



Method for improving water solubility of grape seed proanthocyanidin

Abstract

The present invention discloses a method for improving the water solubility of grape seed proanthocyanidin. The method comprises the following contents of: carrying out reflux extraction of grape seeds by deionized water having a temperature of 85 to 95 DEG C, and filtering to obtain crude extract solution; adding pectase, amylase, chitosan, or high-purity ethanol into the crude extract solution and stirring slightly, and standing when flocky deposition occurs; ultrafiltrating supernatant liquor again; and concentrating and drying to obtain water soluble grape seed proanthocyanidin product.

CN102168120A

China

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Claims (3)

Hide Dependent ^

1. one kind is improved the water miscible method of grape pip procyanidin, comprises following content:

- (1) at first Semen Vitis viniferae is sieved and remove a large amount of dust;
- (2) again with the deionized water refluxing extraction of Semen Vitis viniferae, filter and obtain crude extract solution with 85-95 °C;
- (3) secondly in crude extract solution, add polygalacturonase or amylase or chitosan or highly purified ethanol etc. and mix slightly, have flocks to occur, leave standstill;
- (4) once more with the supernatant liquid ultrafiltration;
- (5) concentrated at last, drying obtains water miscible grape pip procyanidin product.

2. the preparation method of water-soluble grape pip procyanidin according to claim 1 comprises following content:

- (1) with the deionized water post-heating that adds 4-5 times of volume in the Semen Vitis viniferae to 85-95 °C, refluxing extraction, 2-4h filters, and collects extracting solution;
- (2) will add volume ratio 2%-5% natural gum enzyme or volume ratio 2%-5% amylase or volume mass in the said extracted liquid than 0.5%2% chitosan or volume ratio 1/2 95% ethanol etc., 50 °C of water-baths were stirred 10-20 minute, left standstill 1h, had flocks to occur;
- (3) be the ultra-filtration membrane of 0.1-1.0 μ m with aforesaid liquid with the aperture, remove by filter throw out;
- (4) above-mentioned clear liquid is concentrated, drying obtains water miscible grape pip procyanidin product.

3. the preparation method of water-soluble grape pip procyanidin according to claim 2 comprises following content:

- (1) will add the deionized water post-heating to 95 °C of 4 times of volumes in the Semen Vitis viniferae, refluxing extraction, 3h filters, and collects extracting solution;
- (2) will add volume ratio 2% polygalacturonase or volume ratio 2% amylase or volume mass in the said extracted liquid than 0.5% chitosan or volume ratio 1/2 95% ethanol etc., 50 °C of water-baths were stirred 10-20 minute, left standstill 1h, had flocks to occur;
- (3) be the ultra-filtration membrane of 0.1-1.0 μ m with aforesaid liquid with the aperture, remove by filter throw out;
- (4) above-mentioned clear liquid is concentrated, drying obtains water miscible grape pip procyanidin product.

Description

The water miscible method of a kind of raising grape pip procyanidin

Technical field

The present invention relates to the water miscible method of a kind of raising grape pip procyanidin, adopt deionized water refluxing extraction, extracting solution purifying, the isolating method of ultra-filtration membrane to prepare water-soluble grape pip procyanidin, belong to the biotechnology natural active matter and extract the field.

Background technology

Pycnogenols, English name are Oligomeric Proantho Cyanidins (OPC), are a kind of Vitamin P complexes that special molecular structure is arranged, and are the most effective natural antioxidantss of free radical in the removing human body of generally acknowledging in the world at present. Be generally the reddish-brown powder, little, the puckery of gas, water-soluble and most organic solvent. Be generally Semen Vitis viniferae extract or French maritime pine bark extract. Pycnogenols (Semen Vitis viniferae extract) is a kind of new and effective antioxidant. The most potent free-radical scavengers that is so far to be found has very strong activity in vivo. The Green Tea Extract oxidation capacity that experiment showed, OPC is 50 times of vitamin-E, ascorbic 20 times, and absorb rapidly fully, can reach the highest haemoconcentration in oral 20 minutes, metabolic half life is for 7 hours. Structurally, pycnogenols is catechin (catechin) or I-Epicatechol (epicatechin) be combined into by different quantities. The simplest pycnogenols is the dimer of catechin or I-Epicatechol or catechin and I-Epicatechol formation, also has tripolymer, the tetramer etc. in addition until ten aggressiveness. By the size of the polymerization degree, usually two ~ pentamer is called oligomer (being called for short OPC), will be called high polymer (being called for short PPC) more than the pentamer.

At present, the pycnogenols product that the domestic and international market is sold and used mainly is the method preparation of solvent-applied lixiviate and the separation and purification of column chromatography bonded, its poorly water-soluble, oligomer content are low, and this method exists defectives such as extraction process complexity, extraction yield are low, separator column life-span weak point, production cost height.

Summary of the invention

At Semen Vitis viniferae extract specification and the deficiencies in the prior art on the market, technical problem to be solved by this invention is: the poorly water-soluble of product, oligomer content are low, complex process, defective that production cost is high. Provide a kind of method to come the method for separation and purification grape pip procyanidin with enzymolysis, flocculate with chitosan, alcohol precipitation, membrane ultrafiltration.

In order to solve the problems of the technologies described above, the technical solution used in the present invention is, the water miscible method of a kind of raising grape pip procyanidin, and it comprises following content:

At first, filter and obtain crude extract solution the deionized water refluxing extraction of Semen Vitis viniferae with 85-95 °C; Secondly in crude extract solution, add polygalacturonase or amylase or chitosan or highly purified ethanol etc. and mix slightly, have flocks to occur: once more with the supernatant liquid ultrafiltration; Concentrated at last, drying obtains water miscible grape pip procyanidin product. Concrete extraction and separation method is as follows:

- 1, with the deionized water post-heating that adds 4-5 times of volume in the Semen Vitis viniferae to 85-95 °C, refluxing extraction, 2-4h filters, and collects extracting solution;
- 2, will add volume ratio 2%-5% polygalacturonase or volume ratio 2%-5% amylase or volume mass in the said extracted liquid than 0.5%-2% chitosan or volume ratio 1/2 95% ethanol etc., 50 °C of water-baths were stirred 10-20 minute, left standstill 1h, had flocks to occur;
- 3, be the ultra-filtration membrane of 0.1-1.0 μm with aforesaid liquid with the aperture, remove by filter throw out;
- 4, above-mentioned seminal fluid is concentrated, drying obtains water miscible grape pip procyanidin product.

Description of drawings:

Fig. 1: the left side is Semen Vitis viniferae extract on the market; The right side is the Semen Vitis viniferae extract that arrives that utilizes present method preparation.

Fig. 2: the left side is Semen Vitis viniferae extract on the market; The right side is the Semen Vitis viniferae extract that arrives that utilizes present method preparation.

Specific embodiments:

The present invention can be specifically described its preparation process and effect according to the following example.

Embodiment 1:

- 1, get in the 100g Semen Vitis viniferae deionized water post-heating to 95 °C that adds 4 times of volumes, refluxing extraction 4h filters, and collects extracting solution;
- 2, will add volume ratio 2% polygalacturonase in the said extracted liquid, 50 °C of water-baths were stirred 10 minutes, had flocks to occur;
- 3, be the ultra-filtration membrane of 0.8 μm with aforesaid liquid with the aperture, remove by filter throw out;
- 4, above-mentioned seminal fluid is concentrated, drying obtains water miscible grape pip procyanidin product and is about 19.8g.

Embodiment 2:

- 1, gets in the 100g Semen Vitis viniferae deionized water post-heating to 85 °C that adds 5 times of volumes, reflux and carry 3h, filter, collect extracting solution;
- 2, will add volume mass in the said extracted liquid than 0.5% chitosan, 50 °C of water-baths were stirred 15 minutes, had flocks to occur;
- 3, be the ultra-filtration membrane of 0.6 μm with aforesaid liquid with the aperture, remove by filter throw out;
- 4, above-mentioned clear liquid is concentrated, drying obtains water miscible grape pip procyanidin product and is about 16.8g.

Embodiment 3:

- 1, get in the 100g Semen Vitis viniferae deionized water post-heating to 95 °C that adds 4 times of volumes, refluxing extraction 4h filters, and collects extracting solution;
- 2, will add volume ratio 2% amylase in the said extracted liquid, 50 °C of water-baths were stirred 10 minutes, had flocks to occur;

- 3, be the ultra-filtration membrane of 0.4 μ m with aforesaid liquid with the aperture, remove by filter throw out;
- 4, above-mentioned seminal fluid is concentrated, drying obtains water miscible grape pip procyanidin product and is about 18.9g.

Embodiment 4:

- 1, get in the 100g Semen Vitis viniferae deionized water post-heating to 85 °C that adds 5 times of volumes, refluxing extraction 3h filters, and collects extracting solution;
- 2, will add volume ratio 1/295% ethanol in the said extracted liquid, 50 °C of water-baths were stirred 13 minutes, had flocks to occur;
- 3, be the ultra-filtration membrane of 0.2 μ m with aforesaid liquid with the aperture, remove by filter throw out;
- 4, above-mentioned clear liquid is concentrated, drying obtains water miscible grape pip procyanidin product and is about 16.2g.

Cited By (4)

Publication number	Priority date	Publication date	Assignee	Title
CN105661544A *	2016-02-24	2016-06-15	青海康元药用资源科技利用有限公司	Method for extracting anthocyanin by carrying out solid-liquid isolation on lycium ruthenicum murray
CN106455637A *	2014-05-30	2017-02-22	嘉康利公司	Chardonnay grape seed extract
US10709751B2	2014-05-30	2020-07-14	Shaklee Corporation	Chardonnay grape seed extract
CN112754950A *	2021-04-01	2021-05-07	郑影	Water-soluble sunscreen emulsion and preparation method thereof
Family To Family Citations				

* Cited by examiner, † Cited by third party, ‡ Family to family citation

Similar Documents

Publication	Publication Date	Title
CN101084936B	2011-07-13	Method for preparing ginkgo leaves extraction
CN101971901A	2011-02-16	Method for preparing high-tea-polyphenol instant tea
CN101798355B	2015-02-11	Method for integrated separation and extraction of tea polysaccharide, theanine, polyphenol and caffeine
CN101239962B	2011-12-07	Method for extracting proanthocyanidins from cranberry
CN102168120A	2011-08-31	Method for improving water solubility of grape seed proanthocyanidin
CN102240343B	2013-01-23	Environment-friendly preparation method for high-ester catechin tea polyphenol
CN103044566A	2013-04-17	Method for preparing antioxidant polysaccharide from dictyophora indusiata aqueous extract residues
CN101139402A	2008-03-12	Method for extracting polysaccharide from jujube
CN101744886A	2010-06-23	Method for extracting high-purity schisandra total lignan
CN101781279A	2010-07-21	Preparation method of grape seed procyanidin
CN105777698A	2016-07-20	Method for purifying pitaya peel anthocyanin
KR100817876B1	2008-03-31	Isolation process for proanthocyanidin from the bark of pine tree
CN102532085A	2012-07-04	Method for extracting proanthocyanidin from peanut coats
CN102060937A	2011-05-18	Extraction and separation method for green tea polysaccharides
CN102229592B	2013-08-14	Preparation method of Rhodiola rosea proanthocyanidin
CN103420969A	2013-12-04	Method for extracting anthocyanidin in grape juice
CN104447941B	2016-05-25	A kind of synchronous method of extracting of glucosidase procyanidins and Tea Saponin in oil-tea camellia husks
CN102643261A	2012-08-22	Method for extracting cyanidin from blueberry wine residues
CN101747195A	2010-06-23	Separation purifying method for DCQA (dicafeoylquinic acid) component in jerusalem artichoke
CN101597273B	2011-12-28	Preparation method of oligomer grape seed procyanidin
CN102247488A	2011-11-23	Tea polyphenol extraction technology
CN101810317B	2012-11-21	Preparation method of canophyllic polyphenol and application thereof

CN101696381B	2012-06-27	Novel process for preparing highland barley flavone extract and application thereof in health wine
CN102584968B	2014-01-08	Method for extracting and purifying macromolecular active ingredients of plant
CN104586910A	2015-05-06	Coreopsis tinctoria extract and preparation method thereof

Priority And Related Applications

Priority Applications (1)

Application	Priority date	Filing date	Title
CN2010105575331A	2010-11-23	2010-11-23	Method for improving water solubility of grape seed proanthocyanidin

Applications Claiming Priority (1)

Application	Filing date	Title
CN2010105575331A	2010-11-23	Method for improving water solubility of grape seed proanthocyanidin

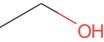
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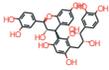
Date	Code	Title	Description
2011-08-31	C06	Publication	
2011-08-31	PB01	Publication	
2014-07-16	C02	Deemed withdrawal of patent application after publication (patent law 2001)	
2014-07-16	WD01	Invention patent application deemed withdrawn after publication	Application publication date: 20110831

Concepts

machine-extracted

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Name	Image	Sections	Count	Query match
water		title,claims,abstract,description	27	0.000
Grape Seed Proanthocyanidin		title,abstract	3	0.000
Vitis		claims,abstract,description	35	0.000
Vitis vinifera		claims,abstract,description	18	0.000
grape		claims,abstract,description	18	0.000
grape		claims,abstract,description	18	0.000
ethanol		claims,abstract,description	15	0.000
extraction		claims,abstract,description	13	0.000
product		claims,abstract,description	12	0.000
deionised water		claims,abstract,description	11	0.000
reflux		claims,abstract,description	11	0.000
drying		claims,abstract,description	10	0.000
Chitosan		claims,abstract,description	8	0.000
Amylase		claims,abstract,description	7	0.000

■ Amylases	claims,abstract,description	7	0.000
■ Amylases	claims,abstract,description	7	0.000
■ amylase	claims,abstract,description	7	0.000
■ crude extract	claims,abstract,description	6	0.000
■ supernatant	claims,abstract,description	3	0.000
■ Semen	claims,description	20	0.000
■ liquid	claims,description	20	0.000
■ Procyanidin B4	claims,description	17	0.000
			
■ Vitis	claims,description	17	0.000
■ procyanidin	claims,description	17	0.000
■ ultra-filtration	claims,description	11	0.000
■ flock	claims,description	9	0.000
■ membrane	claims,description	9	0.000
■ heat treatment	claims,description	7	0.000
■ preparation method	claims,description	6	0.000
■ Polygalacturonase	claims,description	5	0.000
■ mixture	claims,description	2	0.000
■ Enzymes	claims	1	0.000
■ Enzymes	claims	1	0.000
■ dust	claims	1	0.000
■ natural gum	claims	1	0.000
■ filtration	abstract	1	0.000
■ stirring	abstract	1	0.000

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