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व्यापार चिह्न/TRADE MARKS|भौगोलिक  
उपदर्शन/GEOGRAPHICAL INDICATIONS



सत्यमेव जयते

**भारत सरकार  
GOVERNMENT OF INDIA**

एकस्व कार्यालय /THE PATENT OFFICE  
बौद्धिक सम्पदा भवन / I.P.O. BUILDING  
प्लॉट नं. 32/ PLOT NO. 32  
सेक्टर -14/ SECTOR 14, द्वारका/ DWARKA  
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वेबसाइट /Website:<http://ipindia.nic.in>

सं. \ No. 202111002380

दिनांक \ Dated the 25/01/2023

सेवा मे, \ To :

Address of Service:- Sudarshan Kumar Bansal M/s United Overseas Patent Firm (Registered Patent Agents) 52, Sukhdev Vihar, Mathura Road, New Delhi-110025

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विषय :- पेटेंट आवेदन संख्या 202111002380 के संबंध में अधिनियम की धारा 43 के तहत पेटेंट अनुदान तथा पेटेंट रजिस्टर में प्रविष्टि की सूचना

Sub :- Intimation of the grant and recordal of patent under section 43 of the Act in respect of patent application no. 202111002380

महोदय/महोदया,

Sir/Madam,

आपको सूचित किया जाता है कि पेटेंट अधिनियम, 1970 की धारा 12 व 13 तथा उस आधार पर बने नियम के तहत उपर्युक्त पेटेंट आवेदन के परीक्षण [व ----- को हुई सुनवाई] के उपरांत एतद्वारा पेटेंट अनुदान किया जाता है। तथा पेटेंट अनुदान की प्रविष्टि 25/01/2023 को पेटेंट रजिस्टर में कर दी गयी है।

This is to Inform you that following the examination of above mentioned patent application under section 12 and 13 of The Patents Act, 1970 and Rules made thereunder [and hearing held on ----- ] a patent is hereby granted and recorded in the Register of Patents on the 25/01/2023. The Patent Certificate is enclosed herewith.

पेटेंट संख्या \ Patent No	: 419246
आवेदक का नाम \ Name Of Applicant	: Sant Longowal Institute of Engineering and Technology
पेटेंट दिनांक \ Date of Patent	: 19/01/2021
पूर्विका तिथि \ Priority Date	: 19/01/2021
परीक्षण हेतु अनुरोध दाखिल करने की तिथि \ Filing date of Request for examination	: 16/02/2021
शीर्षक \ Title	: A PROCESS FOR THE REMOVAL OF PHENOL USING GREEN EMULSION LIQUID MEMBRANE
दावों की संख्या \ Number of claims	: 6

उपर्युक्त पेटेंट के अनुदान का प्रकाशन अधिनियम की धारा 43 के तहत पेटेंट कार्यालय के आधिकारिक जर्नल में किया जाएगा।

The grant of above mentioned patent will be published in the Official Journal of the patent Office under section 43 of the Act.

पेटेंट अधिनियम 1970 यथा संशोधित पेटेंट (संशोधन) नियम, 2005/ पेटेंट नियम, 2003 यथा संशोधित पेटेंट (संशोधन) नियम, 2016 की धारा 142 की उप-धारा (4) के प्रावधानों के तहत उपरोक्त प्रविष्टि की तिथि से 3 माह के भीतर इस कार्यालय में नवीकरण शुल्क जमा किया जाना चाहिए।

The payment of renewal fee is required to be made at this office within three(3) months from the aforesaid date of recording according to the proviso in sub-section(4) of Section 142 of The Patents Act,1970, as amended by The Patents (Amendment) Act, 2005 / The Patents Rules, 2003 as amended by The Patents (Amendment) Rules, 2016.

Karthika R

(नियंत्रक पेटेंट)

Controller of Patents

टिप्पणी / Note :

1. संशोधित नवीकरण शुल्क हेतु कृपया महानियंत्रक पेटेंट, अभिकल्प एवं व्यापार चिह्न की आधिकारिक वेबसाइट [www.ipindia.gov.in](http://www.ipindia.gov.in) पर उपलब्ध पेटेंट (संशोधन) नियम 2016 की प्रथम अनुसूची (शुल्क) देखें।

For revised renewal fees kindly refer to the First Schedule (fees) of The Patents (Amendment) Rules 2016 available on the official website of Controller General of Patents, Designs and Trade Marks [www.ipindia.gov.in](http://www.ipindia.gov.in)

2. कार्यालय द्वारा पेटेंट प्रमाणपत्र की कोई भी कागजी प्रति अलग से जारी नहीं की जाएगी।

No hard copy of Patent Certificate shall be issued separately by the office.



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भारत सरकार  
GOVERNMENT OF INDIA

पेटेंट कार्यालय  
THE PATENT OFFICE

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

क्रमांक : 011155846  
SL No :



पेटेंट सं. / Patent No. : 419246  
आवेदन सं. / Application No. : 202111002380  
फाइल करने की तारीख / Date of Filing : 19/01/2021  
पेटेंटी / Patentee : Sant Longowal Institute of Engineering and Technology

प्रमाणित किया जाता है कि पेटेंटी को, उपरोक्त आवेदन में यथाप्रकटित A PROCESS FOR THE REMOVAL OF PHENOL USING GREEN EMULSION LIQUID MEMBRANE नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख जनवरी 2021 के उन्नीसवें 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 A PROCESS FOR THE REMOVAL OF PHENOL USING GREEN EMULSION LIQUID MEMBRANE as disclosed in the above mentioned application for the term of 20 years from the 19<sup>th</sup> day of January 2021 in accordance with the provisions of the Patents Act, 1970.



अनुदान की तारीख : 25/01/2023  
Date of Grant :

पेटेंट नियंत्रक  
Controller of Patent

**टिप्पणी** - इस पेटेंट के नवीकरण के लिए फीस, यदि इसे बनाए रखा जाना है, जनवरी 2023 के उन्नीसवें 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 19<sup>th</sup> day of January 2023 and on the same day in every year thereafter.



(<http://ipindia.nic.in/index.htm>)



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## Patent Search

Invention Title	A PROCESS FOR THE REMOVAL OF PHENOL USING GREEN EMULSION LIQUID MEMBRANE
Publication Number	09/2021
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Application Number	202111002380
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### Inventor

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### Applicant

Name	Address	Country	Nationality
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### Abstract:

The present invention discloses a process for the removal of phenol using green emulsion liquid membrane having a green solvent. The process includes mixing of rice bran oil, hexane, and span 80 to obtain the organic phase of the GELM, introducing an aqueous phase reagent to the prepared organic phase for emulsification, adding the prepared emulsified solution to a reagent grade phenol aqueous solution in a vessel, continuous stirring of the solution using an overhead stirrer and putting the solution into a beaker for the exact phase separation into an emulsion phase and an aqueous phase of the solution.

### Complete Specification

The present invention relates to a process for the removal of phenol using Green Emulsion Liquid Membrane (GELM), and more particular to the process with the GELM formulation having a green solvent i.e. rice bran oil.

#### BACKGROUND OF THE INVENTION

Currently, the field of liquid membrane technology has shown a rapid expansion in research as well as in its utility as an industrial separation process. It can be operated selectively to separate a particular solute molecule from an aqueous solution and even to extract a solute against its concentration gradient. Liquid membrane is divided into three main categories like bulk liquid membrane (BLM), supported liquid membrane (SLM), and emulsion liquid membranes (ELM).

Out of these, ELM technique has been considered as one of the most promising techniques as it offers various merits such as economical (40% less costly than solvent extraction), more interfacial area for mass transfer, clean technique, energy-saving, possibility of selective separations and high fluxes, low energy and chemicals consumption, low maintenance costs, and large-scale piloting availability.

2

With these above merits, the ELM technique has become an attractive alternative technology for its application in various research and industrial sectors.

Several research papers have been published which are based on the ELM 5 technique. One such research paper is on "Modification of membrane formulation for stabilization of emulsion liquid membrane for extraction of phenol from aqueous solutions" by Khalil Abbassiana and AH Kargari. In this paper, the emulsion formulation was modified by the addition of a rubbery polymer (Styrene Butadiene Rubber: SBR) and then the resultant emulsion was dispersed

[View Application Status](#)

