

## Certificate of Analysis

### Manufacturing Data

Product Name	Fleeceflower Root Extract		
Botanical Source	<i>Polygonum multiflorum Thunb.</i>		
Used Part	Root	Batch Quantity	250kg
Batch Number	20110819	Extract Solvent	Water

### Quality Data

Identification	Standardization	Results	Test Methods
Assay Data	10:1	Complied	TLC
Appearance	Fine brown powder	Complied	Visual
Odor & Taste	Characteristic	Complied	Organoleptic
Mesh Size	90% through 80 meshes	80 meshes	80 Mesh Screen
Solubility	Soluble in water	Complied	Visual
Loss on Drying	5.0% max	4.86%	USP(731)
Residue on Ignition	5.0% max	4.15%	USP(281)
Loose Density	0.45g/ml min.	0.48g/ml	USP(616)
Tap Density	0.60g/ml min.	0.62g/ml	USP(616)
Aflatoxins B1	5ppb max	Complied	CP2010 V
Aflatoxins Sum of B1, B2, G1, G2	20ppb max	Complied	CP2010 V
Total Heavy Metals	10.0 ppm max	Complies	CP2005 E
Pb	0.5 ppm max	0.23 ppm	AAS
As	0.5 ppm max	0.25 ppm	AAS
Pesticide Residues	2.0ppm max	Complied	EP 2.8.13
BHC	0.1ppm max.	Complied	EP 2.8.13
DDT	0.1ppm max	Complied	EP 2.8.13

### Microbiological Data

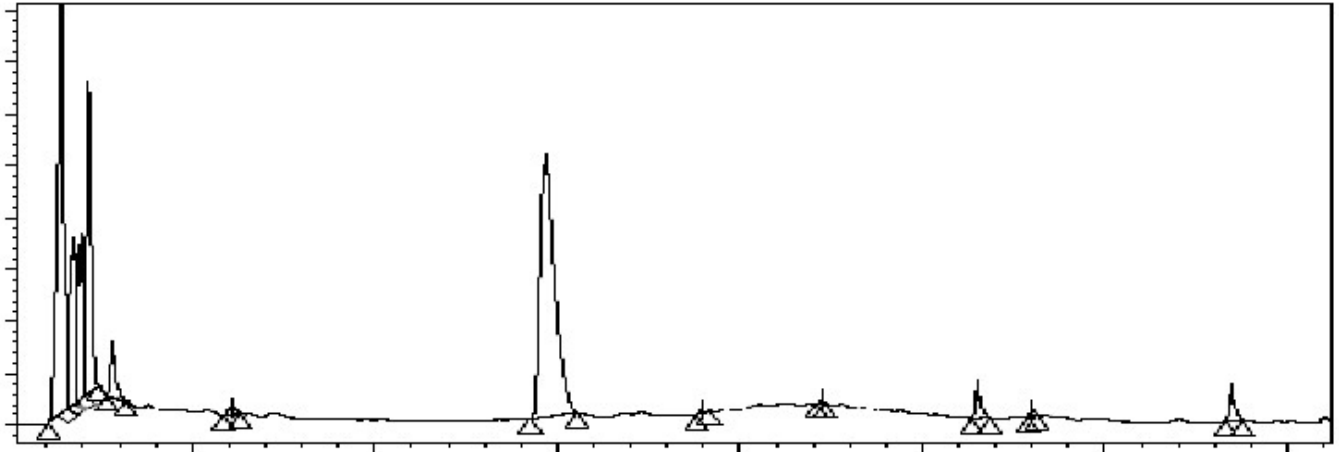
Total Plate Count	1000cfu/g max.	820cfu/g	GB/T 4789.2
Yeast & Mold	100cfu/g max.	84cfu/g	GB/T 4789.15
E.Coli & Salmonella	Negative	Complied	GB/T 4789.3
Staphylococcus aureus	Negative	Complied	GB/T4789.10

### Addition Data

Storage	Store in a cool dry place, avoiding sunlight directly
Retest Date	Aug,18,2013
Shelf life	Two years
Packaging	Food grade multiplayer polyethylene bags, 25kg in one type cardboard drum

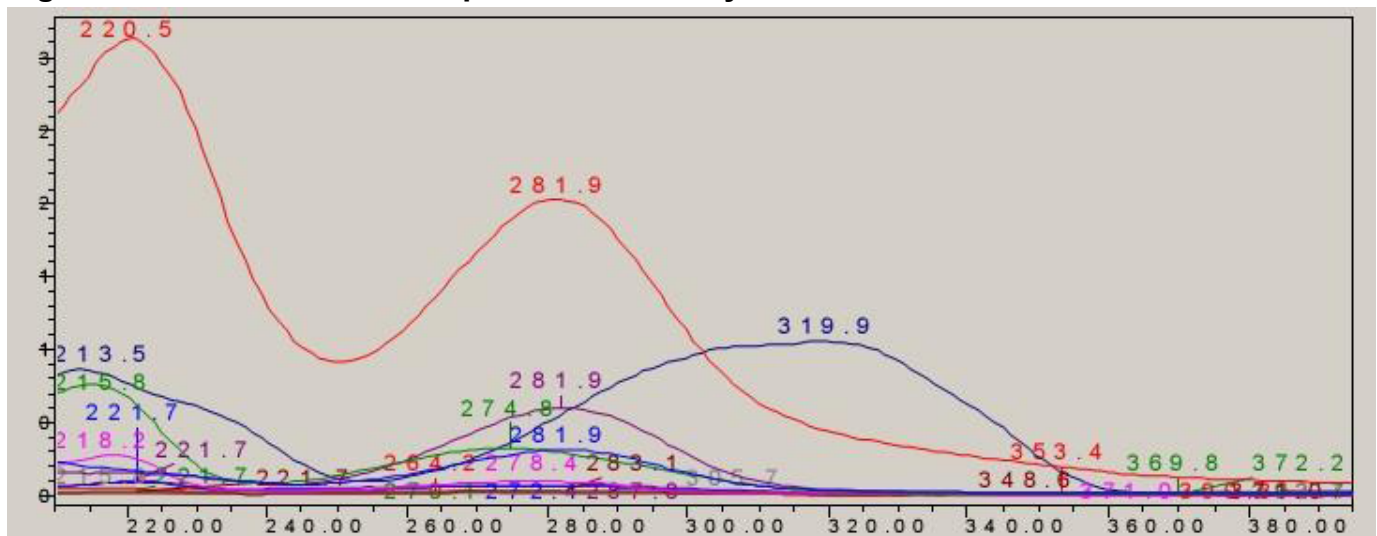
## Fingerprint Analysis

**Fig. 1. HPLC Fingerprint Anthraquinones with Detection Wavelength By 280nm**



Note: 1. Fleeceflower Root Extract Powder test solution 2309.3mg/25ml  
 2. Horizontal Axis stands for Retention Time;  
 3. Vertical Axis stands for Absorption Degree;  
 4. Peak means a certain bioactive substance of anthraquinones or it's derivatives. Each herb has it's characteristic bioactive substance and thus it's special peak graph, that can show whether the ingredient is extracted by expected herb.

**Fig. 2. UV Spectrum Locus By 190nm ~ 400nm**



Note: 1. Horizontal Axis stands for Wavelength;  
 2. Vertical Axis stands for Absorption Degree;  
 3. Each curve means a certain bioactive substance contained in Fleeceflower Root Extract Powder. Not like synthetic chemical drug compounds, as the composition of herbal extracts is far more complex, so there are many curves under this wavelength range. Each herb has it's characteristic bioactive substance and thus it's special curve graph, that can show whether the ingredient sold is just a conscious adulteration.

## HPLC Fingerprint Analysis Method:

### 1.1 Chromatographic Conditions:

Chromatographic Column: SP-120-5-C<sub>18</sub>-AP(250 mm × 4.6 mm, 5µm)

Mobile Phase: Methanol : 0.05% Phosphoric acid (gradient elution)

Detection Wavelength: 280nm

Flow Rate: 1.0 mL/min

Column Temperature: 25°C

Injection: 20µl

#### Mobile Phase gradient elution procedure

<u>Time(min)</u>	<u>A% (Methanol)</u>	<u>B% (0.05% Phosphoric acid)</u>	<u>Gradient Curve</u>
0	30	70	6
20	30	70	6
35	40	60	6
55	75	25	6
75	95	5	6

### 1.2 Preparation Of Sample Solution:

Accurately weigh appropriate Fleeceflower Root Extract Powder into a 25 ml volumetric flask. Add 75% methanol and sonicate for 20 mins. After cool to room temperature, dilute to volume with 75% methanol. Filter through a 0.45µm filter into an HPLC vial or centrifuge to obtain a clear test solution.