



Porridge composition having bone growth promoting activity

Porridge composition for prompting osteogenesis

KFRI KOREA FOOD RESEARCH INSTITUTE

Patent title Porridge composition having bone growth promoting activity

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Patent application No. KR 10-2018-0139543 (2018.11.14)

Authority status Registered

Technicality

Technology overview

- The technology relates to a food composition which can promote bone growth by ingesting children or adolescents in the growing phase.
- The technology is a technology which can be usefully used for growth and development of young children, prevention and treatment of senile menopausal bone disease in adults as the technology includes natural substances, thereby having low toxicity in a body and having an excellent bone growth promoting ability.

Development background and problem to be solved

- It is necessary to develop a porridge composition having an excellent bone growth promoting ability.
- Provided is a porridge composition including Ciboule roots, rice, and vinegar, thereby having a bone growth promoting activity.
- Provided are a premix for porridge containing a Ciboule roots porridge, and a retort food.
- Provided is a porridge composition including naturally-derived substances, thereby having low toxicity in a body and an excellent bone growth promoting ability.

Excellence and discrimination of technology

Excellence of technology

- Toxicity in a body is low.
- A bone growth promotion ability is excellent.
- The technology can be usefully used for the prevention and treatment of bone diseases.
- The technology can be developed into a food in the form of a porridge for promoting bone growth or into a health functional food.

Discrimination of technology

- Because of an excellent ability to promote bone growth, the technology can be usefully used as a food for the growth and development of young children and bone formation.
- The composition can be effectively used to treat height growth either alone or in combination with a growth hormone treatment.
- Natural substances are included, and thus toxicity in a body is low.

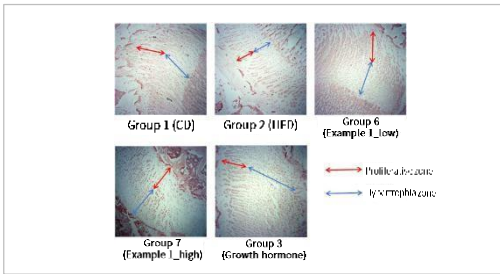


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Implementation method

- 50 to 200 parts by weight of total Ciboule roots and 1 to 30 parts by weight of vinegar are included with respect to 100 parts by weight of rice.
- A porridge composition having a bone growth promoting activity is freeze-dried, is added with water, and is simply cooked. Thus, a premix for a porridge which allows a consumer to enjoy the texture and taste similar to those of a freshly cooked porridge.
- A porridge composition is introduced into a container and retort sterilization is performed. Thus, it is possible to provide a retort food which allows a consumer to enjoy the texture and taste similar to those of a freshly cooked porridge, only by a simple warming process.



Picture Mouse growth plate analysis

Group	Femur (mm)	Tibia (mm)
Group 1 (Control)	4.9 ^a	9.2 ^a
Group 2 (HFD)	4.0 ^b	8.1 ^c
Group 3 (Growth hormone)	5.1 ^a	10.5 ^a
Group 4 (Example 1, low)	5.7 ^a	10.2 ^a
Group 5 (Example 1, high)	5.4 ^a	10.4 ^a

Table Measurement of changes in the lengths of femur and tibia

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
- Functional food industry



Picture 1 General food (porridge)

<Data: Intake>

Applied product

- Convenience food
- General food
- Health functional food



Picture 2 Health functional food

<Data: Hy Co., Ltd >



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Technology trend

- A convenience food refers to a food which has been processed, cooked, and packaged so that the food can be eaten conveniently by going through only a simple cooking process. Various products are released in the form of convenience foods, and the range is expanding.
- Traditional food companies have no choice but to invest in convenience foods, and the declining consumption of dining out due to the economic slowdown is being replaced by convenience foods. In particular, with the development of the non-face-to-face industry due to corona and the like, the restaurant franchise industry is also jumping into the convenience food market.
- The children's health functional food market is growing as parents' interests in children's health are increasing while health-threatening factors such as children's and parents' busy schedules, the generalization of instant foods, corona, yellow dust, fine dust, and influenza epidemics are spreading.
- Products focused on strengthening the physical strength and improving learning efficiency of teenagers and test takers are sold as youth health functional foods.

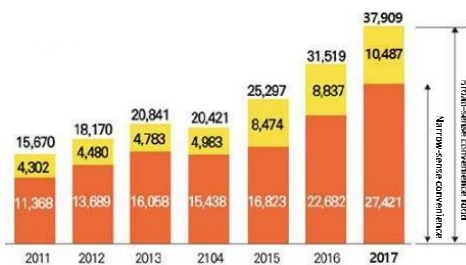
Family patent status

Application nation	Application No. (Application date) / Registration No.	Title of the invention
KOR	KR 10-2018-0139543 (2018.11.14) / KR 10-2142469	White spring onion porridge composition having bone growth promoting activity
KOR	KR 10-2017-0151456 (2017.11.14) / -	Unpublished

Market prospect

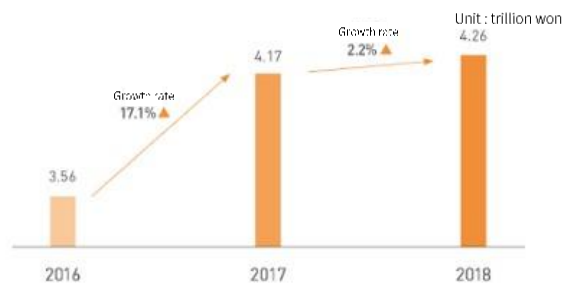
Target market size and prospect

- The size of the domestic convenience food market was KRW 2.7 trillion in 2017, an increase of 20.9% from KRW 2.2 trillion in 2016, and continues the high growth rate with a CAGR of 15.8%.
- The domestic health functional food market is about 4.3 trillion won market size, and the size grew by 17.1% in 2017 and 2.2% in 2018 compared to the previous years.



Picture Domestic convenience food sales trends

<Data: Ministry of Food and Drug Safety >

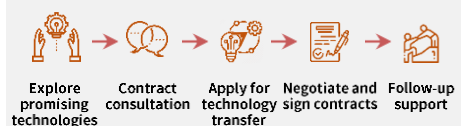


Picture Domestic health functional food market size

<Data: Leading investment & securities co. ltd>

Technology transfer query

Technology transfer process



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

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