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FILE 'HOME' ENTERED AT 12:10:41 ON 18 SEP 2025

=> FILE CAPLUS

| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|----------------------|------------------|---------------|
| FULL ESTIMATED COST  | 0.40             | 0.40          |

FILE 'CAPLUS' ENTERED AT 12:10:56 ON 18 SEP 2025

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FILE COVERS 1907 - 18 Sep 2025 VOL 192 ISS 2  
FILE LAST UPDATED: 17 Sep 2025 (20250917/ED)

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<http://www.cas.org/legal/infopolicy>

The Canadian Patent Office temporarily suspended the delivery of patent applications and granted patents. Documents with recent publication dates are not currently available.

Taiwan patents are lagging in currency due to issues with vendor resource. Efforts to address are ongoing.

=> S (Antioxidant OR Anti-oxidants OR "Pigment, plant" OR "Plant pigment" OR "Pigments" OR "Pigment") AND (membrane OR filter OR "Filtration app." OR "Separators, filters")

```
752992 ANTIOXIDANT
2213400 ANTI
44209 OXIDANTS
2984 ANTI-OXIDANTS
      (ANTI(W)OXIDANTS)
346423 "PIGMENT"
2545727 "PLANT"
266 "PIGMENT, PLANT"
      ("PIGMENT"(W)"PLANT")
2545727 "PLANT"
346423 "PIGMENT"
1363 "PLANT PIGMENT"
      ("PLANT"(W)"PIGMENT")
332946 "PIGMENTS"
```

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346423 "PIGMENT"
2028030 MEMBRANE
1092414 FILTER
724656 "FILTRATION"
1554366 "APP"
9684 "FILTRATION APP."
      ("FILTRATION"(W)"APP")
177455 "SEPARATORS"
465831 "FILTERS"
91 "SEPARATORS, FILTERS"
      ("SEPARATORS"(W)"FILTERS")
L1 69663 (ANTIOXIDANT OR ANTI-OXIDANTS OR "PIGMENT, PLANT" OR "PLANT PIGM
      ENT" OR "PIGMENTS" OR "PIGMENT") AND (MEMBRANE OR FILTER OR "FIL
      TRATION APP." OR "SEPARATORS, FILTERS")

=> S L1 AND PD<=20220528

59427884 PD<=20220528
      (PD<=20220528)
L2 55889 L1 AND PD<=20220528

=> S (C07K 1/14 OR C07K 14/405 OR C07K 1/34)/IPC

16905 C07K 1/14/IPC
      (C07K0001-14/IPC)
937 C07K 14/405/IPC
      (C07K0014-405/IPC)
11548 C07K 1/34/IPC
      (C07K0001-34/IPC)
L3 25136 (C07K 1/14 OR C07K 14/405 OR C07K 1/34)/IPC

=> S L2 AND L3

L4 148 L2 AND L3

=> S (SPIRULIN OR "Spirulina flavoriens" OR "Arthrospira platensis" OR
Arthrospira maxima OR Aphanizomenon flosaquae)

23 SPIRULIN
18060 "SPIRULINA"
2 "FLAVORIENS"
2 "SPIRULINA FLAVORIENS"
      ("SPIRULINA"(W)"FLAVORIENS")
4280 "ARTHROSPIRA"
7803 "PLATENSIS"
2891 "ARTHROSPIRA PLATENSIS"
      ("ARTHROSPIRA"(W)"PLATENSIS")
4280 ARTHROSPIRA
56578 MAXIMA
457 ARTHROSPIRA MAXIMA
      (ARTHROSPIRA(W)MAXIMA)
2175 APHANIZOMENON
110 FLOSAQUAE
38 APHANIZOMENON FLOSAQUAE
      (APHANIZOMENON(W)FLOSAQUAE)
L5 3322 (SPIRULIN OR "SPIRULINA FLAVORIENS" OR "ARTHROSPIRA PLATENSIS"
      OR ARTHROSPIRA MAXIMA OR APHANIZOMENON FLOSAQUAE)

=> S L4 AND L5

L6 0 L4 AND L5

=> S (phycobiliprotein*)

L7 1636 (PHYCOBILIPROTEIN*)
      (PHYCOBILIPROTEIN)

=> S L4 AND L7

L8 2 L4 AND L7

=> D L8 1-2 ABS BIB HITSTR

```

L8 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2025 ACS on STN  
AB The present invention relates to a phycobilidin-binding peptide prepn. method, which comprises the following steps: pouring the **phycobiliprotein** powder into the enzymic hydrolysis tank filled with pure water, the quality of the **phycobiliprotein** powder: and the quality of pure water=1: 50-80, the natural pH value, raise the temp. of the water in the enzymic hydrolysis tank to 45-50° C, add the compd. protease MC101 of **phycobiliprotein** powder quality 1-2%, stirring evenly, and enzymolyzing 4h to obtain phycobilidin-binding peptide feed soln. 1; and heating the phycobilin-binding peptide feed soln. 1 to 70-78°, maintained for 6-8min, inactivating to obtain the phycobilin-binding peptide feed soln. 2. The prepn. method further comprises: pumping the phycobilin-binding peptide feed soln. 2 into a centrifuge for centrifugation, at a centrifugal rate of 3000-4000r/min, to obtain a phycobilin-binding peptide feed soln. 3; pouring the phycobilin-binding peptide feed soln. 3 into a plate and frame **filter** press for pressure filtration, wherein the plate and frame **filter** press are provided with a **filter** aid to obtain the phycobilin-binding peptide feed soln. 4; pumping the phycobilidin-binding peptide feed soln. 4 into a single-effect evaporator for neg. pressure concn., and removing more than 90% of the water to obtain the phycobilidin-binding peptide feed soln. 5; and quickly heating the phycobilin-binding peptide material liq. 5-90°C, and then pumping into the drying tower for instantaneous spray drying to form a dry powder, i.e., the phycobilin-binding peptide, and protect from light during the entire prepn. process. The phycobilin-binding peptide is safe to use, has outstanding anti-inflammatory effects, and at the same time has the effects of anti-oxidn. and anti-pulmonary fibrosis, small mol. wt. and easy absorption.

[PatentPak PDF](#) | [PatentPak PDF+](#) | [PatentPak Interactive](#)

AN 2021:1841924 CAPLUS [Full-text](#)  
DN 180:41123  
TI Phycobilin -binding peptide from **phycobiliprotein** and its application  
IN Li, Wenjun; Qin, Song; Li, Ya; Yu, Yanfei; Liu, Runze; Zhang, Juanjuan; Liu, Zhengyi  
PA Yantai Institute of Coastal Zone Research, Chinese Academy of Sciences, Peop. Rep. China; Yantai Jiahui Marine Biotechnology Co., Ltd.  
UO YANTAI JIAHUI MARINE BIO TECH; CHINESE ACADEMY OF SCIENCES  
UOS YANTAI JIAHUI MARINE BIO TECH; Chinese Academy of Sciences  
SO Faming Zhuanli Shenqing, 15pp.  
CODEN: CNXXEV  
DT Patent  
LA Chinese  
FAN.CNT 1  
PPPI

| PATENT NO.    |  | KIND | DATE     | LANGUAGE | PatentPak                                                                |
|---------------|--|------|----------|----------|--------------------------------------------------------------------------|
| -----         |  | ---- | -----    | -----    | -----                                                                    |
| CN 113293190  |  | A    | 20210824 | Chinese  | <a href="#">PDF</a>   <a href="#">PDF+</a>   <a href="#">Interactive</a> |
| CN 113293190  |  | B    | 20211029 | Chinese  | <a href="#">PDF</a>                                                      |
| AU 2021105479 |  | A4   | 20211104 | English  | <a href="#">PDF</a>                                                      |

| PATENT NO.           |  | KIND      | DATE            | APPLICATION NO.         | DATE            |
|----------------------|--|-----------|-----------------|-------------------------|-----------------|
| -----                |  | ----      | -----           | -----                   | -----           |
| <b>CN 113293190</b>  |  | <b>A</b>  | <b>20210824</b> | <b>CN 2021-10847186</b> | <b>20210727</b> |
| CN 113293190         |  | B         | 20211029        |                         |                 |
| <b>AU 2021105479</b> |  | <b>A4</b> | <b>20211104</b> | <b>AU 2021-105479</b>   | <b>20210813</b> |
| CN 2021-10847186     |  | T0        | 20210727        |                         |                 |

| PATENT NO.    |  | KIND | STATUS | STATUS DATE |
|---------------|--|------|--------|-------------|
| -----         |  | ---- | -----  | -----       |
| CN 113293190  |  | A    | Alive  | 20210902    |
| CN 113293190  |  | B    | Alive  | 20211124    |
| AU 2021105479 |  | A4   | Dead   | 20240912    |

LINK INFORMATION

| PUBLICATIONS     | APPLICATIONS     | REGISTER                                                  |
|------------------|------------------|-----------------------------------------------------------|
| -----            | -----            | -----                                                     |
| AU 2021105479 A4 | AU 2021-105479   | <a href="#">Register</a>                                  |
| CN 113293190 A   | CN 2021-10847186 | <a href="#">Register</a>   <a href="#">Global Dossier</a> |
| CN 113293190 B   | CN 2021-10847186 | <a href="#">Register</a>   <a href="#">Global Dossier</a> |

L8 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2025 ACS on STN  
AB The present invention provides a method for extg. **phycobiliprotein** from Spirulina. The method includes the following steps: 1) adding water into Spirulina mud, stirring to make Spirulina cell suspension; 2) ultrasonic processing to obtain broken wall fluid of Spirulina; 3) centrifugating said broken wall fluid of Spirulina, collecting supernatant liq., filtering with 0.8um and 0.45um **filter membrane** to obtain phycocyanin crude ext.; 4) treating said crude ext. by ultrafiltration with mol. interception amt. of 300KD and 100KD, collecting filtrate to obtain **phycobiliprotein** fine ext.; and 5) freeze drying. The present invention overcomes the chem. reagent use disadvantages of existing technol. for extg. **phycobiliprotein**, and has the advantages of no residue and no environmental pollution. The inventive extn. method has high **phycobiliprotein** extn. rate greater than 80%, high **phycobiliprotein** content more than 60% and high phycocyanin purity more than 1.5. The whole technol. process is safe, reliable, quick and efficient. Compared with traditional methods, this method can obtain higher phycocyanin content before using chromatog. The purity of phycocyanin not only meets food and cosmetic industry requirements, also can be applied to medical care and other aspects.

PatentPak PDF

AN 2015:113026 CAPLUS [Full-text](#)  
DN 162:271184  
TI A method for extracting **phycobiliprotein** from Spirulina  
IN Li, Bosheng; Li, Tiedong  
PA Beijing Forestry University, Peop. Rep. China  
UO BEIJING FORESTRY UNIVERSITY  
UOS Beijing Forestry University  
SO Faming Zhuanli Shenqing, 6pp.  
CODEN: CNXXEV  
DT Patent  
LA Chinese  
FAN.CNT 1  
PPPI

|              |                     |          |                 |                         |                     |
|--------------|---------------------|----------|-----------------|-------------------------|---------------------|
| PI           | PATENT NO.          | KIND     | DATE            | LANGUAGE                | PatentPak           |
|              | -----               | ----     | -----           | -----                   | -----               |
|              | CN 104292327        | A        | 20150121        | Chinese                 | <a href="#">PDF</a> |
| PRAI<br>PSPI | PATENT NO.          | KIND     | DATE            | APPLICATION NO.         | DATE                |
|              | -----               | ----     | -----           | -----                   | -----               |
|              | <b>CN 104292327</b> | <b>A</b> | <b>20150121</b> | <b>CN 2014-10509405</b> | <b>20140928</b>     |
|              | CN 2014-10509405    |          | 20140928        |                         |                     |
|              | PATENT NO.          | KIND     | STATUS          | STATUS                  | DATE                |
|              | -----               | ----     | -----           | -----                   | -----               |
|              | CN 104292327        | A        | Dead            |                         | 20201121            |

| LINK INFORMATION |                  |                                                           |
|------------------|------------------|-----------------------------------------------------------|
| PUBLICATIONS     | APPLICATIONS     | REGISTER                                                  |
| -----            |                  |                                                           |
| CN 104292327 A   | CN 2014-10509405 | <a href="#">Register</a>   <a href="#">Global Dossier</a> |

=> S (phycocyanin)

L9 6294 (PHYCOCYANIN)

=> S L4 AND L9

L10 3 L4 AND L9

=> D L10 1-3 ABS

L10 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2025 ACS on STN  
AB The invention discloses a extn. process of Spirulina **phycocyanin** and application thereof. The process comprises the following steps: (1) taking Spirulina powder for extg. cell disruption to obtain Spirulina suspension; (2) coarsely filtering to obtain **phycocyanin** and polysaccharide suspension; (3) sep. with ultrafilter, and according to the mol. wt. of **phycocyanin**, selecting sepg. column or filtering **membrane** to obtain **phycocyanin** liq.; (4) freeze drying in subzero 45 °C-50 °C to obtain Spirulina powder resp. The

obtained Spirulina **phycocyanin** finds application in prolonging life-span, enhancing phys. ability and improving fecundity.

L10 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2025 ACS on STN

AB The present invention provides a method for extg. phycobiliprotein from Spirulina. The method includes the following steps: 1) adding water into Spirulina mud, stirring to make Spirulina cell suspension; 2) ultrasonic processing to obtain broken wall fluid of Spirulina; 3) centrifugating said broken wall fluid of Spirulina, collecting supernatant liq., filtering with 0.8um and 0.45um **filter membrane** to obtain **phycocyanin** crude ext.; 4) treating said crude ext. by ultrafiltration with mol. interception amt. of 300KD and 100KD, collecting filtrate to obtain phycobiliprotein fine ext.; and 5) freeze drying. The present invention overcomes the chem. reagent use disadvantages of existing technol. for extg. phycobiliprotein, and has the advantages of no residue and no environmental pollution. The inventive extn. method has high phycobiliprotein extn. rate greater than 80%, high phycobiliprotein content more than 60% and high **phycocyanin** purity more than 1.5. The whole technol. process is safe, reliable, quick and efficient. Compared with traditional methods, this method can obtain higher **phycocyanin** content before using chromatog. The purity of **phycocyanin** not only meets food and cosmetic industry requirements, also can be applied to medical care and other aspects.

L10 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2025 ACS on STN

AB The invention discloses an industrial prodn. method of food-grade **phycocyanin**, and specifically an industrial method for prepg. food-grade **phycocyanin** from defective Spirulina powders. The method comprises carry out repeatedly freezing-thawing treatment on pretreated Spirulina powder, carrying out solid-liq. sepn. to obtain crude **phycocyanin** exts., salting-out, treating with a **filter**, and spray-drying. The obtained food-grade **phycocyanin** is blue, has good water soly., and can be used as a natural blue **pigment** to be added into food, cosmetics, and healthcare products. The invention provides an approach for fully utilizing defective Spirulina powder and producing products with high addnl. value.

=> D L10 1-3 BIB ABS HITSTR

L10 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2025 ACS on STN

[PatentPak PDF](#)

AN 2016:18124 CAPLUS [Full-text](#)

DN 164:181023

TI Extraction process of Spirulina **phycocyanin** and application thereof

IN Zhou, Yang

PA Peop. Rep. China

SO Faming Zhuanli Shenqing, 7pp.

CODEN: CNXXEV

DT Patent

LA Chinese

FAN.CNT 1

PPPI

| PATENT NO.   | KIND | DATE     | LANGUAGE | PatentPak           |
|--------------|------|----------|----------|---------------------|
| CN 105218664 | A    | 20160106 | Chinese  | <a href="#">PDF</a> |

PI

| PATENT NO.            | KIND     | DATE            | APPLICATION NO.         | DATE            |
|-----------------------|----------|-----------------|-------------------------|-----------------|
| <b>CN 105218664</b>   | <b>A</b> | <b>20160106</b> | <b>CN 2015-10574656</b> | <b>20150910</b> |
| PRAI CN 2015-10574656 |          | 20150910        |                         |                 |

PSPI

| PATENT NO.   | KIND | STATUS | STATUS DATE |
|--------------|------|--------|-------------|
| CN 105218664 | A    | Dead   | 20210304    |

AB The invention discloses a extn. process of Spirulina **phycocyanin** and application thereof. The process comprises the following steps: (1) taking Spirulina powder for extg. cell disruption to obtain Spirulina suspension; (2) coarsely filtering to obtain **phycocyanin** and polysaccharide suspension; (3) sep. with ultrafilter, and according to the mol. wt. of **phycocyanin**, selecting sepg. column or filtering **membrane**

to obtain **phycocyanin** liq.; (4) freeze drying in subzero 45 °C-50 °C to obtain Spirulina powder resp. The obtained Spirulina **phycocyanin** finds application in prolonging life-span, enhancing phys. ability and improving fecundity.

OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

LINK INFORMATION

| PUBLICATIONS   | APPLICATIONS     | REGISTER                                                  |
|----------------|------------------|-----------------------------------------------------------|
| CN 105218664 A | CN 2015-10574656 | <a href="#">Register</a>   <a href="#">Global Dossier</a> |

L10 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2025 ACS on STN

[PatentPak PDF](#)

AN 2015:113026 CAPLUS [Full-text](#)

DN 162:271184

TI A method for extracting phycobiliprotein from Spirulina

IN Li, Bosheng; Li, Tiedong

PA Beijing Forestry University, Peop. Rep. China

UO BEIJING FORESTRY UNIVERSITY

UOS Beijing Forestry University

SO Faming Zhuanli Shenqing, 6pp.

CODEN: CNXXEV

DT Patent

LA Chinese

FAN.CNT 1

PPPI

| PATENT NO. | KIND | DATE | LANGUAGE | PatentPak |
|------------|------|------|----------|-----------|
|------------|------|------|----------|-----------|

|              |   |          |         |                     |
|--------------|---|----------|---------|---------------------|
| CN 104292327 | A | 20150121 | Chinese | <a href="#">PDF</a> |
|--------------|---|----------|---------|---------------------|

PI

| PATENT NO.          | KIND     | DATE            | APPLICATION NO.         | DATE            |
|---------------------|----------|-----------------|-------------------------|-----------------|
| <b>CN 104292327</b> | <b>A</b> | <b>20150121</b> | <b>CN 2014-10509405</b> | <b>20140928</b> |

PRAI CN 2014-10509405

PSPI

| PATENT NO.   | KIND | STATUS | STATUS DATE |
|--------------|------|--------|-------------|
| CN 104292327 | A    | Dead   | 20201121    |

AB The present invention provides a method for extg. phycobiliprotein from Spirulina. The method includes the following steps: 1) adding water into Spirulina mud, stirring to make Spirulina cell suspension; 2) ultrasonic processing to obtain broken wall fluid of Spirulina; 3) centrifugating said broken wall fluid of Spirulina, collecting supernatant liq., filtering with 0.8um and 0.45um **filter membrane** to obtain **phycocyanin** crude ext.; 4) treating said crude ext. by ultrafiltration with mol. interception amt. of 300KD and 100KD, collecting filtrate to obtain phycobiliprotein fine ext.; and 5) freeze drying. The present invention overcomes the chem. reagent use disadvantages of existing technol. for extg. phycobiliprotein, and has the advantages of no residue and no environmental pollution. The inventive extn. method has high phycobiliprotein extn. rate greater than 80%, high phycobiliprotein content more than 60% and high **phycocyanin** purity more than 1.5. The whole technol. process is safe, reliable, quick and efficient. Compared with traditional methods, this method can obtain higher **phycocyanin** content before using chromatog. The purity of **phycocyanin** not only meets food and cosmetic industry requirements, also can be applied to medical care and other aspects.

LINK INFORMATION

| PUBLICATIONS   | APPLICATIONS     | REGISTER                                                  |
|----------------|------------------|-----------------------------------------------------------|
| CN 104292327 A | CN 2014-10509405 | <a href="#">Register</a>   <a href="#">Global Dossier</a> |

L10 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2025 ACS on STN

[PatentPak PDF](#)

AN 2015:113018 CAPLUS [Full-text](#)

DN 162:244201

TI Industrial production method of food-grade **phycocyanin**

IN Shao, Mingfei; Qin, Song; Gao, Zhigang

PA Yantai Institute of Coastal Zone Research, Chinese Academy of Sciences, Peop. Rep. China

UO CHINESE ACADEMY OF SCIENCES

UOS Chinese Academy of Sciences  
SO Faming Zhuanli Shenqing, 9pp.  
CODEN: CNXXEV  
DT Patent  
LA Chinese  
FAN.CNT 1  
PPPI

| PATENT NO.   | KIND | DATE     | LANGUAGE | PatentPak           |
|--------------|------|----------|----------|---------------------|
| CN 104292326 | A    | 20150121 | Chinese  | <a href="#">PDF</a> |

PI

| PATENT NO.                   | KIND              | DATE                     | APPLICATION NO.                  | DATE                     |
|------------------------------|-------------------|--------------------------|----------------------------------|--------------------------|
| <a href="#">CN 104292326</a> | <a href="#">A</a> | <a href="#">20150121</a> | <a href="#">CN 2013-10300118</a> | <a href="#">20130717</a> |

PRAI CN 2013-10300118 20130717

PSPI

| PATENT NO.   | KIND | STATUS | STATUS DATE |
|--------------|------|--------|-------------|
| CN 104292326 | A    | Dead   | 20201121    |

AB The invention discloses an industrial prodn. method of food-grade [phycoerythrin](#), and specifically an industrial method for prepg. food-grade [phycoerythrin](#) from defective Spirulina powders. The method comprises carry out repeatedly freezing-thawing treatment on pretreated Spirulina powder, carrying out solid-liq. sepn. to obtain crude [phycoerythrin](#) exts., salting-out, treating with a [filter](#), and spray-drying. The obtained food-grade [phycoerythrin](#) is blue, has good water soly., and can be used as a natural blue [pigment](#) to be added into food, cosmetics, and healthcare products. The invention provides an approach for fully utilizing defective Spirulina powder and producing products with high addnl. value.

OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

#### LINK INFORMATION

| PUBLICATIONS   | APPLICATIONS     | REGISTER                                                  |
|----------------|------------------|-----------------------------------------------------------|
| CN 104292326 A | CN 2013-10300118 | <a href="#">Register</a>   <a href="#">Global Dossier</a> |

=> D L4 1-10 BIB ABS HITSTR

L4 ANSWER 1 OF 148 CAPLUS COPYRIGHT 2025 ACS on STN

[PatentPak PDF](#) | [PatentPak PDF+](#) | [PatentPak Interactive](#)

AN 2023:1487518 CAPLUS [Full-text](#)

DN 183:251090

TI Preparation method of multifunctional pea peptide and its application in preparing drug for treating hypertension and products for lowering uric acid and anti-oxidative stress

IN Zou, Shengcan; Cao, Tingfeng; Fan, Fang; Liu, Tingting; Wang, Nan; Wang, Jiating; Liu, Jinli; Wang, Shanglong

PA Chenland Nutritionals Inc., USA; Qingdao Chenland Biology Science and Technology Co., Ltd.

UO AZUO AMERICA NUTRACEUTICALS; QINGDAO ZUO BLUE BIOTECHNOLOGY; QINGDAO CHENLAND BIOLOGY SCIENCE AND TECH; CHENLAND NUTRITIONALS

UOS AZUO AMERICA NUTRACEUTICALS; QINGDAO ZUO BLUE BIOTECHNOLOGY; QINGDAO CHENLAND BIOLOGY SCIENCE AND TECH; CHENLAND NUTRITIONALS

SO PCT Int. Appl., 29pp.

CODEN: PIXXD2

DT Patent

LA Chinese

FAN.CNT 2

PPPI

| PATENT NO.    | KIND | DATE     | LANGUAGE | PatentPak                                                                |
|---------------|------|----------|----------|--------------------------------------------------------------------------|
| WO 2023133913 | A1   | 20230720 | Chinese  | <a href="#">PDF</a>   <a href="#">PDF+</a>   <a href="#">Interactive</a> |
| CN 114395600  | A    | 20220426 | Chinese  | <a href="#">PDF</a>   <a href="#">PDF+</a>   <a href="#">Interactive</a> |
| CN 114395600  | B    | 20231212 | Chinese  | <a href="#">PDF</a>                                                      |

PI

| PATENT NO.                    | KIND               | DATE                     | APPLICATION NO.                  | DATE                     |
|-------------------------------|--------------------|--------------------------|----------------------------------|--------------------------|
| <a href="#">WO 2023133913</a> | <a href="#">A1</a> | <a href="#">20230720</a> | <a href="#">WO 2022-CN72890</a>  | <a href="#">20220120</a> |
| <a href="#">CN 114395600</a>  | <a href="#">A</a>  | <a href="#">20220426</a> | <a href="#">CN 2022-10044066</a> | <a href="#">20220114</a> |
| CN 114395600                  | B                  | 20231212                 |                                  |                          |

PRAI CN 2022-10044066 A 20220114

PSPI

| PATENT NO.    | KIND | STATUS | STATUS DATE |
|---------------|------|--------|-------------|
| WO 2023133913 | A1   | Alive  | 20230803    |
| CN 114395600  | A    | Alive  | 20220505    |
| CN 114395600  | B    | Alive  | 20231221    |

AB Disclosed are a method for prepg. a multifunctional pea peptide and the use thereof, which belong to the tech. field of biomedicine. The method for prepg. a multifunctional pea peptide comprises the following steps: S1, prepn. of a pea protein liq.; S2, prepn. of a compd. protease, involving: 1) fermn., involving: inoculating the pea protein liq. with *Bacillus natto*, performing fermn., centrifuging the fermn. liq., and taking and drying the supernatant to obtain a compd. protease; and 2) compounding, involving: compounding the compd. protease, papain, an alk. protease and a flavor protease to obtain the compd. protease; S3, enzymolysis; S4, **membrane** filtration; and S5, drying. The method of the present invention has a simple process, short cycle period, high yield and low cost; and the yield of the prepd. pea peptide is high, the protein recovery rate is high, the protein hydrolyzate has a small relative mol. mass, and the product has a good flavor, has an antihypertensive, uric-acid-lowering and **antioxidant** activity and is a high-quality pea peptide product.

## LINK INFORMATION

| PUBLICATIONS     | APPLICATIONS     | REGISTER                                                  |
|------------------|------------------|-----------------------------------------------------------|
| CN 114395600 A   | CN 2022-10044066 | <a href="#">Register</a>   <a href="#">Global Dossier</a> |
| CN 114395600 B   | CN 2022-10044066 | <a href="#">Register</a>   <a href="#">Global Dossier</a> |
| WO 2023133913 A1 | WO 2022-CN72890  | <a href="#">Register</a>   <a href="#">Global Dossier</a> |

L4 ANSWER 2 OF 148 CAPLUS COPYRIGHT 2025 ACS on STN

[PatentPak PDF](#) | [PatentPak PDF+](#) | [PatentPak Interactive](#)AN 2022:1049306 CAPLUS [Full-text](#)

DN 178:337079

TI Preparation method of polypeptide with both anti-oxidation and ACE inhibition functions

IN Meng, Fanju

PA Anhui University, Peop. Rep. China

UO ANHUI UNIVERSITY

UOS Anhui University

SO Faming Zhuanli Shenqing, 9pp.

CODEN: CNXXEV

DT Patent

LA Chinese

FAN.CNT 1

PPPI

| PATENT NO.   | KIND | DATE     | LANGUAGE | PatentPak                                                                |
|--------------|------|----------|----------|--------------------------------------------------------------------------|
| CN 114381487 | A    | 20220422 | Chinese  | <a href="#">PDF</a>   <a href="#">PDF+</a>   <a href="#">Interactive</a> |

PI

| PATENT NO.          | KIND     | DATE            | APPLICATION NO.         | DATE            |
|---------------------|----------|-----------------|-------------------------|-----------------|
| <b>CN 114381487</b> | <b>A</b> | <b>20220422</b> | <b>CN 2022-10118969</b> | <b>20220208</b> |

PRAI CN 2022-10118969

PSPI

| PATENT NO.   | KIND | STATUS | STATUS DATE |
|--------------|------|--------|-------------|
| CN 114381487 | A    | Dead   | 20241226    |

AB The invention relates to a prepn. method of a polypeptide with both anti-oxidn. and ACE inhibition functions comprising: (1) get the dried fruit body of *Flammulina velutipes*, and make powder with a pulverizer; (2) control the ratio of material to liq. to be 1:15 and add 5% glacial acetic acid; (3) add 80% ammonium sulfate by vol. after controlling the temp. to be 4°C overnight, and place it in a 4°C refrigerator for 12h; (4) then centrifuge at 15,000 × g for 15 min in an ultracentrifuge at 4°C to obtain a ppt.; (5) use the dialysis bag of 3500Da to dialyze off the inorg. salt ions, and freeze-dry the protein sample; (6) ext. the protein sample, add enzyme, adjust the pH of buffer, enzymolysis time and temp. obtain corresponding hydrolysis sample; (7) take the sample prepd. in step S5 for sepn. and purifn., and use an ultrafiltration **membrane** with a cut-off of 5 kDa for sepn. to obtain a sample below 5000 Da, and then perform liq. phase purifn. of the sample.

## LINK INFORMATION

| PUBLICATIONS   | APPLICATIONS     | REGISTER                                                  |
|----------------|------------------|-----------------------------------------------------------|
| CN 114381487 A | CN 2022-10118969 | <a href="#">Register</a>   <a href="#">Global Dossier</a> |

L4 ANSWER 3 OF 148 CAPLUS COPYRIGHT 2025 ACS on STN

[PatentPak PDF](#)AN 2022:887557 CAPLUS [Full-text](#)TI For preparation with [antioxidant](#) activity of original protein peptide of chicken bone glue production line [Machine Translation].

IN Huang, Chunmin

PA Wu, Wei, Peop. Rep. China

SO Shiyong Xinxing Zhuanli Shuomingshu, 8pp.

CODEN: CNXXAR

DT Patent

LA Chinese

FAN.CNT 1

PPPI

| PATENT NO. | KIND | DATE | LANGUAGE | PatentPak |
|------------|------|------|----------|-----------|
|------------|------|------|----------|-----------|

|              |   |          |         |                     |
|--------------|---|----------|---------|---------------------|
| CN 216192009 | U | 20220405 | Chinese | <a href="#">PDF</a> |
|--------------|---|----------|---------|---------------------|

PI

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------|------|------|-----------------|------|
|------------|------|------|-----------------|------|

|                              |                   |                          |                                  |                          |
|------------------------------|-------------------|--------------------------|----------------------------------|--------------------------|
| <a href="#">CN 216192009</a> | <a href="#">U</a> | <a href="#">20220405</a> | <a href="#">CN 2021-22387245</a> | <a href="#">20210930</a> |
|------------------------------|-------------------|--------------------------|----------------------------------|--------------------------|

PRAI CN 2021-22387245

20210930

PSPI

| PATENT NO. | KIND | STATUS | STATUS DATE |
|------------|------|--------|-------------|
|------------|------|--------|-------------|

|              |   |       |          |
|--------------|---|-------|----------|
| CN 216192009 | U | Alive | 20220414 |
|--------------|---|-------|----------|

AB [Machine Translation of Descriptors]. The utility model discloses for prepn. of [antioxidant](#) activity of chicken bone glue original peptide prodn. line, which comprises a reaction tank, spiral sedimentation centrifuge, activated carbon fiber [membrane](#) equipment, multifunctional inorg. ceramic [membrane](#) sepn. device, nanofiltration [membrane](#) desalination and concn. device, high-speed separator tube, tube high-temp. instantaneous sterilizing app., High-speed centrifugal spray drying granulator; the cooling water jacket cooling water jacket through the water pump is communicated with the water inlet of the water jacket for water supply; the said water jacket outlet hot water recycling bins; the recovery tank in the hot water of hot water tank through the water inlet pipe of the reaction tank and the reaction tank to provide hot water. In the application, the cooling water jacket is arranged outside of the reaction vessel according to the temp. sensor and detection data to cool the reaction tank, the reaction tank to meet the enzymic reaction; while adjusting the cooling heat exchange water supplement according to demand to the next process of reaction tank, so as to play the role of energy-saving heat recovery.

## LINK INFORMATION

| PUBLICATIONS   | APPLICATIONS     | REGISTER                 |
|----------------|------------------|--------------------------|
| CN 216192009 U | CN 2021-22387245 | <a href="#">Register</a> |

L4 ANSWER 4 OF 148 CAPLUS COPYRIGHT 2025 ACS on STN

[PatentPak PDF](#) | [PatentPak PDF+](#) | [PatentPak Interactive](#)AN 2022:508438 CAPLUS [Full-text](#)

DN 178:206503

TI Method for preparing functional peptides from by-products of intensive processing of corn

IN Zhao, Yubin; Wu, Jing; Ge, Jianting

PA Shandong Luzhou Food Group Co., Ltd., Peop. Rep. China; Luzhou Biotechnology (Shandong) Co., Ltd.

UO SHANDONG PROVINCE RU FOOD GROUP; LUZHOU BIOTECHNOLOGY SHANDONG

UOS SHANDONG PROVINCE RU FOOD GROUP; LUZHOU BIOTECHNOLOGY SHANDONG

SO Faming Zhuanli Shenqing, 5pp.

CODEN: CNXXEV

DT Patent

LA Chinese

FAN.CNT 1

PPPI



the filtrate A and filtrate B, passing through HPD-400 macroporous resin column, eluting with water, 10% ethanol, 20% ethanol and 30% ethanol resp., and collecting 10% ethanol, 20% ethanol and 30% ethanol after drying.

#### LINK INFORMATION

| PUBLICATIONS   | APPLICATIONS     | REGISTER                                                  |
|----------------|------------------|-----------------------------------------------------------|
| CN 114107418 A | CN 2021-11474503 | <a href="#">Register</a>   <a href="#">Global Dossier</a> |
| CN 114107418 B | CN 2021-11474503 | <a href="#">Register</a>   <a href="#">Global Dossier</a> |

L4 ANSWER 6 OF 148 CAPLUS COPYRIGHT 2025 ACS on STN

[PatentPak PDF](#)

AN 2022:320793 CAPLUS [Full-text](#)

TI A kind of herba **antioxidant** active peptide preparation for ultrafiltration device [Machine Translation].

IN Li, Rongfeng; Sheng, Juhua; Wang, Weifeng; Yu, Huahua; Li, Pengcheng

PA Haizhen (Shanghai) Biotechnology Co., Ltd., Peop. Rep. China

UO HAIZHEN SHANGHAI BIOLOGICAL TECH

UOS HAIZHEN SHANGHAI BIOLOGICAL TECH

SO Shiyong Xinxing Zhuanli Shuomingshu, 11pp.

CODEN: CNXXAR

DT Patent

LA Chinese

FAN.CNT 1

PPPI

| PATENT NO.   | KIND | DATE     | LANGUAGE | PatentPak           |
|--------------|------|----------|----------|---------------------|
| CN 215782735 | U    | 20220211 | Chinese  | <a href="#">PDF</a> |

PI

| PATENT NO.          | KIND     | DATE            | APPLICATION NO.         | DATE            |
|---------------------|----------|-----------------|-------------------------|-----------------|
| <b>CN 215782735</b> | <b>U</b> | <b>20220211</b> | <b>CN 2021-21817246</b> | <b>20210805</b> |

PRAI CN 2021-21817246

PSPI

| PATENT NO.   | KIND | STATUS | STATUS DATE |
|--------------|------|--------|-------------|
| CN 215782735 | U    | Alive  | 20220217    |

AB [Machine Translation of Descriptors]. The utility model discloses jellyfish antioxidant. active peptide prepn. with ultrafiltration device, including the collection tube, the collection tube inner wall and is located in the middle position is provided with a no. of circular array arrangement of the first arcuate positioning block, a first curved collection tube and is located above the position of the positioning block is movably connected with the second **filter** tube, the **filter** tube inner wall is provided with a second ultrafiltration **membrane**. The master **antioxidant** active peptide prepn. with ultrafiltration device, by setting the first **filter** tube can be used for prepn. of supernatant, for the first time, after ultrafiltration ultrafiltration to obtain a second filtrate into the second **filter** tube, then through the second **filter** tube further ultrafiltration to filtrate, You can get the need to **filter** out the liq., the prepn. of supernatant ultrafiltration twice, mol. wt. can be obtained at the same time two sections of master **antioxidant** peptides: low mol. wt. and mol. wt. 3kDa master **antioxidant** peptides and 3kDa 10kDa; mol. wt. of the high mol. wt. master **antioxidant** peptides ultrafiltration, improve efficiency.

#### LINK INFORMATION

| PUBLICATIONS   | APPLICATIONS     | REGISTER                 |
|----------------|------------------|--------------------------|
| CN 215782735 U | CN 2021-21817246 | <a href="#">Register</a> |

L4 ANSWER 7 OF 148 CAPLUS COPYRIGHT 2025 ACS on STN

[PatentPak PDF](#) | [PatentPak PDF+](#) | [PatentPak Interactive](#)

AN 2022:114399 CAPLUS [Full-text](#)

DN 177:293461

TI Method for separating and purifying corn **antioxidant** peptide from corn protein powder by enzymolysis

IN Dong, Qiang; Liu, Dongsheng

PA Qiqihar Yixiang Food Co., Ltd., Peop. Rep. China

UO QIQIHAR YIXIANG FOOD

UOS QIQIHAR YIXIANG FOOD

SO Faming Zhuanli Shenqing, 12pp.  
CODEN: CNXXEV  
DT Patent  
LA Chinese  
FAN.CNT 1  
PPPI

| PATENT NO.   | KIND | DATE     | LANGUAGE | PatentPak                                                                |
|--------------|------|----------|----------|--------------------------------------------------------------------------|
| CN 113943768 | A    | 20220118 | Chinese  | <a href="#">PDF</a>   <a href="#">PDF+</a>   <a href="#">Interactive</a> |
| CN 113943768 | B    | 20231027 | Chinese  | <a href="#">PDF</a>                                                      |

PI

| PATENT NO.          | KIND     | DATE            | APPLICATION NO.         | DATE            |
|---------------------|----------|-----------------|-------------------------|-----------------|
| <b>CN 113943768</b> | <b>A</b> | <b>20220118</b> | <b>CN 2021-11136671</b> | <b>20210927</b> |
| CN 113943768        | B        | 20231027        |                         |                 |
| CN 2021-11136671    |          | 20210927        |                         |                 |

PRAI  
PSPI

| PATENT NO.   | KIND | STATUS | STATUS DATE |
|--------------|------|--------|-------------|
| CN 113943768 | A    | Alive  | 20220203    |
| CN 113943768 | B    | Alive  | 20231109    |

OS CASREACT 177:293461

AB The title method for sepg. and purifying corn **antioxidant** peptide includes (1) drying and re-processing corn protein powder, crushing, and prepg. into corn protein powder soln. (2) Hydrolyzing starch in the corn protein powder with amylase, filtering, collecting **filter** residue, performing sapon. to remove lipid, filtering, treating in high voltage pulsed elec. field, and performing enzymolysis with compd. enzyme (alk. protease, trypsin and neutral protease) to obtain crude **antioxidant** peptide. (3) Primarily purifying by microfiltration and ultrafiltration. (4) Secondarily purifying by eluting with mixed soln. of acetic acid, TFA and acetonitrile. (5) Purifying by sequentially performing gel filtration chromatog., ion-exchange chromatog. and reversed-phase high pressure liq. chromatog. The inventive corn **antioxidant** peptide can be used for prepg. antialcoholic agent, has function of relieving hangover, protecting liver, overcoming fatigue, and can be prepd. into beverage, granules or capsules.

#### LINK INFORMATION

| PUBLICATIONS   | APPLICATIONS     | REGISTER                                                  |
|----------------|------------------|-----------------------------------------------------------|
| CN 113943768 A | CN 2021-11136671 | <a href="#">Register</a>   <a href="#">Global Dossier</a> |
| CN 113943768 B | CN 2021-11136671 | <a href="#">Register</a>   <a href="#">Global Dossier</a> |

L4 ANSWER 8 OF 148 CAPLUS COPYRIGHT 2025 ACS on STM

[PatentPak PDF](#) | [PatentPak PDF+](#) | [PatentPak Interactive](#)

AN 2022:22167 CAPLUS [Full-text](#)

DN 178:73006

TI Chicken bone collagen peptide with **antioxidant** activity and preparation method and application thereof as **antioxidant**

IN Huang, Chunmin

PA Wu, Wei, Peop. Rep. China

SO Faming Zhuanli Shenqing, 16pp.

CODEN: CNXXEV

DT Patent

LA Chinese

FAN.CNT 1

PPPI

| PATENT NO.   | KIND | DATE     | LANGUAGE | PatentPak                                                                |
|--------------|------|----------|----------|--------------------------------------------------------------------------|
| CN 113880942 | A    | 20220104 | Chinese  | <a href="#">PDF</a>   <a href="#">PDF+</a>   <a href="#">Interactive</a> |

PI

| PATENT NO.          | KIND     | DATE            | APPLICATION NO.         | DATE            |
|---------------------|----------|-----------------|-------------------------|-----------------|
| <b>CN 113880942</b> | <b>A</b> | <b>20220104</b> | <b>CN 2021-11156945</b> | <b>20210930</b> |
| CN 2021-11156945    |          | 20210930        |                         |                 |

PRAI  
PSPI

| PATENT NO.   | KIND | STATUS | STATUS DATE |
|--------------|------|--------|-------------|
| CN 113880942 | A    | Dead   | 20250814    |

AB The invention discloses a chicken bone collagen peptide with **antioxidant** activity and prepn. method and application thereof as **antioxidant**, which

has the advantage of high **antioxidant** activity. The above method comprises the following steps: raw material treatment, collagen soln. extn., enzymolysis, centrifugal deslagging, decolorization deodorization, ultrafiltration, nanofiltration **membrane** desalination concn., centrifugation, sterilization, centrifugal spray drying, and finished product packaging.

LINK INFORMATION

| PUBLICATIONS   | APPLICATIONS     | REGISTER                                                  |
|----------------|------------------|-----------------------------------------------------------|
| CN 113880942 A | CN 2021-11156945 | <a href="#">Register</a>   <a href="#">Global Dossier</a> |

L4 ANSWER 9 OF 148 CAPLUS COPYRIGHT 2025 ACS on STN

[PatentPak PDF+](#) | [PatentPak Interactive](#)

AN 2021:2142921 CAPLUS [Full-text](#)

DN 176:354550

TI Preparation method of fish scale collagen protein, and application thereof as **antioxidant** and carbohydrase inhibitor

IN Jin, Zhenliang; Wang, Xibo; Wang, Caixia; Wu, Mengting; Wu, Hai; Wang, Wei; Yin, Xiaoqing

PA Hubei Ruibang Biotechnology Co., Ltd., Peop. Rep. China

UO HUBEI REBORN BIOTECH

UOS HUBEI REBORN BIOTECH

SO Faming Zhuanli Shenqing, 8pp.

CODEN: CNXXEV

DT Patent

LA Chinese

FAN.CNT 1

PPPI

| PATENT NO.   | KIND | DATE     | LANGUAGE | PatentPak                                          |
|--------------|------|----------|----------|----------------------------------------------------|
| CN 113461806 | A    | 20211001 |          | <a href="#">PDF+</a>   <a href="#">Interactive</a> |

PI

| PATENT NO.          | KIND     | DATE            | APPLICATION NO.         | DATE            |
|---------------------|----------|-----------------|-------------------------|-----------------|
| <b>CN 113461806</b> | <b>A</b> | <b>20211001</b> | <b>CN 2021-10682547</b> | <b>20210617</b> |

PRAI CN 2021-10682547

PSPI

| PATENT NO.   | KIND | STATUS | STATUS DATE |
|--------------|------|--------|-------------|
| CN 113461806 | A    | Dead   | 20240502    |

AB The prepn. method includes cooking fish scale in 2-3 wt% citric acid-contg. water at 65-75°C for 4-5.5 h until it is pasty, adding compd. protease (neutral protease, and papain), hydrolyzing at 40-45°C under pH being 6.0-7.0, regulating pH to 6.0-6.5, filtering, collecting the filtrate, performing **membrane** filtration, decolorizing under pH of 4.0-4.5, regulating pH to 6.0-6.5, concg., and spray drying to obtain fish scale collagen protein. The inventive fish scale collagen protein can be applied as **antioxidant** and carbohydrase. The inventive method has high efficiency, and good appearance and odor characteristics of scale collagen protein.

LINK INFORMATION

| PUBLICATIONS   | APPLICATIONS     | REGISTER                                                  |
|----------------|------------------|-----------------------------------------------------------|
| CN 113461806 A | CN 2021-10682547 | <a href="#">Register</a>   <a href="#">Global Dossier</a> |

L4 ANSWER 10 OF 148 CAPLUS COPYRIGHT 2025 ACS on STN

[PatentPak PDF](#)

AN 2021:2104885 CAPLUS [Full-text](#)

DN 176:421146

TI Method for preparing natural low molecular weight jellyfish **antioxidant** active peptide

IN Li, Rongfeng; Sheng, Juhua; Wang, Weifeng; Yu, Huahua; Li, Pengcheng

PA Haizhen (Shanghai) Biotechnology Co., Ltd., Peop. Rep. China

UO HAIZHEN SHANGHAI BIOLOGICAL TECH

UOS HAIZHEN SHANGHAI BIOLOGICAL TECH

SO Faming Zhuanli Shenqing, 7pp.

CODEN: CNXXEV

DT Patent

LA Chinese

FAN.CNT 1

|      |              |       |          |          |                     |
|------|--------------|-------|----------|----------|---------------------|
| PPPI | PATENT NO.   | KIND  | DATE     | LANGUAGE | PatentPak           |
|      | -----        | ----- | -----    | -----    | -----               |
|      | CN 113444140 | A     | 20210928 | Chinese  | <a href="#">PDF</a> |

|    |                     |          |                 |                         |                 |
|----|---------------------|----------|-----------------|-------------------------|-----------------|
| PI | PATENT NO.          | KIND     | DATE            | APPLICATION NO.         | DATE            |
|    | -----               | -----    | -----           | -----                   | -----           |
|    | <b>CN 113444140</b> | <b>A</b> | <b>20210928</b> | <b>CN 2021-10791050</b> | <b>20210713</b> |

PRAI CN 2021-10791050 20210713

|      |              |       |        |             |
|------|--------------|-------|--------|-------------|
| PSPI | PATENT NO.   | KIND  | STATUS | STATUS DATE |
|      | -----        | ----- | -----  | -----       |
|      | CN 113444140 | A     | Dead   | 20240125    |

AB A simple and safe method for prepg. natural low mol. wt. jellyfish **antioxidant** active peptide free from biol. and chem. processing having high **antioxidant** activity is provided. The method for prepg. natural low mol. wt. jellyfish **antioxidant** active peptide comprises the following steps: (1) crushing the weighed jellyfish homogenate; (2) collecting the supernatant by centrifugation at low temp.; (3) using an ultra-filtration tube with a **membrane** cut-off mol. wt. of 3,000 Da, centrifuging the supernatant prepd. in step (2) under low temp. conditions to collect the filtrate; and (4) freeze-dry the collected filtrate.

|                  |                |                  |                                                           |
|------------------|----------------|------------------|-----------------------------------------------------------|
| LINK INFORMATION | PUBLICATIONS   | APPLICATIONS     | REGISTER                                                  |
|                  | -----          | -----            | -----                                                     |
|                  | CN 113444140 A | CN 2021-10791050 | <a href="#">Register</a>   <a href="#">Global Dossier</a> |

=> S (ALGAE\*)

L11 144965 (ALGAE\*)  
(ALGAE)

=> S L4 AND L11

L12 2 L4 AND L11

=> D L12 1-2 ABS BIB HITSTR

L12 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2025 ACS on STN

AB The invention discloses a method for sepg. and purifying selenium-enriched spirulina protein, which has the advantages of simple operation, low cost and strong **antioxidant** activity. The method comprises the following operation steps: taking **algae** powder, adding PBS buffer soln., repeatedly freezing, thawing and performing ultrasonic treatment to obtain broken **algae** cell soln., centrifuging, taking supernatant, salting out, centrifuging to obtain crude protein, adding PBS buffer soln., dialyzing and desalting, vacuum freeze-drying to obtain selenium-enriched total protein powder, adding PBS buffer soln. for dissoln., centrifuging, filtering, collecting filtrate, selecting weak anion DEAE as ion exchanger, and sepg. samples by gradient elution.

[PatentPak PDF](#) | [PatentPak PDF+](#) | [PatentPak Interactive](#)

AN 2021:877875 CAPLUS [Full-text](#)

DN 174:872502

TI Separation and purification method of selenium enriched spirulina protein

IN Li, Shubo; Huang, Li; Jiangping, Yingzi; Bai, Yunxia; Liu, Xiaoling

PA Guangxi University, Peop. Rep. China

UO GUANGXI UNIVERSITY

UOS Guangxi University

SO Faming Zhuanli Shenqing, 13pp.

CODEN: CNXXEV

DT Patent

LA Chinese

FAN.CNT 1

|      |              |       |          |          |                                                                          |
|------|--------------|-------|----------|----------|--------------------------------------------------------------------------|
| PPPI | PATENT NO.   | KIND  | DATE     | LANGUAGE | PatentPak                                                                |
|      | -----        | ----- | -----    | -----    | -----                                                                    |
|      | CN 112645999 | A     | 20210413 | Chinese  | <a href="#">PDF</a>   <a href="#">PDF+</a>   <a href="#">Interactive</a> |
|      | CN 112645999 | B     | 20230718 | Chinese  | <a href="#">PDF</a>                                                      |

|    |            |      |      |                 |      |
|----|------------|------|------|-----------------|------|
| PI | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|------------|------|------|-----------------|------|

|      | CN 112645999     | A    | 20210413 | CN 2020-11591415 | 20201229 |
|------|------------------|------|----------|------------------|----------|
| PRAI | CN 112645999     | B    | 20230718 |                  |          |
| PSPI | CN 2020-11591415 |      | 20201229 |                  |          |
|      | PATENT NO.       | KIND | STATUS   | STATUS           | DATE     |
|      | CN 112645999     | A    | Alive    | 20210422         |          |
|      | CN 112645999     | B    | Alive    | 20230727         |          |

| LINK INFORMATION |                | PUBLICATIONS     | APPLICATIONS             | REGISTER                       |
|------------------|----------------|------------------|--------------------------|--------------------------------|
|                  | CN 112645999 A | CN 2020-11591415 | <a href="#">Register</a> | <a href="#">Global Dossier</a> |
|                  | CN 112645999 B | CN 2020-11591415 | <a href="#">Register</a> | <a href="#">Global Dossier</a> |

L12 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2025 ACS on STN

AB A novel **pigment**-bound protein derived from deep water-type green **algae** is provided, which is expected to have an application to a **pigment** sensitizer to be used for an artificial photosynthesis or a solar cell, or else. In this **pigment**-bound protein, **pigments** and a protein are bound; wherein the **pigments** are siphonaxanthin, neoxanthine, siphonein, chlorophyll a and chlorophyll b, and the protein is constituted with 3 subunits of the mol. wt. of 27±1 kDa measured by SDS-PAGE.

[PatentPak PDF](#) | [PatentPak PDF+](#) | [PatentPak Interactive](#)

AN 2014:37332 CAPLUS [Full-text](#)

DN 160:172078

TI **Pigment**-bound protein, and its production method

IN Hashimoto, Hideki; Mizoguchi, Ritsuko; Inami, Masahiko; Oka, Naohiro; Kusumoto, Toshiyuki

PA South Product Ltd., Japan

UO SOUTH PRODUCT

UOS SOUTH PRODUCT

SO Jpn. Kokai Tokkyo Koho, 18pp.  
CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

PPPI

|      | PATENT NO.           | KIND     | DATE            | LANGUAGE              | PatentPak                                                                |
|------|----------------------|----------|-----------------|-----------------------|--------------------------------------------------------------------------|
|      | JP 2014001158        | A        | 20140109        | Japanese              | <a href="#">PDF</a>   <a href="#">PDF+</a>   <a href="#">Interactive</a> |
| PI   | JP 6142448           | B2       | 20170607        | Japanese              | <a href="#">PDF</a>                                                      |
|      | PATENT NO.           | KIND     | DATE            | APPLICATION NO.       | DATE                                                                     |
|      | <b>JP 2014001158</b> | <b>A</b> | <b>20140109</b> | <b>JP 2012-136894</b> | <b>20120618</b>                                                          |
|      | JP 6142448           | B2       | 20170607        |                       |                                                                          |
| PRAI | JP 2012-136894       |          | 20120618        |                       |                                                                          |
| PSPI | PATENT NO.           | KIND     | STATUS          | STATUS                | DATE                                                                     |
|      | JP 2014001158        | A        | Dead            | 20210204              |                                                                          |
|      | JP 6142448           | B2       | Dead            | 20210204              |                                                                          |

| LINK INFORMATION |                 | PUBLICATIONS   | APPLICATIONS             | REGISTER                       |
|------------------|-----------------|----------------|--------------------------|--------------------------------|
|                  | JP 2014001158 A | JP 2012-136894 | <a href="#">Register</a> | <a href="#">Global Dossier</a> |
|                  | JP 6142448 B2   | JP 2012-136894 | <a href="#">Register</a> | <a href="#">Global Dossier</a> |

=> S 25-50 micron/SIZ

'SIZ' IS NOT A VALID FIELD CODE

L13 0 25-50 MICRON/SIZ

=>