

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/CN2017/090808

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

[1] The first invention: claims 1-11 relate to the method for the purification of phycoerthyrin from nostoc sphaeroids kutz from the crude extraction powder of phycocyanins from nostoc sphaeroids kutz, and a phycoerthyrin from nostoc sphaeroids kutz obtained by the method;

[2] The second invention: claim 12 relates to the method for extraction of the crude extraction powder of phycocyanins from nostoc sphaeroids kutz.

See extra sheet.

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

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## A. CLASSIFICATION OF SUBJECT MATTER

C07K 14/405 (2006.01) i; C07K 1/36 (2006.01) i; C07K 1/18 (2006.01) i; C07K 1/34 (2006.01) i; C07K 1/14 (2006.01) i  
According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNABS, CPRSABS, DWPI, SIPOABS, ISI Web of Knowledge, CNKI, WANFANG, BAIDU and Keywords: 葛仙米, 天仙米, 天仙菜, 水木耳, 田木耳, 地木耳, 藻红蛋白, 阴离子交换, 层析, 透析, 藻胆蛋白, 液氮, Nostoc sphaeroids Kutzing, Nostoc commune vauch, Phycoerythrin, PE, anion exchange, DEAE, chromatography, dialysis, phycobiliprotein, liquid nitrogen

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 106117326 A (UNIVERSITY OF YANTAI) 16 November 2016 (16.11.2016), claims 1 and 5, and embodiments 1 and 2	1-11
X	CN 101021452 A (FUJIAN NORMAL UNIVERSITY) 22 August 2007 (22.08.2007), the abstract, claim 1, and embodiments 1 and 2	1-11
X	CN 101270148 A (NANJING AGRICULTURE UNIVERSITY) 24 September 2008 (24.09.2008), the abstract, and claim 1	1-11
X	CN 102241754 A (CAO, Minjie) 16 November 2011 (16.11.2011), the abstract, and claims 1 and 3	1-11
X	CN 1587275 A (FUJIAN NORMAL UNIVERSITY) 02 March 2005 (02.03.2005), the abstract, and claims 1 and 5	1-11

Further documents are listed in the continuation of Box C.

See patent family annex.

<p>* Special categories of cited documents:</p> <p>“A” document defining the general state of the art which is not considered to be of particular relevance</p> <p>“E” earlier application or patent but published on or after the international filing date</p> <p>“L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>“O” document referring to an oral disclosure, use, exhibition or other means</p> <p>“P” document published prior to the international filing date but later than the priority date claimed</p>	<p>“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>“&amp;” document member of the same patent family</p>
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Date of the actual completion of the international search

07 February 2018

Date of mailing of the international search report

14 March 2018

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# INTERNATIONAL SEARCH REPORT

International application No.  
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 105732805 A (ZHENGZHOU GUOSHOU BIOLOGICAL TECHNOLOGY CO., LTD.) 06 July 2016 (06.07.2016), claim 1	12

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application No.  
PCT/CN2017/090808

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
CN 106117326 A	16 November 2016	None	
CN 101021452 A	22 August 2007	None	
CN 101270148 A	24 September 2008	CN 101270148 B	04 May 2011
CN 102241754 A	16 November 2011	None	
CN 1587275 A	02 March 2005	CN 1243015 C	22 February 2006
CN 105732805 A	06 July 2016	None	

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## Continuation of Box No. III

[3] The same or corresponding technical feature between the two inventions is “the crude extraction powder of phycocyanins from nostoc sphaeroids kutz”, however, the technical feature is disclosed by the prior art such as CN105732085A (see the abstract).

Therefore, the two inventions do not share a same or corresponding technical feature that makes a contribution over the prior art and do not comply with the requirement of unity of invention as defined in PCT Rule 13.1.