicable to binary purification system



### 1. Dual-wavelength



The fraction can be collected under collection wavelength or monitoring wavelength. The difference of absorbance from the two channels can also be calculated.

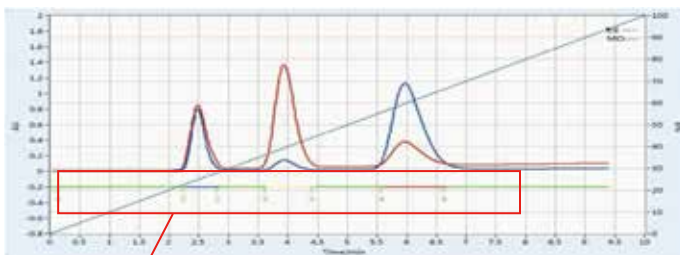
### 2. Rapid Modification of Gradient Curve On Time

During a run, by a simple click, users can easily edit the running gradient profile.

Line	Start	End	Min. Duration
Equ	0	0	5
1	0.0	100.0	10.0

Buttons: Add, Insert, Delete, Mod

### 3. Rapid seeking for the components



Collection tube number display on line.

### 4. Various modes for collection and detection



Fraction can be collected through different way.

### 5. Direct Control of Collector by User

Definition of collection coordinates are accessible to users. Besides the default tubes, user can define coordinated for customized applications.

### 6. RI/ELSD

Built-in interface for RI and ELSD detectors for mass-type detection of compounds such as polysaccharides. The collection through a RI/ELSD detector is available.



# FLEXA™ Series Modular Purification Components

Bonna-Agela Technologies offer a line of modular components for LC purification. The FLEXA™ series provide flexibility of choosing a customized system based on user's specification.

The option includes a variety of stand-alone pumps, detectors, autosampler, collector and column switcher.



## FLEXA™ Series Pump

- ◆ Different flow range options;
- ◆ Pressure displaying online;
- ◆ Over-pressure alarm guarantee safety operation.



### MP Series Pump

Cat. No	FL-GP 200
Max Pressure	200 psi
Pump Max Flow Rate	1-200 mL/min
Flow Precision	±2 %
Gradient Precision	±1 %
Gradient Type	Binary
Gradient Range	0-100 %

### HP Series Pump

Cat. No	HP-Q-P010	HP-Q-P050	HP-Q-P100
Max Pressure	42 Mpa	30 Mpa	20 Mpa
Pump Max Flow Rate	10 mL/min	50 mL/min	100 mL/min
Flow Precision	±0.5 %	±1 %	±1 %
Gradient Type	Binary (Double pump)	Binary (Double pump)	Binary (Double pump)
Application	Analytical	Preparation	Preparation

## FLEXA™ Series Detectors

### UV and UV-Vis

- ◆ Different Wavelength Options
- ◆ Auto-Zero and Attenuation Function



### MP Series Detector

	UV Detector	UV-Vis Variable Wavelength Detector
Cat. No	FL-UV2040	FL-UV2080
Wavelength	200-400 nm	200-800 nm
Channel	Dual-wavelength	Dual-wavelength
Range	≤5 AU	≤5 AU
Light Source	Deuterium lamp	Deuterium lamp Tungsten lamp
Auto Zero	By Digital	By Digital
Screen	320×240 Pixels	320×240 Pixels

### HP Series Detector

	UV Detector	UV-Vis Variable Wavelength Detector
Cat. No	HP-Q-UV100	HP-Q-UV100S
Wavelength	200-400 nm	200-800 nm
Channel	Dual-wavelength	Dual-wavelength
Range	≤5 AU	≤5 AU
Light Source	Deuterium lamp	Deuterium lamp Tungsten lamp
Auto Zero	By Digital	By Digital
Screen	320×240 Pixels	320×240 Pixels

## ELSD

The Evaporative Light Scattering Detector ZAM 4000 is an universal detector for HPLC. It is used to analyze components which do not have UV absorption, cannot be separated with an isocratic solvent and must use a gradient elution, which cannot be used with a refractive index detector. Only mobile phases without any buffers should be used.



Cat. No	HP-ELSD4000
Light source	Tungsten lamp, photomultiplier
Temperature	Room temp. ~ 85 °C
Flow Rate for Atomizing Carrier Gas	1.7 L/min
Required Pressure	3~5 bar
Power-saving Mode	programmed shut off

## RI

The RI 2000 Differential Refractive Index Detector series offers the sensitivity, stability and reproducibility required for optimal RI detection.

The thermal isolated optic with a countercurrent heat exchanger and with its programmable temperature control, results in an extremely stable baseline and an optimal Signal / Noise ratio.



Cat. No	HP-RI2000P
Flow range	1.0-50.0 mL/min
Flow Cell Volume	7 $\mu$ L/5 $^{\circ}$ C angle
Pressure Tolerance of Flow Cell	6 kg/cm <sup>2</sup>
Dead Volume	Into cell 88 or 353 $\mu$ L
Liner Range	0-20000 $\mu$ RIU
Noise	10 $\times$ 10 <sup>-8</sup>

## FLEXA™ Series Fraction Collector

- ◆ Stand-alone operation
- ◆ Time/Volume based triggering
- ◆ Choice of forced collection or waste vending
- ◆ Highlighted collecting position
- ◆ Customized definition of coordinates



Cat. No	FL-C100	FL-C100B
Compatibility	MP series	HP series
Max Flow Rate	200 mL/min	100 mL/min
Collecting Configuration	Preset for 13 mm, 15 mm, 18 mm and 25 mm tubes; self-configuration program available test tube.	
Communication Port	RS 232	RS 232
Collection Mode	By peak (threshold), volume; Forced collection and forced waste	

## ATS Series Auto-sampler

- ◆ Auto wash
- ◆ Continuous sampling (up to a thousand times)
- ◆ Excessive large sampling volume
- ◆ Good compatibility (Compatible with the purification system from most of the manufactures in the market)



ATS Auto-Sampler is an efficient product for sample injection, which provides fast and reliable purification by connected with a prep LC system.

### Compatible with MP series

Cat. No	ATS-051-M10	ATS-051-M25
Single Sample Size	1-10 mL	5-25 mL
Sample Loop	5 mL	20 mL
Pipeline ID	1/8 inch	1/8 inch
Sample Channel	5	5
Cleaning Channel	Automatic/Manual	Automatic/Manual
Communication Port	RS-232	RS-232

### Compatible with HP series

Cat. No	ATS-051-H10	ATS-051-H25
Single Sample Size	1-10 mL	5-25 mL
Sample Loop	2 mL	20 mL
Pipeline ID	1/16 inch	1/16 inch
Sample Channel	5	5
Cleaning Channel	Automatic/Manual	Automatic/Manual
Communication Port	RS-232	RS-232



## ACQ-06 Column Switcher

ACQ-06 column switcher allows chemists to switch automatically from one column to another, without evaporating solvents. It also offers multi-stationary phases for a complete chromatography solution. Six channels are available and could be programmed through software.

- ◆ Time Saving  
Start a new run by switching to a new column
- ◆ Efficient Purification  
Further purification can be achieved through tandemed columns
- ◆ Good Compatibility  
Compatible with the purification system from most of the manufacturers in the market



Cat. No: ACQ-06

**Indicator Lamps**  
Show the status of the channels

**Column Support**  
Suitable for columns of different specifications column tandem

**Standard Adaptor**  
Compatible with flash columns from other manufacturers

**Channel Switcher**  
Avoid cross contamination

## Column Oven



Cat. No	CT-100-T	CC-M-500	MODEL9340
Compatibility	Ambient-100°C	4-80°C	Ambient-100°C
Max Flow Rate	±0.1°C	±0.1°C	±0.1°C
Collecting Configuration	±0.1°C	±0.1°C	±0.1°C
Communication Port	4.6 × 250 mm, Max 2 columns	4.6 × 250 mm, Max 2 columns	One of 4.6 × 250 mm analytical column, and 30 × 250 mm preparation column
Collection Mode	Analytical	Analytical	Preparation

# LS-Prep Large Volume Purification System

- ◆ Flexible option for semi-preparative and large volume sample purification;
- ◆ Featured system is configured with binary gradient pumps, dual UV-Vis detector and automatic injection pump, no limit sample collection through valve switcher;
- ◆ 1L pump is available to satisfy purification requirement from grams to hundreds grams.



## Featured Optional combination

Pump	Detector	Sample Loading	Collection
Flow rate: 10-1000mL/min Max pressure 10Mpa (Optional: 1mL/min)	UV-Vis detector (200-800nm), ELSD, RI detector is optional	Autosample pump	Auto fraction collector

## LS-Prep Series Pump

- ◆ Unique floating piston design to ensure longer seal life;
- ◆ Low pulsation due to electronic damping technology;
- ◆ Anti-particle contamination;
- ◆ Solvent tolerance with RP and HP phase system solvent.



Cat.No	HP-Q-P300	HP-Q-P600	HP-Q-P1000
Max	10 MPa	10 MPa	5 MPa
Pump Head	316L	316L	316L
Flow Rate	≤ 300 mL/min	≤ 600 mL/min	≤ 1000 mL/min
Flow Precision	±2 %	±2 %	±3 %

## LS-Prep Series Fraction Collector

### XY axis two-dimension collector

- ◆ Stable electronic control technology supports high precision custom coordinate;
- ◆ S-type collector with adjustable software suit variety of collection container, such as conical flask, flask, beaker, test tube;
- ◆ Easily switch between waste and collection through multi-channel design.



Cat. No	FL-C500
Max Flow Rate	1000 mL/min
Collecting Configuration	Preset for 13 mm, 15 mm, 18 mm, 25 mm tubes or 1000 mL bottles
Communication Port	RS 232
Collection Mode	By peak (threshold), volume; Forced collection and forced waste

# LC-10F High Performance Liquid Chromatography

LC-10F HPLC system apply the Electrical Dump Control technique to minimize the pulsation, and ensure the sensitivity. High flow rate precision are achieved through a multi-point calibration curve; Dual-channel design for dual wavelength provide excellent detection detection.

## Specification

Cat. No	LC-10F
Flow Rate Range	0.001~9.999 mL/min
Flow Precision	±0.5 %
Flow Repeatability	RSD≤0.1 %
Pressure Precision	≤0.5 %
Max Pressure	≤42 Mpa
Wavelength Range	200-400/200-800 nm
Lamp	Deuterium lamp, Tungsten lamp is optional
Wavelength Precision	±1 nm
Wavelength Repeatability	0.2 nm
S/N	±0.75×10 <sup>-5</sup> AU, 254nm, TC=1S
Baseline Drift	1.5×10 <sup>-4</sup> AU, 254 nm



## cMS--A Flying Wing for Your Purification Solutions

- ◆ Ultra-slim size, could be placed into fume hood
- ◆ Vacuum pumps with Low noise
- ◆ Atmospheric Pressure Ionization Interface
- ◆ Pump and source exhaust are bi-directional (left or right hand) to allow for optimal hood or bench location
- ◆ Ion Sources: ESI and APCI (Switchable with minimal effort)
- ◆ Support Flow Injection Reaction Monitoring (FIA/CMS)
- ◆ Multiple I/O interface
- ◆ Easy-to-use package
- ◆ Affordable price



### Specification

Cat. No	LC-10F
Ion Sources	ESI and APCI (Switchable with minimal effort)
Polarity	+ve and -ve ion in sequential analyses
Atmospheric Pressure Ionization Interface	Patent-pending design reduces contamination, allows for small vacuum pumps and reduces size and cost.
Flow Rate Range	10 $\mu$ L/min to 500 $\mu$ L/min (2:1 split if running at 1 ml/min LC flow rate)
m/z Range	m/z 10 to m/z 1,200 (ideal for small molecules, natural products and small peptides)
Acquisition Rate	5,000 m/z units/sec (compatible with UPLC)
Resolution	0.5-0.7 m/z units (FWHM) at 1000 m/z units/sec over entire acquisition range
Sensitivity	10 pg Reserpine (FIA - 5 $\mu$ L injection at 100 $\mu$ L/min) 100:1 S/N (RMS) with SIM of m/z 609.28. 100. Reserpine (FIA - 5 $\mu$ L injection at 100 $\mu$ L/min) 100:1 S/N (RMS) with Full-Scan acquisition from m/z 100 to m/z 1200.
Accuracy	0.1 m/z units over the entire acquisition range
Stability	0.1 m/z units over 12 hour period (59 °F to 75 °F (15 °C to 24 °C) operating temperature)



# Purification Products

## Claricep™ Flash Columns

Bonna-Agela's unique packing technique ensures the performance of the cartridge and good reproducibility. The tubes made by polypropylene and Teflon materials guarantee the compatibility with various solvents. Our products are widely used with the advantages of high pressure and great performance.

### Main Features

- ◆ High Pressure Tolerance
- ◆ Complete Line of Chemistry and Column Sizes
- ◆ Consistent High Performance
- ◆ In-column Sample Loading Available



Specification	4 g	12 g	20 g	25 g	40 g
Cat. No	CS140004-0	CS140012-0	CS140020-0	CS140025-0	CS140040-0
Loading Capacity $\Delta CV=1$	0.01-0.02 g	0.03-0.06 g	0.05-0.1 g	0.06-0.12 g	0.1-0.2 g
Loading Capacity $\Delta CV=2$ Ratio	0.02-0.08 g	0.06-0.24 g	0.1-0.4 g	0.12-0.5 g	0.2-0.8 g
Loading Capacity $\Delta CV=6t$	0.08-0.4 g	0.24-1.2 g	0.4-2.0 g	0.5-2.5 g	0.8-4.0 g
Column Volume(mL)	8	24	40	45	80
Lowest Flow Rate(mL/min)	5	8	10	12	20
Highest Flow Rate(mL/min)	18	20	25	22	40
Pressure (PSI)	180				
Length (cm)	7.0	9.0	11.0	19.5	14.0
Diameter (cm)	1.5	2.1	2.6	2.1	3.1
Diameter / Height	4.7	4.3	4.2	9.3	4.5

Specification	45 g	80 g	120 g	220 g	330 g
Cat. No	CS140045-0	CS140080-0	CS140120-0	CS140220-0	CS140330-0
Loading Capacity $\Delta CV=1$	0.11-0.22 g	0.2-0.4 g	0.3-0.6 g	0.5-1.0 g	0.75-1.5 g
Loading Capacity $\Delta CV=2$ Ratio	0.22-0.9 g	0.4-1.6 g	0.6-2.4 g	1.0-4.0 g	1.5-6.0 g
Loading Capacity $\Delta CV=6t$	0.9-4.5 g	1.6-8.0 g	2.4-12.0 g	4.0-22.0 g	6.0-33.0 g
Column Volume(mL)	85	160	240	400	600
Lowest Flow Rate(mL/min)	20	25	35	45	50
Highest Flow Rate(mL/min)	35	50	80	90	100
Pressure (PSI)	180				
Length (cm)	24.0	21.0	23.5	15.7	23.5
Diameter (cm)	26	3.2	4.1	5.7	5.7
Diameter / Height	9.2	6.6	5.7	2.8	4.1

\* Sample loading:  $\Delta CV=1/Rf1-1/Rf2$ ; Matrix: silica: 40-60  $\mu m$       Cat.No\*: "CS" represent Silica  
 Sample loading<sup>1</sup>:  $\Delta CV=1$ ;    Sample loading<sup>2</sup>:  $\Delta CV=2$ ;    Sample loading<sup>3</sup>:  $\Delta CV=6$

## Claricep™ Glass Columns

The glass chromatography columns manufactured by Bonna-Agela Technologies are in an enhanced format of column housing. A complete line of high quality sorbents provides unique or better separation performance to meet customers' needs. The unique CM silica and HILIC bonded silica extend the application of normal phase to the separation of very polar compounds.



### Specification Data Sheet

Part. No.	Pressure (bar)	Column ID(mm)	Column Length(mm)	Packed Silica weight 40-60µm(g)	Loading weight (g)
G31015-1	40	15	310	45	0.45–4.5
G46015-1	40	15	460	70	0.70–7.0
G31026-1	40	26	310	130	1.30–13.0
G46026-1	40	26	460	200	2.00–20.0
G31036-1	30	36	310	240	2.40–24.0
G46036-1	30	36	460	350	3.50–35.0
G31049-1	20	49	310	450	4.50–45.0
G46049-1	20	49	460	650	6.50–65.0

## HPLC Prep Columns

Bonna-Agela Technologies have a full line of preparative HPLC columns to meet a variety of application needs for customers.

- ◆ Great scalability
- ◆ Excellent bed stability
- ◆ High loading capacity
- ◆ Broad solvent compatibility, from 100% aqueous to 100% organic solvents (Unisol C18, Venusil® HILIC, and Venusil® ASB C18)
- ◆ Broad pH range, 1.0-12.0 (Durashell)
- ◆ Unique selectivity (Unisol Amide and Venusil ASB C18)



ID (mm)	Sample Loading (mg)	Sample Loading (mL)	Recommended Flow Rate (mL/min)	Innoval C18 (5 µm 100 Å)	Venusil® PrepG C18 (10µm 60 Å)	Venusil® HILIC (10 µm 100 Å)
4.6×250	0.2-7	0.6	1	IX952505-0	VX902505-A	VH902505-0
10×250	5-25	2.3	3	IX952510-0	VX902510-A	VH902510-0
21.2×250	96	5	13	IX952520-0	VX902520-A	VH902520-0
30×250	200	10	25	IX952530-0	VX902530-A	VH902530-0
50×250	600	20	60	IX952550-0	VX902550-A	VH902550-0



## Thin Layer Chromatography (TLC)

Bonna-Agela carries a full line of thin layer chromatography (TLC) plates with a variety of chemistries. They are flexible or glass backed for easy use. When matching with Claricep™ flash cartridges, the TLC plates serve as a tool for reaction monitoring and method development based on Rf values for flash chromatography.

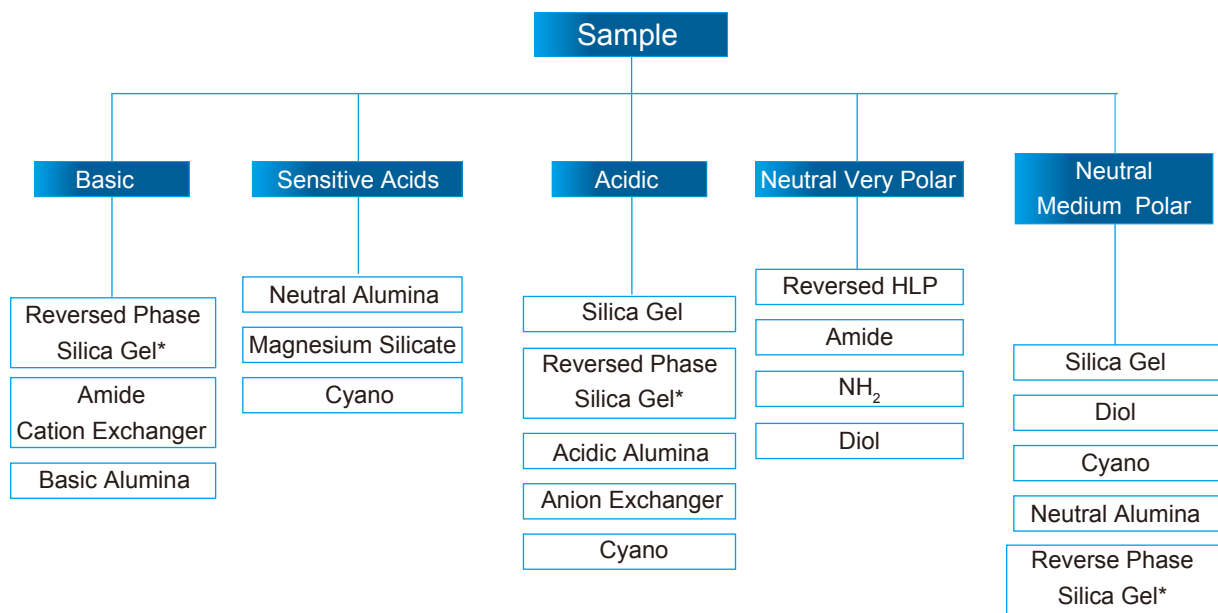


### TLC Plate Ordering Information

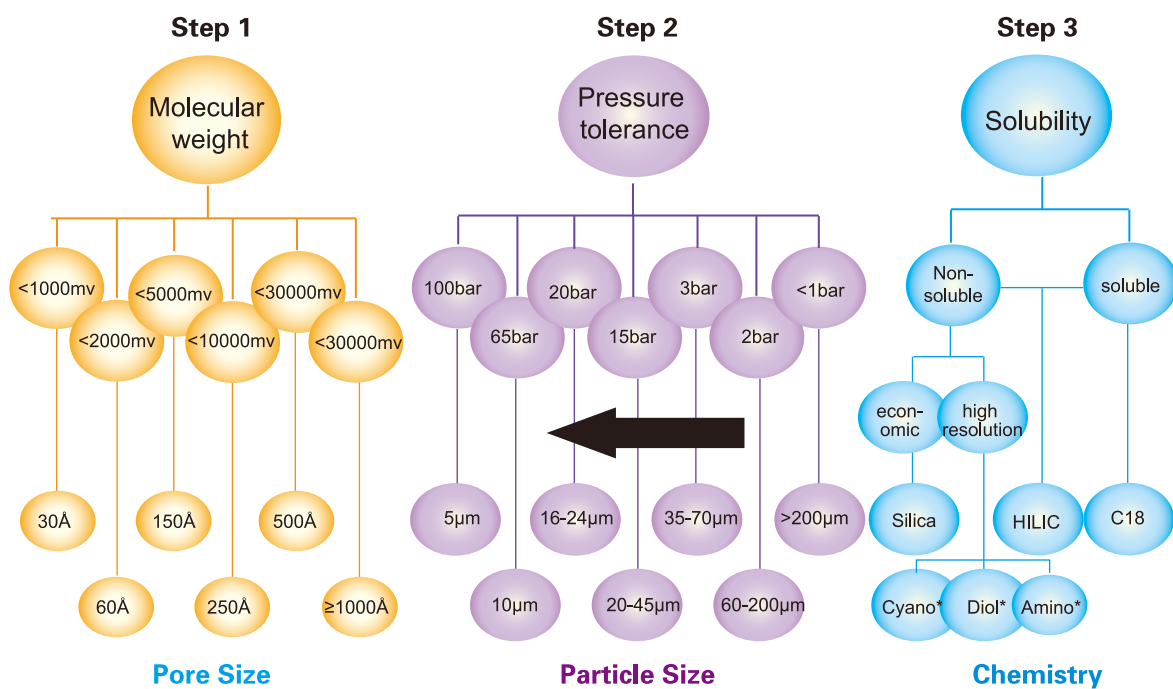
TLC Plate Type	Part. No.	Specification/mm	Package (pcs/pk)
Silica	T-CS7525-0	25×75 mm, pH=7.0, G, glass back	50
	T-CSF7525-0	25×75 mm, pH=7.0, GF254, glass back	50
	T-CS7525-M	25×75 mm, pH=5.0 (equivalent to EMD) M, glass back	50
	T-CSF7525-M	25×75 mm, pH=5.0 (equivalent to EMD) MF254, glass back	50
	T-CS10050-M	50×100 mm pH=5.0 (equivalent to EMD) M, glass back	40
	T-CSF10050-M	50×100 mm pH=5.0 (equivalent to EMD) MF254, glass back	40
	T-CS100100-M	100×100 mm, pH=5.0 (equivalent to EMD) M, glass back	20
	T-CSF100100-M	100×100 mm, pH=5.0 (equivalent to EMD) MF254, glass back	20
	T-CS200200-0	200×200 mm, G, glass back	10
	T-CSF200200-0	200×200 mm, GF254, glass back	10
	T-CS200200-M	200×200 mm, pH=5.0 (equivalent to EMD) M, glass back	10
	T-CSF200200-M	200×200 mm, pH=5.0 (equivalent to EMD) MF254, glass back	10
	T-CS200200-A	200×200 mm, pH=5.0 (equivalent to EMD) M, aluminum back	20
T-CSF200200-A	200×200 mm, pH=5.0 (equivalent to EMD) MF254, aluminum back	20	

All silica: Particle Size 10-15  $\mu\text{m}$ ; Surface Area 480-500  $\text{m}^2/\text{g}$ ; Pore Size 60  $\text{\AA}$ ; M, MF: pH=5.0; G, GF, pH=7.0;  
 Layer thickness: 200  $\mu\text{m}$

## Purification Media



\*Reversed Phase Silica Gel C18, AQ C18, Embedded C18, C8, C4



\*\*4.6×250 mm HPLC Columns, 1mL/min, kinetic viscosity: 1 cP or Pa.S

1 bar = 0.1 MPa = 1.0197 Kgf/cm<sup>2</sup> = 0.987 atm = 14.503 psi

\*60 Å, 100 Å; 10 µm or 50 µm is optional

Bulk Silica Gel Media from Bonna-Agela Technologies (Average Pore Size: 60 Å)

Part. No.	Grade	Particle Size	Pack
CS605001-P	P	40-60 µm	1 kg
CS605002-P	P	40-60 µm	2.5 kg
CS605005-P	P	40-60 µm	5 kg
CS605025-P	P	40-60 µm	25 kg
CS605001-G	G	40-60 µm	1 kg
CS605002-G	G	40-60 µm	2.5 kg
CS605005-G	G	40-60 µm	5 kg
CS605025-G	G	40-60 µm	25 kg
CS608001-P	P	70-90 µm	1 kg
CS608002-P	P	70-90 µm	2.5 kg
CS608005-P	P	70-90 µm	5 kg
CS608025-P	P	70-90 µm	25 kg
CS608001-G	G	70-90 µm	1 kg
CS608002-G	G	70-90 µm	2.5 kg
CS608005-G	G	70-90 µm	5 kg
CS608025-G	G	70-90 µm	25 kg

P: Reagent grade

G: Industrial grade

Irregular Silica; Average Particle Size: 40-60 µm; Average Pore Size: 100 Å.

Type	Part. No.	Pore Size	Pack
Claricep™ C18	FCO240100-0	100 Å	100 g
	FCO2401000-0	100 Å	1000 g
	FCO2405000-0	100 Å	5000 g

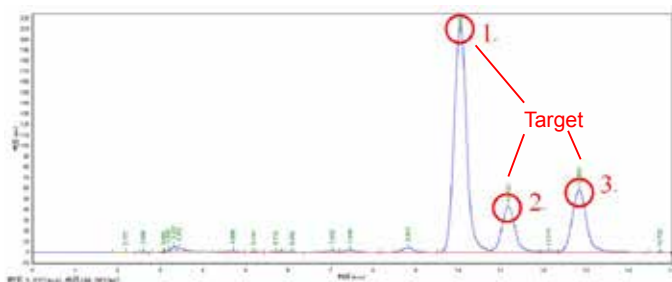
For more information of bulk media from Bonna-Agela, please refer to "PURIFICATION PRODUCTS" catalog.

## Application Examples

### The Separation of Phenolic Compounds in Sesame Oil

APPID: EPF1001

#### The HPLC Analysis of Crude Sample



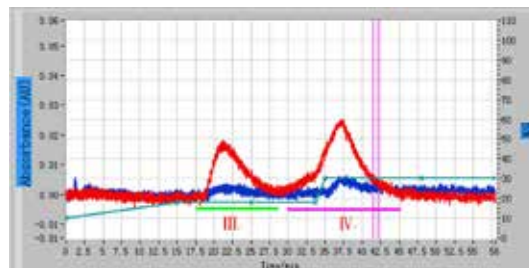
Columns: Venusil<sup>®</sup> XBP C18, 3  $\mu$ m  
Mobile Phase: Methanol: Water=75:25  
Detector: 287 nm  
Flow Rate: 0.6 mL/min

#### The First Purification



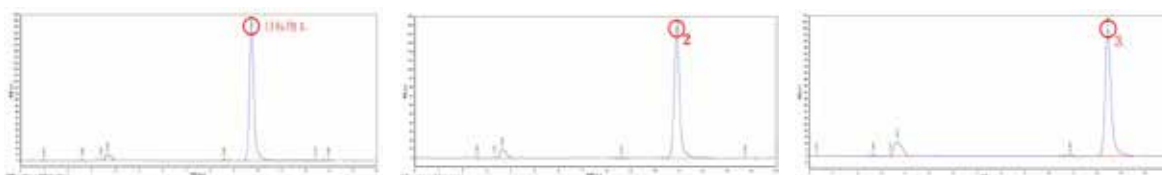
Purification Method:  
Columns: Claricep<sup>™</sup> Silica (CS) Flash column 12g $\times$ 3 (CS140012)  
Mobile Phase: Petroleum ether - ethyl acetate  
Detector: 287 nm, 254 nm  
Flow Rate: 15 mL/min  
Sample Loading: 1 mL crude sample  
Collection: peak collection by threshold

#### The Second Purification



Columns: Claricep<sup>™</sup> Al<sub>2</sub>O<sub>3</sub> Flash Column, 12 g (CA140012-N)  
Mobile Phase: petroleum ether - ethyl acetate  
Detector: 287 nm, 254 nm  
Flow Rate: 15 mL/min  
Sample Loading: 1 mL  
Collection: total collection, 10 mL/tube

#### The HPLC Analysis after Second Purification

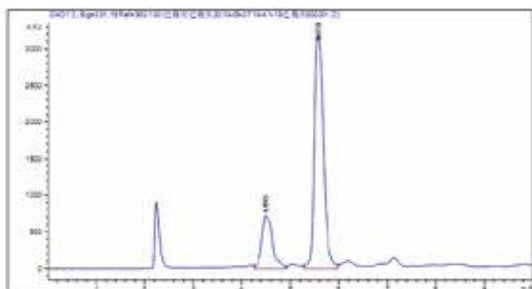


Columns: Venusil<sup>®</sup> XBP C18, 3  $\mu$ m  
Mobile Phase: Methanol: Water=75:25  
Detection: UV 287 nm  
Flow Rate: 0.6 mL/min

# Separation of Morinda Officinalis Extracts

APPID: EPP1001

## Sample HPLC Analysis Before Purification

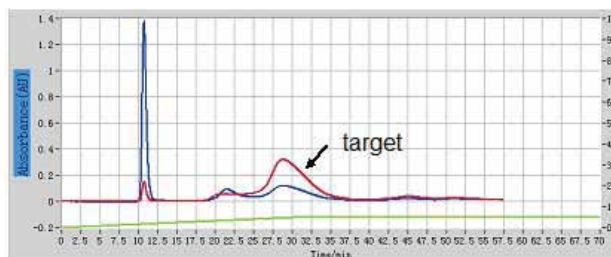


HPLC Column: Venusil® AQ C18, 5 μm, 100 Å, 4.6×150 mm

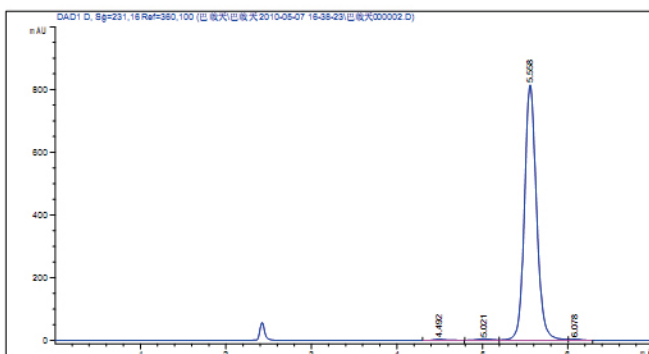
HPLC chromatogram of sample before purification (target compound at 5.570 min)

## Sample Preparation

Flash Chromatography Condition:  
 Mobile Phase: Methanol-Water-Formic acid (0.1 %)  
 Detector: 231 nm (Detection), 214 nm (Monitor)  
 Flash Column: Claricep™ AQ-C18 Flash Column,  
 particle size: 20-45 μm, 12 g  
 Flow Rate: 10 mL/min  
 Sample Loading: 800 μL



## Purity Test



No.	Retention Time (min)	Peak Area	Concentration (%)
1	4.492	31.445	0.064
2	5.588	4886.574	99.36
Total		4918.019	100

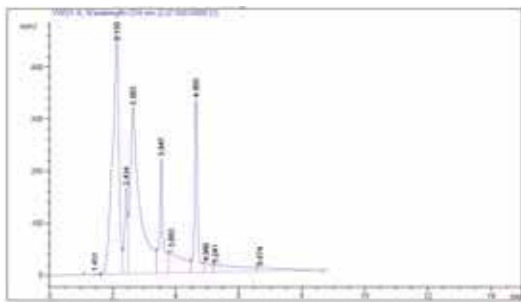
## Conclusion

Bonna-Agela's AQ C18-silica gel flash column can efficiently separate a target compound from Morinda officinalis extracts with its impurity. After purification, purity of the sample is above 99 %.

## Separation of Oligopeptides

APPID: EPB1001

### Sample HPLC Analysis Before Purification



HPLC Column: Venusil® XBP C18, 5 µm, 100 Å, 4.6×150 mm

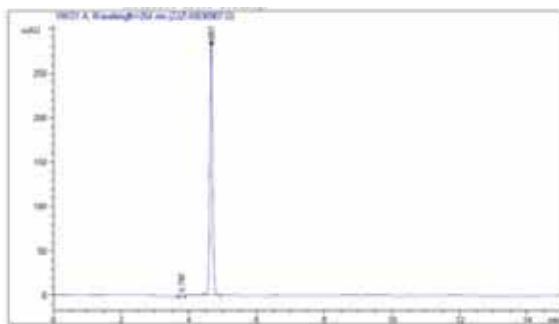
HPLC chromatogram of sample before purification  
 (target compound at 4.650 min))

### Sample Preparation

Flash Chromatography Condition:  
 Mobile phase: Methanol-Water  
 Detector: 254 nm (Detection), 214 nm (Monitor)  
 Flash Column: Claricep™ ODS-B,  
 particle size: 40-60 µm.  
 Flow rate: 15 mL/min  
 Sample loading: 1 mL



### Purity Test



No.	Retention Time (min)	Peak Area	Concentration (%)
1	3.787	18.486	1.15
2	4.661	1588.195	98.85
Total		1606.681	100

Purity found was 98.85 % after C18-Flash column purification.

### Conclusion

Bonna-Agela's Flash C18-silica gel column is efficient to separate an oligopeptide from its impurity.  
 After purification, purity of the sample is above 98 %.

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