

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 11-086711-00003-0000

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Act. 329 CTOINFORMACION Folios: 9

Doctor:

JOSÉ LUIS SALAZAR

Director de Nuevas Creaciones

Superintendencia de Industria y Comercio

E. S. D.

REFERENCIA: Expediente 11 86711 PATENTES DE INVENCION

ASUNTO: Complemento de Información:

Anexo Informe de Búsqueda Internacional y Opinión Escrita ISR y WO

PCT/IB2012/053393 PRIORIDAD: CO 1186711 (4/07/2011)

FELIPE EDUARDO FIGUEROA CARDOZO, identificado como aparece al pie de mi firma, abogado en ejercicio, portador de la Tarjeta Profesional No. 140.243 expedida por el Consejo Superior de la Judicatura, actuando en nombre y representación de la **UNIVERSIDAD DEL VALLE**, dentro del trámite de solicitud de patente de invención de título "MÉTODO PARA PRODUCIR FIBRAS DE CELULOSA Y DE HEMICELULOSA DE ALTA RESISTENCIA A PARTIR DE BIOMASA LIGNOCELULÓSICA DE LAS HOJAS Y COGOLLOS DE LA CAÑA DE AZÚCAR", radicada en el expediente **11 86711**, mediante el presente escrito allego a la actuación administrativa los siguientes documentos:

1. Copia del Informe de Búsqueda Internacional (ISR), Form PCT/ISA/210, emitido por la Autoridad de Búsqueda Internacional (ISA) dentro del trámite de solicitud de patente internacional PCT/IB2012/053393, en el cual, se reivindicó la prioridad de la solicitud de patente CO-11 86711 (4/07/2011), "Método para producir fibras de celulosa y de hemicelulosa de alta resistencia a partir de biomasa lignocelulósica de las hojas y cogollos de la caña de azúcar"

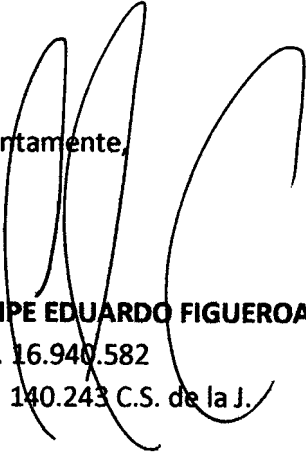
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Carrera 3 A No. 30-10 Oficina 205 Bogotá D.C. (57) (1) 2826279 315 2849325

2. Copia de la Opinión Escrita (WO), Form PCT/ISA/237, emitida por la Autoridad de Búsqueda Internacional (ISA) dentro del trámite de solicitud de patente internacional PCT/IB2012/053393, en el cual, se reivindicó la prioridad de la solicitud de patente CO-11 86711 (4/07/2011), "Método para producir fibras de celulosa y de hemicelulosa de alta resistencia a partir de biomasa lignocelulósica de las hojas y cogollos de la caña de azúcar"

En estas condiciones, ruego a usted tener en consideración los documentos anteriormente relacionados a efectos de establecer el examen de patentabilidad de la solicitud titulada "Método para producir fibras de celulosa y de hemicelulosa de alta resistencia a partir de biomasa lignocelulósica de las hojas y cogollos de la caña de azúcar", Expediente CO-11 86711 (4/07/2011).

Atentamente,


FELIPE EDUARDO FIGUEROA CARDOZO

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference Cogollos	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT / IB 2012/053393	International filing date (day/month/year) 04 July 2012 (04.07.2012)	(Earliest) Priority date(day/month/year) 12 July 2011 (12.07.2011)
Applicant UNIVERSIDAD DEL VALLE		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international-type search was carried out on the basis of:

☒ the application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of the international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II).

3. ☐ **Unity of invention is lacking** (See Box No. III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

Box No. IV	Text of the abstract (Continuation of item 5 of the first sheet)
	Method for production of cellulose and hemicellulose fibers from lignocellulose biomass obtained from sugarcane leaves and buds by applying a process comprising the stages of: a) Diminishing the particle size of the lignocellulose biomass to a range between 3 and 15 mm, b) Subjecting the product obtained to treatment with one or more solvents and/or a mixture of specific catalysts, c) Carry out sudden decompression to an atmospheric pressure , d) Collecting the pretreated material in a cyclone, e) Optionally separating the liquid and solid fractions through washing and filtering f) Optionally, treating the solid fraction in a reactor with a mixture of ethanol and chlorine dioxide, d) Wash the product obtained to achieve cellulose efficiency above 50% and of lignin of 5 to 7%, fiber lengtht in a range to 1,5 to 2,7 mm, breaking length (km) of 7,0 -8,9, Burst index (kPam ²/g) of 4,5 - 7,2 and Tear index (mNm²/g) of 8,2-8. The obtained high-resistance cellulose and hemicellulose is especially suitable for the paper production and polymer-type plastics.

INTERNATIONAL SEARCH REPORT

International application No.

PCT / IB 2012/053393

A. CLASSIFICATION OF SUBJECT MATTER IPC: D21C 3/00 (2006.01); D21C 1/10 (2006.01) 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) D21C; C08L 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) WPI		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2010190973 A1 (SRIVASTAVA et al.) 29 July 2010 (29.07.2010) Claims	1
A	JP 4046935 A (KOYO) 19920217, Database WPI on Questel, DW199214, London, Derwent Publications, Ltd. [retrieved on 2012-10-12], AN-1992-108776 [14] Abstract	1
☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "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) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "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 "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 "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 "&" document member of the same patent family		
Date of the actual completion of the international search 17 October 2012 (17.10.2012)		Date of mailing of the international search report 29 October 2012 (29.10.2012)
Name and mailing address of the ISA/AT Austrian Patent Office Dresdner Straße 87, A-1200 Vienna Facsimile No. +43 / 1 / 534 24-535		Authorized officer PAMMINGER W. Telephone No. +43 / 1 / 534 24-223

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT / IB 2012/053393

Patent document cited in search report			Patent family member(s)			Publication date
US	A1	2010190973	EP	A1	2173941	2010-04-14
			WO	A1	2008155634	2008-12-24
			AU	A1	2008264945	2008-12-24
			US	A1	2010190973	2010-07-29
			JP	A	2010531639	2010-09-30
			CN	A	101680165	2010-03-24
			NZ	A	579757	2012-03-30
			CA	A1	2681610	2008-12-24
			KR	A	20100044730	2010-04-30
JP	A	4046935	JP	A	4046935	1992-02-17

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:
FIGUEROA CARDOZO Felipe Eduardo
Carrera 27A 43-14, Apto 202
Edificio La Soledad
11001000 Bogota

		Date of mailing (day/month/year)	29 October 2012 (29.10.2012)
Applicant's or agent's file reference Cogollos		FOR FURTHER ACTION See paragraph 2 below	
International application No. PCT / IB 2012/053393	International filing date (day/month/year) 04 July 2012 (04.07.2012)	Priority date (day/month/year) 12 July 2011 (12.07.2011)	
International Patent Classification (IPC) or both national classification and IPC IPC: D21C 3/00 (2006.01); D21C 1/10 (2006.01)			
Applicant UNIVERSIDAD DEL VALLE			

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/AT Austrian Patent Office Dresdner Straße 87, A-1200 Vienna Facsimile No. +43 / 1 / 534 24-535	Date of completion of this opinion 17 October 2012 (17.10.2012)	Authorized officer PAMMINGER W. Telephone No. +43 / 1 / 534 24-223
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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

IB 2012/053393

Box No. I

Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
- ☒ the international application in the language in which it was filed.
- ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a)).
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:
- a. (means)
- ☐ on paper
- ☐ in electronic form
- b. (time)
- ☐ in the international application as filed
- ☐ together with the international application in electronic form
- ☐ subsequently to this Authority for the purposes of search
4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

Box No. V Reasoned statement under 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-10	YES
	Claims	----	NO
Inventive step (IS)	Claims	1-10	YES
	Claims	----	NO
Industrial applicability (IA)	Claims	1-10	YES
	Claims	----	NO

2. Citations and explanations:

The following documents have been cited in the Search Report:

D1= US2010190973

D2= JP4046935 A (abstract)

D1 describes a process for obtaining cellulose from biomass in a form amenable to complete enzymatic hydrolysis, which comprises contacting the biomass with a mixture of an organic solvent immiscible in water, an acid and a metal salt catalyst dissolved in the acidic water solution under predetermined temperature and pressure and filtering the reaction mixture under pressure to separate the dissolved lignin, hemicellulose in the solvent and aqueous phase respectively and leaving behind pure cellulose.

The process is useful for obtaining cellulose, hemicellulose and lignin from biomass from various agricultural residues like sugar cane bagasse.

D2 describes a process for obtaining a solution of lignocellulose by dissolving lignocellulose substance, preferably stems of graminaceous plant such as sugar cane in an organic solvent, preferably a phenol or bisphenol. Lignocellulose is dissolved by both high pressure dissolving method using phenol, etc., at 200-300 deg.C under high pressure and ordinary pressure dissolving method using phenols, etc., at 100-200 deg.C under ordinary pressure. The process can be used in both methods and accelerates the dissolving action by phenols and avoids the formation of highly polymerised insoluble matter.

None of the cited documents describes the special method for the production of cellulose and hemicellulose fibers from lignocellulosic biomass obtained from sugarcane leaves and buds according to claim 1 of the application. Claim 1 is new.

Claims 2-10 which are concerning further embodiments of subject matters of claim 1 or are related to claim 1 also obviously fulfill the requirements of novelty and inventive step.

In summary we can state that all claims fulfill the requirements of novelty, inventive step and industrial applicability.