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सत्यमेव जयते

क्रमांक : 011147416
SL No :



भारत सरकार
GOVERNMENT OF INDIA

पेटेंट कार्यालय
THE PATENT OFFICE

पेटेंट प्रमाणपत्र
PATENT CERTIFICATE
(Rule 74 of The Patents Rules)

पेटेंट सं. / Patent No. : 399220
आवेदन सं. / Application No. : 202011009169
फाइल करने की तारीख / Date of Filing : 03/03/2020
पेटेंटी / Patentee : Chandigarh University

प्रमाणित किया जाता है कि पेटेंटी को, उपरोक्त आवेदन में यथाप्रकटित CROSS- LINKED BIOPOLYMER COMPOSITION AND A METHOD OF PREPARATION THEREOF नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख मार्च 2020 के तीसरे दिन से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled CROSS- LINKED BIOPOLYMER COMPOSITION AND A METHOD OF PREPARATION THEREOF as disclosed in the above mentioned application for the term of 20 years from the 3rd day of March 2020 in accordance with the provisions of the Patents Act,1970.



अनुदान की तारीख : 15/06/2022
Date of Grant :

पेटेंट नियंत्रक
Controller of Patent

टिप्पणी - इस पेटेंट के नवीकरण के लिए फीस, यदि इसे बनाए रखा जाना है, मार्च 2022 के तीसरे दिन को और उसके पश्चात प्रत्येक वर्ष में उसी दिन देय होगी।

Note - The fees for renewal of this patent, if it is to be maintained will fall / has fallen due on 3rd day of March 2022 and on the same day

FORM 5

**THE PATENTS ACT, 1970
(39 of 1970)**

&

The Patents Rules, 2003

**DECLARATION AS TO INVENTORSHIP
[See section 10(6) and rule 13(6)]**

1. NAME OF THE APPLICANT(S)

We, Chandigarh University hereby declare that the true and first inventor(s) of the invention disclosed in the complete specification filed in application.....dated this 22nd January 2020 is/are:

2. INVENTOR(S)

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Dated this 22nd January 2020

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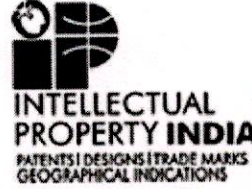
Agent for the Applicant
Chandigarh University

To
The Controller of Patent
The Patent Office, Delhi/Kolkata/Chennai/Mumbai



Office of the Controller General of Patents, Designs & Trade Marks
Department of Industrial Policy & Promotion,
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Government of India

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Application Details

APPLICATION NUMBER	202011009169
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	03/03/2020
APPLICANT NAME	Chandigarh University
TITLE OF INVENTION	CROSS- LINKED BIOPOLYMER COMPOSITION AND A METHOD OF PREPARATION THEREOF
FIELD OF INVENTION	CHEMICAL
E-MAIL (As Per Record)	ipecc@ennobleip.com
ADDITIONAL-EMAIL (As Per Record)	ipecc@ennobleip.com
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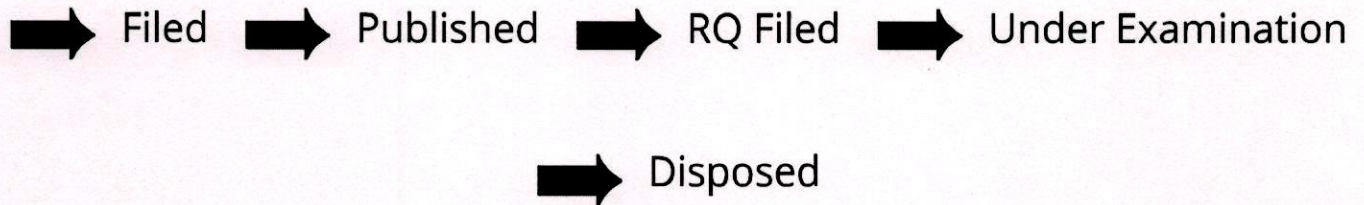
Application Status

APPLICATION STATUS

**Granted Application, Patent Number
:399220**

[E-Register](#)

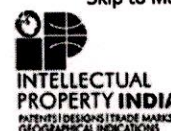
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Patent Search

Invention Title	CROSS- LINKED BIOPOLYMER COMPOSITION AND A METHOD OF PREPARATION THEREOF
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Priority Date	
Field Of Invention	CHEMICAL
Classification (IPC)	B01J0020260000, A61L0027200000, C08K0003160000, C09K0003320000, A61L0015600000

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Abstract:

The present invention relates to a cross- linked biopolymer composition comprising chitosan in the range of 1% - 3% w/w, monomer acrylamide in the range of 55%-4 potassium persulfate in the range of 20%-30%v/v; thiourea in the range of 10%-15%v/v. A method of production of cross-linked biopolymer composition comprising the steps: i) dissolving chitosan flakes in acetic acid to obtain a chitosan solution followed by stirring and storing for 24 hrs to obtain a homogenized solution, iii) adding thiourea to the homogenized solution and stirring for 20 min followed by adding potassium persulfate to obtain a milky white solution, v) adding thiourea to the solution to obtain a cross-linked solution, and vi) sonicating the cross-linked solution at 40 KHz, 50 °C for 35 min followed by drying at 60°C to obtain a final chitosan acrylamide cross- linked (CATC) product.

Complete Specification

The present invention relates to a composition and method for synthesis of biopolymer chitosan acrylamide-thiourea cross-linked material (CATC) by using ecofriendly technique.

BACKGROUND OF THE INVENTION

[0002] Chitin and chitosan are the most abundant bio materials on earth with the ability to be modified or functionalized so as to achieve potential applications in numerous fields including water treatment. The crosslinked networks of the biopolymer may be prepared by using different polymerization reactions with monomeric polymers etc. Formation of network structures containing ionic moieties impart the hydrophilicity which may be tuned for different applications.

[0003] Polyacrylamide is most commonly used for controlling water shutoff technology. For various years, it has been the potential technique to be used in controlling water shutoff wells. Moreover, crosslinked polyacrylamide biopolymers such as thiourea have immense potential in controlling the environmental pollution.

[0004] Certain parameters such as its anti-temperature, poor salt, prone to damage and degradation limits its use in removing the ionic materials from the aqueous solutions thereby decreasing the environmental pollution.

[0005] Numerous methods are adopted to for removing heavy metals and ionic components from aqueous solutions e.g. ion-exchange resins. Also using such method of resins, leads to various side effects such as low selectivity, descending activity and process of leaching out of resins in an aqueous solution.

[0006] US4500494 discloses about removal of cationic metals from water by using a chelating agent that insoluble in water that may be either liquid, water insoluble solvent or microcapsule with a shell of polyurea or urea-formaldehyde

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