



Method for effectively extracting phytoncide components, and method for producing multifunctional food and cosmetic product containing phytoncide

Effective extraction of phytoncide ingredients and application method of food and cosmetics

Patent title Antioxidant or skin whitening food or cosmetic composition including Schisandra distillate as active ingredient

Inventor Korea Food research Institute / Jang Dae-ja

Patent application No. KR 10-2019-0173778

Authority status Unpublished

Technicality

Technology overview

- The technology relates to an antioxidant or skin whitening composition comprising a Schisandra distillate as an active ingredient, and the technology relates to an antioxidant or skin whitening food or cosmetic composition comprising a Schisandra aqueous distillate as an active ingredient.
- As an aqueous distillate of Schisandra Schisandra, it is possible to obtain an undiluted solution in a sterile state and the solution is a water-soluble material containing a large amount of phytoncide which is an active ingredient.

Development background and problem to be solved

- As a water-soluble material, the technology can be safely used even for those with weak immunity, and a Schisandra extract which can improve antioxidant or skin whitening activities is required.
- Provided is a cosmetic composition comprising as an active ingredient water distillate of Schisandra with further improved antioxidant or skin whitening activities compared to an existing Schisandra extract.
- Provided as an active ingredient is a food composition comprising a Schisandra aqueous distillate which can be added as a flavor enhancer to exhibit antioxidant or skin whitening activities and improve flavors, and added to various health functional foods to improve palatability.

Excellence and discrimination of technology

Excellence of technology

- The technology is a water-soluble material, which can be safely used even for people with weakened immune systems.
- Antioxidant or skin whitening activities can be further improved compared to a Schisandra simple extract.
- The technology is added as a flavor enhancer to enhance flavors and improve palatability, so the technology can be applied to various foods.

Discrimination of technology

- A water distillate contains fine essential oils in low concentrations, so the distillate can be used without irritation on sensitive skin or infants.
- The technology is effective in enhancing antioxidant efficacy.
- The technology is effective in enhancing tyrosinase inhibitory activities, that is, skin whitening effects.
- The technology can be used as a useful ingredient to enhance flavors.



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Implementation method

- A Schisandra aqueous distillate is an aqueous distillate obtained from the fruit flesh of Schisandra, and is produced by distilling steam to extract essential oil.
- A Schisandra water distillate is produced according to any one method selected from a water distillation method, a steam distillation method, and a water-steam distillation method.
- The technology can be used as a natural flavoring agent, and formulated and used as a functional food, or used after being added to various foods.

Fragrance ingredients	Schisandra hydrosol	Schisandra essential oil	Schisandra general (water extract)
(-)-terpinen-4-ol	3918	ND	3157
bornyl acetate	3560	10151	387
α-terpineol	3028	ND	333
citronellol	2473	ND	431
(-)-β-elemene	1918	31447	ND
furfural	1785	5392	194
1,8-cineole(=eucalyptol)	1609	ND	1964
α-selinene	1443	ND	ND
α-cadinol	1369	ND	81
(+)-δ-cadinene	997	9885	ND

Table Schisandra hydrosol, water extract, and main fragrance components of essential oil

Processing concentration (% w/w)	Scavenging activity (IC ₅₀ of distilled)	Comparative scavenging activity (IC ₅₀ of control)	Comparative scavenging activity (IC ₅₀ of distilled)
0	0.00	0.00	0.00
10	7.04±2.70	0.61±0.08	4.74±1.89
20	11.68±1.03	0.54±0.18	4.90±0.69
30	10.95±1.74	1.20±0.76	5.28±1.47
40	11.61±0.64	1.34±0.32	6.10±0.51
50	11.10±1.95	2.56±0.86	6.08±1.14
60	10.32±1.41	2.45±0.56	7.76±0.55
70	10.96±0.58	2.73±0.40	8.46±1.45
80	11.96±0.97	4.03±0.85	8.50±0.80
90	20.39±0.97	7.72±1.14	12.90±0.99
100	23.54±1.11	8.22±0.91	16.42±0.78

Table Comparison of DPPH radical scavenging activities

Degree of technology completion (TRL)

Degree of technology completion: TRL3 (technology concept verification stage)

TRL1	TRL2	TRL3	TRL4	TRL5	TRL6	TRL7	TRL8	TRL9
Technical principle presentation	Technology concept setting	Technology concept verification	Lab Scale prototype development	Implementation environment application experiment	Full Scale prototype development	Quasi-commercial product development	Commercial product development	Commercial product implementation

Utilization

Utilization field and applied product

Utilization field

- General processed food industry
- Senior business
- Functional food industry
- Cosmetics industry



Picture 1 Special health patient diet

<Data: Asan Medical Center>

Applied product

- General food
- Patient diet for specific health purposes
- Health functional food
- Functional cosmetics



Picture 2 Functional cosmetics

<Data: LG Household & Health Care >



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Technology trend

- In the health functional food market, competition in the top raw material market based on sales amounts is intensifying due to the launch of low-priced PB products and complex products by large companies.
- In the future, in the domestic market, it is estimated that the growth of the health functional food market based on raw materials required by each individual consumer will lead the overall market rather than the market for high-priced raw materials such as red ginsengs, probiotics, and vitamins, where competition is intensifying.
- The demand for functional cosmetics is expected to increase as the elderly population increases with the consumer interests in maintaining a youthful appearance and aging gracefully.
- Companies are actively researching new formulations not only for anti-aging but also to solve other skin-related problems such as acne and redness.

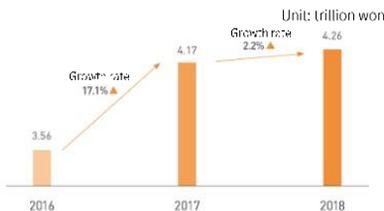
Family patent status

Application nation	Application No. (Application date) / Registration No.	Title of the invention
KOR	KR 10-2019-0173778 / -	Antioxidant or skin whitening food or cosmetic composition including Schisandra distillate as active ingredient

Market prospect

Target market size and prospect

- The health functional food market has a market size of about KRW 4.3 trillion and has grown by 17.1% in 2017 and 2.2% in 2018 compared to the previous years.
- The size of the global cosmeceutical market in 2016 was about 43 trillion won, showing a growth rate of about 7.5% compared to 2017.
- The growth of the Chinese cosmeceutical industry, which favors Korean products differentiated from global cosmetic brands due to the natural material cosmetics and the Korean wave, is expected to be a great opportunity for the Korean cosmeceutical industry to enter overseas markets.



Picture Domestic health functional food market size

<Data: Leading investment & securities >

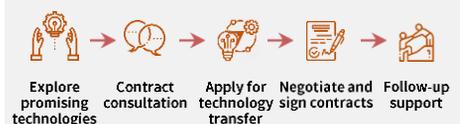


Picture Global cosmeceutical market size

<Data: Korea Health Industry Development Institute >

Technology transfer query

Technology transfer process



Explore promising technologies Contract consultation Apply for technology transfer Negotiate and sign contracts Follow-up support

DH 두호특허법인 / (주)두호기술경영
 DooHo IP Law Firm / DooHo Tech. & Mgt. Inc.

Person in charge Kyuhyeong LIM
Contact 070-4333-8021
Email khlim@doohopat.co.kr