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EPCC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

# Analytical Technologies Limited

An ISO 9001 Certified Company

www.analyticalgroup.net



### **Features**

- **Shorter Separation time :** the separation flow rate is increased about one time against and shorten the separation time.
- Higher separation efficiency : prominently increased.
- **Higher retention rate :** based on the same flow rate, the retention rate could be increased more than 50% against
- Less solvent consumption : one time run only cost less than 100ml solvent.
- Microgram sample load : one time separation only need hundreds of micrograms sample.

### **>>** Application areas

- Separation condition research
- Purification process optimization
- Fingerprint research
- Analysis research

### Specifications

Model	HSCCC-3030A
Total Column volume	30ml
Sample Loop Volume	1ml
Resolution Speed	0 - 1400rpm
Recommend Working Speed	1300rpm
Flow Rate	0.1 - 10ml/min
Separation Flow Rate	0.5 - 5.0ml/min
Max System Pressure	2MPa
Temperature Range	5 - 40°C

### **HSCCC - 3000A**

HSCCC-3000A is dedicated for separation and purification of large molecules, like proteins, polypeptides and polysaccharides.

### **Features**

- **Triple Separation Column :** When revolving at high speed the machine can reach a perfect balance. The retention rate of the solvent system is satisfactory.
- **Dual sixway-valve design :** Four flow routes switch function. One valve is the sampling valve. Another valve is the flow route control valve. Without stop the machine the operator can switch from forward revolution to reverse revolution and vice versa.





- **Precise temperature control :** The temperature of separation process can be controlled precisely. The separation process will avoide to be impacted by the environment tempreture. So the repeatability of the experiment is guaranteed.
- Very suitable for aqueous two-phase extraction of proteins or peptides : Aqueous twophase systems provide mild conditions that do not harm or denature proteins or peptides. The Polymer layer stabilizes the extracted protein molecules, favoring a higher concentration of the protein in one of the layers, resulting in an effective extraction. These systems are amenable to scale ups, from laboratory-sized setups to those that can meet the requirements os industrial production. They may be employed in continuous protein-extraction process. The continuous high performance coutnercurrent distribution and higher retention rate of sationary phase 3000V provided ensure higher resolution and shorter separation time.

Model	HSCCC-3000V
Valve Switching	Four flow routes switch function duel sixway-valve design
Total Column Volume	280ml
Sample Loop Volume	20ml
Revolution Speed	0-900 rpm
Recommend working speed	700-900 rpm
Flow Rate	0.1 - 30.0ml/min
Separation flow rate	0.5 - 4.0ml/min
Max System Pressure	2MPa
Temperature range	5-40°C

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### **Specifications**

# **>>** Separation of a mixture of Myoglobin and lysozyme

- Sample : The mixture of Myoglobin and Lysozyme
- Apparatus : HSCCC 3000V
- Solvent system : 12.5% PEG1000 +12.5% K<sub>2</sub>HPO<sub>4</sub> + 75% H<sub>2</sub>O
- Sample load : Myoglobin 20mg (Sigma) Lysozyme 30mg (Sigma)
- Flow rate : 5.0 ml/min
- UV detection wavelength : 280nm





### ▶ HSCCC - 3300C

Suitable for separation and purification of middle and small molecule compounds, like natural compounds, herbal/ phytochemicals,synthetic compounds, antibiotics, etc. The purified target compound may achieve 10 grams which can be used for further scientific research.

Higher separation effciency under the same sample load, the separation efficiency is increased about five times against our old model HSCCC -3300C.

Higher sample load under the same separation condition, the sample load is increased one or two times against HSCCC -3300C. Quicker separation flow eate:the flow rate is increased five times against HSCCC -3300C and shorten the separation time.



# **>>** Specifications

Model	HSCCC -3300C
Valve Switching	Four flow routes switch function duel sixway-valve design
Total Column Volume	300ml
Sample Loop Volume	20ml
Revolution Speed	0-1000 rpm
Recommend working speed	700-900 rpm
Flow Rate	0.1 - 50.0ml/min
Separation flow rate	5 - 30.0ml/min
Max System Pressure	2MPa
Temperature range	5-40°C

# **>>** Comparision of Chromatographs of 3300C and HPCCC-Houpu Extract







Model	3300	HSCCC -3300C	HPCCC
Sample		Houpu Extract	
Solvent system		n-hexane-eEthyl acetate-Methanol-H20(1:0.4:1:0.4)	
Sample load	15mg	300mg	2-8mg
Revolution Speed	1400rpm	900rpm	1800rpm
Flow rate	3.0ml/min	30ml/min	2.5ml/min

### **>>** Separation Examples

### **Separation of Phytochemicals**

Sample: Crude extract of peucedanum praeruptorum

Apparatus: HSCCC -3300C

HSCCC experimental conditions:

Solvent system:

system A light petroleum/ethyl acetate/methanol/water(5:5:5:5,V/V)

system B light petroleum/ethyl acetate/methanol/water(5:5:6.5:3.5,V/V)

Mobile phase: upper phase of system A

Elution: gradient: 0-40min elute with the lower phase of systemA,40-80min elute in liner gradient with the lower phase of system A and B. Decrease the concentration of lower phase of system A from 100% to 0%.

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Flow rate: 10.0ml/min Revolution speed: 800r/min

UV detection wavelength: 254nm

Injected mass: 300mg

Product purity: A. qianhucoumarin D 98.6%

- B. Pd-lb 92.8%
- C. (+)-praeruptorin A 99.5%
- D. (+)-praeruptorin B 99.4%



### Separation of Phytochemicals

Sample: Crude cyclosporine Apparatus: HSCCC -3300C

HSCCC experimental conditions:

Solvent system: light petroleum/acetone/water (3 : 3 : 2, V/V)





Stationary phase: upper phase Flow rate: 1.0ml/min Revolution speed: 1300r/min Detection: ELSD Product purity:

cyclosporine A 98.6% cyclosporine B 98.7% cyclosporine C 99.3% cyclosporine D 98.5%



# **>>** Separation of Proteins

Sample: Chicken egg white Apparatus: HSCCC -3300C HSCCC experimental conditions: Solvent system: PEG1000/KH<sub>2</sub>PO<sub>4</sub>/water (16: 17: 67, W/W) Flow rate: 2.0ml/min Revolution speed: 800r/min UV detection wavelength: 280nm Product purity: ovalbumin 99% Recovery rate: 95%





### **>>** Process Scale-up

### **Example: Separation of aloe extracts**

Apparatus: Analytical HSCCC -3300A



Solvent system: chloroform/isobutanol/methanol/water (4 : 0.25 : 3 : 2, V/V) Flow rate:1.0ml/min Revolution rate: 1300 r/min UV detection wavelength: 254 nm Injected mass: 3mg Retention rate: 71.8%

### **Apparatus: Semipreparative HSCCC -3300C**



Solvent system: chloroform/isobutanol/methanol/water (4 : 0.25 : 3 : 2, V/V) Flow rate: 5 ml/min Revolution rate: 800 r/min UV detection wavelength: 254 nm Injected mass: 300mg Retention rate: 73.6%



### **Apparatus: Preparative HSCCC -3300A**



Solvent system: chloroform/isobutanol/methanol/water (4 : 0.25 : 3 : 2, V/V) Flow rate:10ml/min Revolution rate: 480 r/min UV detection wavelength: 254 nm Injected mass: 1000mg Retention rate: 71.0%

### **Apparatus: Preparative HSCCC -3300A**



Solvent system: chloroform/isobutanol/methanol/water (4 : 0.25 : 3 : 2, V/V) Flow rate: 40 ml/min Revolution rate: 480 r/min UV detection wavelength: 254 nm Injected mass: 5000mg Retention rate: 70.6%



Antibiotics	Alteroxin I, Cyclosporine A, Cyclosporine B, Cyclosporine C, Cyclosporine D, Cyclosporine N, Erythromycin A, Erythromycin B, Erythromycin C, Isovalery I spiramycin III
Proteins	α-Amylase, Cytochrome C, Hemoglobine, Ovalbumin, Ovotransferrin, rhCIFN-α
Phenylpropanoids	Angelica coumarin, Artemisiae capillaris scoparone, Cnidiicoumarin, Cortex fraxini coumarin, Costu alctone, Curdione, Daphnoretin, Dehydro costus alctone, Deoxyschizandrin, Edgeworoside C, Germacrone, Pinoresinol diglucoside, Isopsoralen,Liriodendrin, Honokiol, Magnolol, Peucedanum decursivum coumarin, Peucedanum praeruptorum dunn coumarin, Psoralen, ÿ-Schizadrin, Syringin,Thyme coumarin, Umbelliferone
Flavonoids	Baicalein, Baicalin, Chrysin, Daidzin, Daidzein, Didymin, Didymin, Genistin, Glycitein, Glycitin, Hyperoside, Isoliquiritigenin, Isorhamn- tin, Isovitexin, Isoorientin, Kaempferol, Kuyayinone, Liquiritigenin, Nairutin, Quercetin, Scutellarin, Trollius ledebouri flavonoid glycosides, Wogonoside
Terpenoids	Atractyloside, Atractylenolide III, Bilobalide, Gentiopicrin, Ginkgolide A, Ginkgolide B, Ginkgolide C, Ginkgolide J,Harpagoside, Jasminoidin, Paclitaxel, Ursolic acid
Quinones	Cryptotanshinone, Tanshinone I, Transhinone IIA,
Steroids	Androstenedine, β- Ecdysterone, Sitosterol, Spinasterol
Alkaloids	Berberine, Camptothecin, Coptisine, Evodiamine, Heteratisine, Huperzine A, Huperzine B, Matrine, 15-a-Neoine, 1- Tetrahydropalmatine, Oxymatrine, Oxysophocarpine, Rutacarpine, Palmatine, Verticine, Verticinone,
Isomerides	Barbinervic Acid stereisomer, Gambogic acid stereisomer
Saponins	Astragaloside, Clinopodiside A, Ginsenoside-Re, Ginsenoside- Rg1, Glycyrrhizic acid, Cinnamic acid, 3,4 Dihydroxyphenyllactic
Organic acid, acid anhydride and esters	Cinnamic acid, 3,4Dihydroxphenyllactic acid, Eicosanoic acid, Ferulic acid, Gallic acid, Ginkgolic acid(C13: 0), Ginkgolic acid(C15 : 1), Ginkgolic acid (C17 : 1)
Polyphenols	EGCG, Salvianolic acid B, Theaflavin
Other substances	Amygdalin, Aurentiamide acetate, Chebulagic acid, Chebulinic



# HPLC Servicing, Validation, Trainings and Preventive Maintenance :

HPLC Servicin	g:HPLC Servicing : We have team of service engineers who can attend to any make of HPLC promptly @the most
	affordable cost.
Trainings	:We also take up preventive Maintenace to reduce downtime of HPLC's Trainings.
AMC's/CMC	:AMC's/CMC :We offer user training both in-House and at customer sites on HPLC principles, operations, trouble-
	shooting.
Validations	:Validations :We have protocols for carrying out periodic Validations as per GLP/GMP/USFDA norms.

Instruments :Instruments :We offer instruments/Renting Services Modules like pumps, detector etc. on Rent.





### **About Analytical Technologies**

Analytical Technologies is synonymous for offering technologies for doing analysis and is the Fastest Growing Global Brand having presence in at least 96 countries across the global. Analytical Technologies Limited is an ISO:9001 Certified Company engaged in Designing, Manufaturing, Marketing & providing Services for the Analytical, Chromatography, Spectroscopy, Bio Technology, Bio Medical, Clinical Diagnostics, Material Science & General Laboratory Instrumentation. Analytical Technologies, India has across the Country operations with at least 4 Regional Offices, 6 Branch Offices & Service Centers. Distributors & Channel partners worldwide.

# **Our Products & Technologies**

Infra FTIR







**Optical Emission** Spectrophotometer





DSC/TGA



3007

Optima Gas

Chromatograph



Chemistry Analyzer





Optima Gas Chromatograph 2979 Plus



HEMA 2062 Hematology Analyzer





Chromatograph

Micro Plate

Reader/Washer

Spectrophotometer

URINOVA 2800

Urine Analyzer



Liquid Partical Counter



Total Organic Carbon 3800





Fully Automated CLIA

NOVA-2100 Chemistry Analyzer

PCR/Gradient PCR/ RTPCR

TOC Analyzer

Laser Particle Size Analyzer

Ion Chromatograph

Water purification system





# Regulatory compliances



# **Corporate Social Responsibility**

Analytical Foundation is a nonprofit organization (NGO) found for the purpose of:



1.Research & Innovation Scientist's awards/QC Professional Award : Quality life is possible by innovation only and the innovation is possible by research only, hence ANALYTICAL FOUNDATION is committed to identify such personallities for their contributions across various field of Science and Technology and awarding them yearly. To participate for award, send us your details of research / testing / publication at Info@analyticalfoundation.org

2. Improving quality of life by offering YOGA Training courses, Work shops/Seminars etc.

3. ANALYTICAL FOUNDATION aims to DETOXIFY human minds, souls and body by means of yoga, Meditation, Ayurveda, Health Care, Awards, Media, Events, Camps etc.





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