पेटेंट कार्यालय
शासकीय जर्नल

OFFICIAL JOURNAL
OF
THE PATENT OFFICE

निर्गमन सं. 50/2021	शुक्रवार	दिनांक: 10/12/2021
ISSUE NO. 50/2021	FRIDAY	DATE: 10/12/2021

पेटेंट कार्यालय का एक प्रकाशन
PUBLICATION OF THE PATENT OFFICE

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :23/11/2021

(21) Application No.202141053716 A
(43) Publication Date : 10/12/2021

(54) Title of the invention : EXPERIMENTAL STUDIES ON BANANA FIBRE WITH CONCRETE COMPOSITES

(51) International classification :A61K0036880000, A01D0046000000, B33Y0070000000, H01R0024280000, E04C0003290000
(86) International Application No :PCT//
Filing Date :01/01/1900
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

(71)**Name of Applicant :**
1)Dr. T. AYYAPPAN
Address of Applicant :ASSOCIATE PROFESSOR DEPARTMENT OF CIVIL ENGINEERING KODHADA INSTITUTE OF SCIENCE AND TECHNOLOGY FOR WOMEN NEAR RANGANI GUDI, ANANTHAGIRI ROAD, KODAD,SURYAPET DIST, TELANGANA 508206 ---------- ----------
2)Dr.A.HEMALATHA
3)N. V. N. RAVALI
4)Dr. K. SRINIVASAN
5)Ms.R.ANUJA
6)Mrs.S.RAMESHWARI
7)Mr.M.SUDHARSANAN
8)Mr. K HAREESH
9)Dr.S.ROBERT RAVI
10)Dr. C. SELIN RAVI KUMAR
Name of Applicant : NA
Address of Applicant : NA
(72)**Name of Inventor :**
1)Dr. T. AYYAPPAN
Address of Applicant :ASSOCIATE PROFESSOR DEPARTMENT OF CIVIL ENGINEERING KODHADA INSTITUTE OF SCIENCE AND TECHNOLOGY FOR WOMEN NEAR RANGANI GUDI, ANANTHAGIRI ROAD, KODAD,SURYAPET DIST, TELANGANA 508206 ---------- ----------
2)Dr.A.HEMALATHA
Address of Applicant :PROFESSOR &HEAD DEPARTMENT OF CIVIL ENGINEERING NPR COLLEGE OF ENGINEERING AND TECHNOLOGY NPR NAGAR, NATHAM, DINDIGUL, TAMIL NADU 624401 ---------- ----------
3)N. V. N. RAVALI
Address of Applicant :ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING CMR COLLEGE OF ENGINEERING & TECHNOLOGY KANDLAKOYA(V), MEDCHAL ROAD HYDERABAD, TELANGANA, INDIA - 501401 ---------- ----------
4)Dr. K. SRINIVASAN
Address of Applicant :ASSISTANT PROFESSOR (SS) DEPARTMENT OF CIVIL ENGINEERING Dr. MAHALINGAM COLLEGE OF ENGINEERING AND TECHNOLOGY, UDUMALAI ROAD, POLLACHI, TAMIL NADU 642003 ---------- ----------
5)Ms.R.ANUJA
Address of Applicant :ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING Dr. MAHALINGAM COLLEGE OF ENGINEERING AND TECHNOLOGY, UDUMALAI ROAD, POLLACHI, TAMIL NADU 642003 ---------- ----------
6)Mrs.S.RAMESHWARI
Address of Applicant :ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING Er. PERUMAL MANIMEKALAI COLLEGE OF ENGINEERING PMC MAIN ENTRANCE, CHENNEKOTHAPALLI RD, NALLAGANAKOTHAPALLI, HOSUR,TAMIL NADU 635117 ---------- ----------
7)Mr.M.SUDHARSANAN
Address of Applicant :ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING Dr. MAHALINGAM COLLEGE OF ENGINEERING AND TECHNOLOGY, UDUMALAI ROAD, POLLACHI, TAMIL NADU 642003 ---------- ----------
8)Mr. K HAREESH
Address of Applicant :ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING CMR COLLEGE OF ENGINEERING & TECHNOLOGY KANDLAKOYA(V), MEDCHAL ROAD HYDERABAD, TELANGANA, INDIA – 501401 ---------- ----------
9)Dr.S.ROBERT RAVI
Address of Applicant :PROFESSOR DEPARTMENT OF CIVIL ENGINEERING ACE ENGINEERING COLLEGE ANKUSHAPUR, GHATKESAR, HYDERABAD, TELANGANA 501301 ---------- ----------
10)Dr. C. SELIN RAVI KUMAR
Address of Applicant :ASSOCIATE PROFESSOR DEPARTMENT OF CIVIL ENGINEERING MALLA REDDY ENGINEERING COLLEGE(AUTONOMOUS) MAISAMMAGUDA, SECUNDERABAD, TELANGANA-500100 ---------- ----------

(57) Abstract :
ABSTRACT ENACTMENT OF CONCRETE BEAMS REINFORCED WITH DIFFERNET BANANA SPECIES FIBER BARS The present research dissect the exhibition of utilizing banana fiber bars on the mechanical properties of supported cement footers. To accomplish this point, a few trial considers on the use of banana filaments to improve the strength and properties of substantial designs were performed. The exploratory investigations, are directed dependent on a gathering of examples of cement footers with various angles with the following objectives (i) decide the most basic variables influencing the exhibition of flexure conduct of built up concrete (RC) radiates utilizing banana fiber bars, (ii) concentrate on the blend plan parts of the banana fiber bar in RC, (3) concentrate on the conduct of banana fiber bars on substantial conduct, (4) concentrate on the impact of banana fiber with various substantial grades. Results displays that utilizing banana bars as a support material can essentially expand the capacity to oppose breaking and spalling in cement footers. Overall, utilizing banana bars as a primary support in substantial give more flexural strength with around 45 % contrasted with plain concrete.

No. of Pages : 16 No. of Claims : 7

Welcome Saurabh Kumar Jain Sign out

Controller General of Patents, Designs & Trade Marks

सत्यमेव जयते

INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS

G.A.R.6
[See Rule 22(1)]
RECEIPT

Docket No 107257 **Date/Time 2021/11/23 09:36:44**

To
Dr. T. AYYAPPAN, ASSOCIATE PROFESSOR, DEPARTMENT OF CIVIL ENGINEERING, KODHADA INSTITUTE OF SCIENCE AND TECHNOLOGY FOR WOMEN, NEAR RANGANI GUDI, ANANTHAGIRI ROAD, KODAD,SURYAPET DIST, TELANGANA 508206, INDIA.

CBR Detail:

Sr. No.	Ref. No./Application No.	App. Number	Amount Paid	C.B.R. No.	Form Name	Remarks
1	TEMP/E1/60932/2021-CHE	202141053716	1600	35663	FORM 1	EXPERIMENTAL STUDIES ON BANANA FIBRE WITH CONCRETE COMPOSITES
2	E12/4827/2021/CHE	202141053716	2500	35663	FORM 9	----

TransactionID	Payment Mode	Challan Identification Number	Amount Paid	Head of A/C No
N--0000857676	Online Bank Transfer	2311210001215	4100.00	1475001020000001

Total Amount : ₹ 4100

Amount in Words: Four Thousand One Hundred Only

Received from Saurabh Kumar Jain the sum of ₹ 4100 on account of Payment of fee for above mentioned Application/Forms.

* This is a computer generated receipt, hence no signature required.

Print

Home About Us Contact Us

"FORM 1 THE PATENTS ACT 1970 (39 of 1970) and THE PATENTS RULES, 2003 APPLICATION FOR GRANT OF PATENT (See section 7, 54 and 135 and sub-rule (1) of rule 20	(FOR OFFICE USE ONLY)

Application No.	
Filing date:	
Amount of Fee paid:	
CBR No:	
Signature:	

1. APPLICANT'S REFERENCE / IDENTIFICATION NO. (AS ALLOTTED BY OFFICE)	

2. TYPE OF APPLICATION [Please tick ( ) at the appropriate category					
Ordinary (√)		Convention (x)	PCT-NP (x)		
Divisional ()	Patent of Addition ( )	Division ( )	Patent of addition ()	Division ( )	Patent of Addition ( )

3A. APPLICANT(S)

Name in Full	Nationality	Country of Residence	Address of the Inventor	
Dr. T. AYYAPPAN	INDIAN	INDIA	House No.	ASSOCIATE PROFESSOR DEPARTMENT OF CIVIL ENGINEERING KODHADA INSTITUTE OF SCIENCE AND TECHNOLOGY FOR WOMEN
			Street	NEAR RANGANI GUDI, ANANTHAGIRI ROAD, KODAD
			City	SURYAPET DIST
			State	TELANGANA
			Country	INDIA
			Pin code	508206
Dr.A.HEMALATHA	INDIAN	INDIA	House No.	PROFESSOR &HEAD DEPARTMENT OF CIVIL ENGINEERING NPR COLLEGE OF ENGINEERING AND TECHNOLOGY
			Street	NPR NAGAR, NATHAM,
			City	DINDIGUL
			State	TAMIL NADU
			Country	INDIA
			Pin code	624401
N. V. N. RAVALI	INDIAN	INDIA	House No.	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING CMR COLLEGE OF ENGINEERING & TECHNOLOGY
			Street	KANDLAKOYA(V), MEDCHAL ROAD
			City	HYDERABAD
			State	TELANGANA
			Country	INDIA
			Pin code	501401
Dr. K. SRINIVASAN	INDIAN	INDIA	House No.	ASSISTANT PROFESSOR (SS) DEPARTMENT OF CIVIL ENGINEERING Dr. MAHALINGAM COLLEGE OF ENGINEERING AND TECHNOLOGY
			Street	UDUMALAI ROAD,
			City	POLLACHI
			State	TAMIL NADU
			Country	INDIA
			Pin code	642003
Ms.R.ANUJA	INDIAN	INDIA	House No.	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING Dr. MAHALINGAM COLLEGE OF ENGINEERING AND TECHNOLOGY
			Street	UDUMALAI ROAD
			City	POLLACHI
			State	TAMIL NADU

			Country	INDIA
			Pin code	642003
Mrs.S.RAMESHWARI	INDIAN	INDIA	House No.	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING Er. PERUMAL MANIMEKALAI COLLEGE OF ENGINEERING
			Street	PMC MAIN ENTRANCE, CHENNEKOTHAPALLI RD, NALLAGANAKOTHAPALLI
			City	HOSUR
			State	TAMIL NADU
			Country	INDIA
			Pin code	635117
Mr.M.SUDHARSANAN	INDIAN	INDIA	House No.	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING Dr. MAHALINGAM COLLEGE OF ENGINEERING AND TECHNOLOGY
			Street	UDUMALAI ROAD
			City	POLLACHI
			State	TAMIL NADU
			Country	INDIA
			Pin code	642003
Mr. K HAREESH	INDIAN	INDIA	House No.	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING CMR COLLEGE OF ENGINEERING & TECHNOLOGY
			Street	KANDLAKOYA(V), MEDCHAL ROAD
			City	HYDERABAD
			State	TELANGANA
			Country	INDIA
			Pin code	501401
Dr.S.ROBERT RAVI	INDIAN	INDIA	House No.	PROFESSOR DEPARTMENT OF CIVIL ENGINEERING ACE ENGINEERING COLLEGE
			Street	ANKUSHAPUR, GHATKESAR,
			City	HYDERABAD
			State	TELANGANA
			Country	INDIA
			Pin code	501301
Dr. C. SELIN RAVI KUMAR	INDIAN	INDIA	House No.	ASSOCIATE PROFESSOR DEPARTMENT OF CIVIL ENGINEERING MALLA REDDY ENGINEERING COLLEGE(AUTONOMOUS)
			Street	MAISAMMAGUDA
			City	SECUNDERABAD
			State	TELANGANA
			Country	INDIA
			Pin code	500100

Natural Person (√)	Other than natural Person		
	Small Entity (x)	Startup (x)	Others (x)
4. INVENTOR(S) [Please tick at the appropriate category]			
Are all the inventor(s) same as the applicant(s) named above?	Yes (√)		
If "No", furnish the details of the inventor(s)			
5. TITLE OF THE INVENTION			
EXPERIMENTAL STUDIES ON BANANA FIBRE WITH CONCRETE COMPOSITES			
6. AUTHORISED REGISTERED PATENT AGENT	IN/PA No.	- NA-	
	Name		
7. ADDRESS FOR SERVICE OF APPLICANT IN INDIA	Name	Dr. T. AYYAPPAN	
	Postal Address	ASSOCIATE PROFESSOR DEPARTMENT OF CIVIL ENGINEERING	

		NEAR RANGANI GUDI, ANANTHAGIRI ROAD, KODAD,SURYAPET DIST, TELANGANA 508206
	Telephone No.	
	Mobile No.	9962354006
	Fax No.	
	E-mail ID	prayyappan@gmail.com

8. IN CASE OF APPLICATION CLAIMING PRIORITY OF APPLICATION FILED IN CONVENTION COUNTRY, PARTICULARS OF CONVENTION APPLICATION

Country	Application Number	Filing date	Name of the applicant	Title of the invention	IPC (as classified in the convention country)
NA	NA	NA	NA	NA	NA

9. IN CASE OF PCT NATIONAL PHASE APPLICATION, PARTICULARS OF INTERNATIONAL APPLICATION FILED UNDER PATENT CO-OPERATION TREATY (PCT)

International application number	International filing date
NA	NA

10. IN CASE OF DIVISIONAL APPLICATION FILED UNDER SECTION 16, PARTICULARS OF ORIGINAL (FIRST) APPLICATION

Original (first) application No.	Date of filing of original (first) application
NA	NA

11. IN CASE OF PATENT OF ADDITION FILED UNDER SECTION 54, PARTICULARS OF MAIN APPLICATION OR PATENT : NA

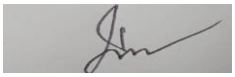
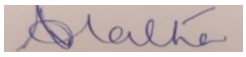
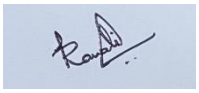
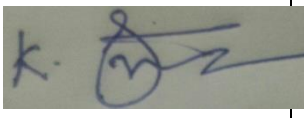
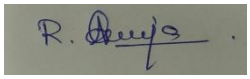
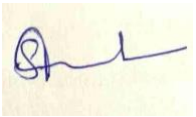
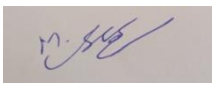
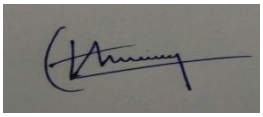
Main application/patent No. : NA	Date of filing of main application : NA

12. DECLARATIONS

(i) Declaration by the inventor(s)

(In case the applicant is an assignee: the inventor(s) may sign herein below or the applicant may upload the assignment or enclose the assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period).

We, the above named inventor(s) are the true & first inventor(s) for this Invention and declare that the applicant(s) herein are our assignee or legal representative.

NAME	SIGNATURE	DATE
Dr. T. AYYAPPAN		16/11/2021
Dr.A.HEMALATHA		16/11/2021
N. V. N. RAVALI		16/11/2021
Dr. K. SRINIVASAN		16/11/2021
Ms.R.ANUJA		16/11/2021
Mrs.S.RAMESHWARI		16/11/2021
Mr.M.SUDHARSANAN		16/11/2021
Mr. K HAREESH		16/11/2021

Dr.S.ROBERT RAVI		16/11/2021
Dr. C. SELIN RAVI KUMAR		16/11/2021

(ii) Declaration by the applicant(s) in the convention country
(In case the applicant in India is different than the applicant in the convention country: the applicant in the convention country may sign herein below or applicant in India may upload the assignment from the applicant in the convention country or enclose the said assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period)

We, the applicant(s) in the convention country declare that the applicant(s) herein are our assignee or legal representative.

(a) Date
(b) Signature(s) -------NA----------
(c) Name(s) of the signatory

(iii) Declaration by the applicant(s)

- We the applicant(s) hereby declare(s) that: -
- We are in possession of the above-mentioned invention.
- The ~~provisional~~/complete specification relating to the invention is filed with this application.
- ~~The invention as disclosed in the specification uses the biological material from India and the necessary permission from the competent authority shall be submitted by me/us before the grant of patent to me/us.~~
- There is no lawful ground of objection(s) to the grant of the Patent to me/us.
- We are the true & first inventor(s).
- We are the assignee or legal representative of true & first inventor(s).
- ~~The application or each of the applications, particulars of which are given in Paragraph-8, was the first application in convention country/countries in respect of our invention(s).~~
- ~~We claim the priority from the above mentioned application(s) filed in convention country/countries and state that no application for protection in respect of the invention had been made in a convention country before that date by me/us or by any person from which I/We derive the title.~~
- ~~Our application in India is based on international application under Patent Cooperation Treaty (PCT) as mentioned in Paragraph-9.~~
- ~~The application is divided out of my /our application particulars of which is given in Paragraph-10 and pray that this application may be treated as deemed to have been filed on DD/MM/YYYY under section 16 of the Act.~~
- ~~The said invention is an improvement in or modification of the invention particulars of which are given in Paragraph-11.~~

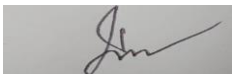
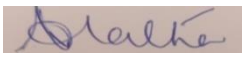
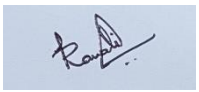
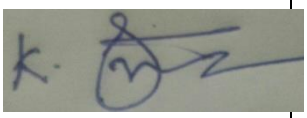
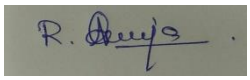
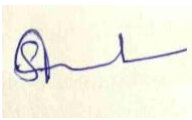
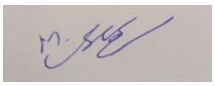
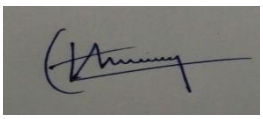
13. FOLLOWING ARE THE ATTACHMENTS WITH THE APPLICATION (a) Form 2

Item	Details	Fee	Remarks
Complete specification	No. of pages :14		
No. of Claim(s)	No. of claims : 07 and No. of pages :01		
Abstract	No. of pages :01		
No. of Drawing(s)	No. of drawings :-- and No. of pages:--		

~~# In case of a complete specification, if the applicant desires to adopt the drawings filed with his provisional specification as the drawings or part of the drawings for the complete specification under rule 13(4), the number of such pages filed with the provisional specification are required to be mentioned here.~~

~~(b) Complete specification (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).~~
~~(c) Sequence listing in electronic form~~
~~(d) Drawings (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).~~
~~(e) Priority document(s) or a request to retrieve the priority document(s) from DAS (Digital Access Service) if the applicant had already requested the office of first filing to make the priority document(s) available to DAS.~~
~~(f) Translation of priority document/Specification/International Search Report/InternationalPreliminary Report on Patentability.~~
(g) Statement and Undertaking on Form 3
(h) Declaration of Inventorship on Form 5
(j)……..

Total fee
We hereby declare that to the best of our knowledge, information and belief the fact and matters slated herein are correct and We request that a patent may be granted to us for the said invention.

NAME	SIGNATURE	DATE
Dr. T. AYYAPPAN		16/11/2021
Dr.A.HEMALATHA		16/11/2021
N. V. N. RAVALI		16/11/2021
Dr. K. SRINIVASAN		16/11/2021
Ms.R.ANUJA		16/11/2021
Mrs.S.RAMESHWARI		16/11/2021
Mr.M.SUDHARSANAN		16/11/2021
Mr. K HAREESH		16/11/2021
Dr.S.ROBERT RAVI		16/11/2021
Dr. C. SELIN RAVI KUMAR		16/11/2021

To,
The Controller of patents, The Patent office at CHENNAI.

Form 2
THE PATENT ACT, 1970
(39 of 1970)
&
The Patent Rules, 2003
COMPLETE SPECIFICATION
(Section 10 and Rule 13)

EXPERIMENTAL STUDIES ON BANANA FIBRE WITH CONCRETE COMPOSITES

Name	Nationality	Address
Dr. T. AYYAPPAN	An Indian National	ASSOCIATE PROFESSOR DEPARTMENT OF CIVIL ENGINEERING KODHADA INSTITUTE OF SCIENCE AND TECHNOLOGY FOR WOMEN NEAR RANGANI GUDI, ANANTHAGIRI ROAD, KODAD,SURYAPET DIST, TELANGANA 508206 MOBILE NO.:9962354006 E-MAIL:prayyappan@gmail.com
Dr.A.HEMALATHA	An Indian National	PROFESSOR &HEAD DEPARTMENT OF CIVIL ENGINEERING NPR COLLEGE OF ENGINEERING AND TECHNOLOGY NPR NAGAR, NATHAM, DINDIGUL, TAMIL NADU 624401 MOBILE NO.:9894879990 E-MAIL:hemalathaalagar0@gmail.com
N. V. N. RAVALI	An Indian National	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING CMR COLLEGE OF ENGINEERING & TECHNOLOGY KANDLAKOYA(V), MEDCHAL ROAD HYDERABAD, TELANGANA, INDIA - 501401 MOBILE NO.: 9160776667 E-MAIL: nvnravali@gmail.com
Dr. K. SRINIVASAN	An Indian National	ASSISTANT PROFESSOR (SS) DEPARTMENT OF CIVIL ENGINEERING Dr. MAHALINGAM COLLEGE OF ENGINEERING AND TECHNOLOGY, UDUMALAI ROAD, POLLACHI, TAMIL NADU 642003 MOBILE NO: 8072125425 E-MAIL: salemvasan@gmail.com

Ms.R.ANUJA	An Indian National	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING Dr. MAHALINGAM COLLEGE OF ENGINEERING AND TECHNOLOGY, UDUMALAI ROAD, POLLACHI, TAMIL NADU 642003 MOBILE NO: 8754309011 E-MAIL: anujaramalingam96@gmail.com
Mrs.S.RAMESHWARI	An Indian National	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING Er. PERUMAL MANIMEKALAI COLLEGE OF ENGINEERING PMC MAIN ENTRANCE, CHENNEKOTHAPALLI RD, NALLAGANAKOTHAPALLI, HOSUR,TAMIL NADU 635117 MOBILE NO: 8098886058 E-MAIL:rameshwarime@gmail.com
Mr.M.SUDHARSANAN	An Indian National	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING Dr. MAHALINGAM COLLEGE OF ENGINEERING AND TECHNOLOGY, UDUMALAI ROAD, POLLACHI, TAMIL NADU 642003 MOBILE NO.: 9025638478 E-MAIL: sudharshanmail01@gmail.com
Mr. K HAREESH	An Indian National	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING CMR COLLEGE OF ENGINEERING & TECHNOLOGY KANDLAKOYA(V), MEDCHAL ROAD HYDERABAD, TELANGANA, INDIA – 501401 MOBILE NO.:8121068558 E-MAIL: khareeshcivil@gmail.com
Dr.S.ROBERT RAVI	An Indian National	PROFESSOR DEPARTMENT OF CIVIL ENGINEERING ACE ENGINEERING COLLEGE ANKUSHAPUR, GHATKESAR, HYDERABAD, TELANGANA 501301 MOBILE NO.: 9442513349 E-MAIL: srravi1969@gmail.com
Dr. C. SELIN RAVI KUMAR	An Indian National	ASSOCIATE PROFESSOR DEPARTMENT OF CIVIL ENGINEERING MALLA REDDY ENGINEERING COLLEGE(AUTONOMOUS) MAISAMMAGUDA, SECUNDERABAD, TELANGANA-500100 MOBILE NO: 9840202071 E-MAIL: selin.ravikumar@gmail.com

The following specification particularly describes the invention and the manner in which it is to be performed.

FIELD OF THE INVENTION

The present invention relates to the construction art, and more particularly, to the structure of fiber reinforced concrete.

PRIOR ART

Homegrown and unfamiliar structures are increasing, more tall, and more broadened, and the development materials utilized for them are quickly evolving. Among the numerous development materials, the change and improvement of the most generally utilized substantial material is advancing quicker than other development materials. Concrete is the most broadly utilized development material for development and common designs as a result of its high compressive strength, affordable productivity and sturdiness. In any case, due to the feeble flexural strength and elasticity and the low energy assimilation capacity, fragile break conduct is shown and the protection from breaking isn't enormous. To improve and make up for these weaknesses, high sturdiness fiber composite materials utilizing new fiber composite materials having high rigidity and versatile modulus have been at the center of attention, and are in effect effectively explored at home and abroad as of late.

WO2015013409A1: A framework and strategy for delivering bio composite materials by blending pelletized plant fiber residue and virgin or reused plastic. The framework might include a reducer, a press, a dryer, a pelletizer, and a blender. The reducer isolates the strands of the plant

material and the press eliminates fluid from the isolated filaments. The dryer further diminishes the dampness content of the squeezed filaments and creates dust which is extricated by filtering, screening, or another reasonable strategy. The pelletizer packs as well as treats the fiber dust with arrangements, glues, or different cycles that cause the fiber residue to follow together. The fiber dust pellets are then blended in with virgin or reused plastic to deliver a bio composite material.

KR101224141B1: The current innovation gives a fiber-supported cement footer 100, described in that the blending proportion of the building up filaments of the two finishes 120 is higher than the focal piece 110 along the longitudinal course, by the joining of supporting strands proficiently strength and toughness To make it work.

US3154464A: As per the current creation, it is feasible to defiberize as well as hydrate stringy materials or slurries through a mallet factory, with a lot higher efiiciency, better nature of fiber yield and lower power consump-3 tion than was until now conceivable with either customary mash readiness machines, or sledge plants changed by the earlier workmanship.

The fundamental component of the creation is that the functioning surfaces of the breaking office of a reasonably watertight sledge factory are fixed with grating squares made of tar reinforced, or aluminous concrete fortified, Carbonlndum or Corindon blocks, by which directional changes of the water laminas are caused to occur by the association between the tips of the turning hammer, the stringy material being dealt with and the unpleasant rough surfaces of the covering.

US20090229771A1: An interaction for delivering pellets or granules containing strands of a lignocellulousic material, for use as a feedstock in plastics fabricate, passing on in a dry or wet air stream and applying to the filaments a fluid plan involving at least one polymers, monomers, or oligomers, shaping the strands into a strong item, and separating the strong item to create said pellets or granules. Regularly the channel passes on the filaments in a plant for assembling of fiber board.

DE102011010192B4: These might be normal fiber-containing plant portions of different plants. Especially appropriate for the strategy portrayed are plant parts which are not woody and accordingly contain just limited quantities or no lignin, specifically under 5 wt.% Lignin. Additionally beneficial are plant parts that are not horny to a little degree or not in the least. Cornification is typically set off by drying in plant filaments. This is because of the expulsion of water between the cellulose particles covalent bonds, by which the plant filaments become fragile and the inclination to break increments. It is accordingly proposed to utilize those pieces of plants which have not been dried.

There are various tropical plants that produce organic product or other helpful groceries. These sorts of plants are famous for gathering, and consequently development of such plants is normal. Be that as it may, except for the natural product itself, most of the material related with gathering the product of these plants is by and large viewed as waste material. Likewise, the sinewy stalks of such plants are regularly discarded in landfills or in different habits that are either not useful for the climate or, now and again, may really hurt the climate. Albeit a portion of the disposed of plant matter might be utilized as normal compost, there might be even more uses for the stringy stalks of whatever plants.

NON – PATENT LITERATURE STUDY

1.A. M. Neville, Properties of Concrete, Pearson Education Limited, Edinburgh, UK, 5th edition, 2011.

2.S. Mukhopadhyay and R. Fangueiro, "Physical modification of natural fibers and thermoplastic films for composites - a review," Journal of 8ermoplastic Composite Materials, vol. 22, no. 2, pp. 135–162, 2009.

3.A. Dhawan, N. Gupta, R. Goyal, and K. K. Saxena, "Evaluation of mechanical properties of concrete manufactured with fly ash, bagasse ash and banana fibre," Materials Today, vol. 44, 2020.

Banana stalks are one illustration of a tropical plant that has a stringy tail that is regularly squandered. In such manner, the banana tail kicks the bucket after the organic product is created and collected, and it is normal for the stalks, which are commonly sliced off to reap the bananas, to be discarded. These stringy stalks of the banana tree and some other tropical plants can have as much as 93% to 96% of their weight involved water and normal latex content that might incorporate an assortment of resinous and sticky substances. In like manner, to create serviceable or useable strands, the stringy material should be cleaned and handled. Specifically, a large part of the liquid inside the stalks should be eliminated, and the latex or other normal resinous substances should likewise be removed or cleaned out.

RESEARCH STATEMENT

The utilization of cellulosic strands like banana, pineapple, sisal, henequen, abaca, flax, coir, jute, hemp also, others as fortifications have been depicted in a few explores. Presently, rising thoughtfulness regarding banana strands has been essentially expanded in numerous development fills in as a promising building up material [1]. Notwithstanding the past investigations that have demonstrated the positive effect of utilizing banana filaments in development materials [2]. Banana strands are relatively in costly, bounteously existing and its extraction energy is low, which has a significant designing advantage. Banana strands are lignocellulose bast filaments got from the pseudo-stem of the banana plant (*Musa sepientum*). Such fiber is reasonable to be utilized as building up material with moderately suitable mechanical properties [3].

This present research expects to upgrade the mechanical legitimacies of the supported cement footers utilizing banana fiber bars. To accomplish this point, a few lab tests have been performed to discover the capacity of banana fiber bars for working on the properties of cement. The synthetic and actual properties of the fiber material are significantly examined. Through this review, the most basic elements influencing the exhibition of flexure conduct of supported cement (RC) radiates utilizing banana fiber bars are researched. Besides, the impacts of banana fiber bars with various substantial grades were investigated.

METHODOLOGY

The schematic representation of proposed methodology was presented in the Figure (**Figure. 1**). The used strands were imported as single filaments from India, and many tests were performed like a rigidity with a manual assembling at the research center. We made a heap of strands with a

solidifying rate not surpass 10 %. Then, at that point, we adjusted the examples in the model with various measurements to play out a few tests. In this review, the mathematical properties of banana fiber bars have been investigated. To give the homogeneous between the banana fiber bars and concrete, the banana strands have been treated with NAOH prior to utilizing it as bars. This is credited to the cement can be addressed as soluble base in which the pH esteem is more than 7 and banana fiber is acidic material that under 6.

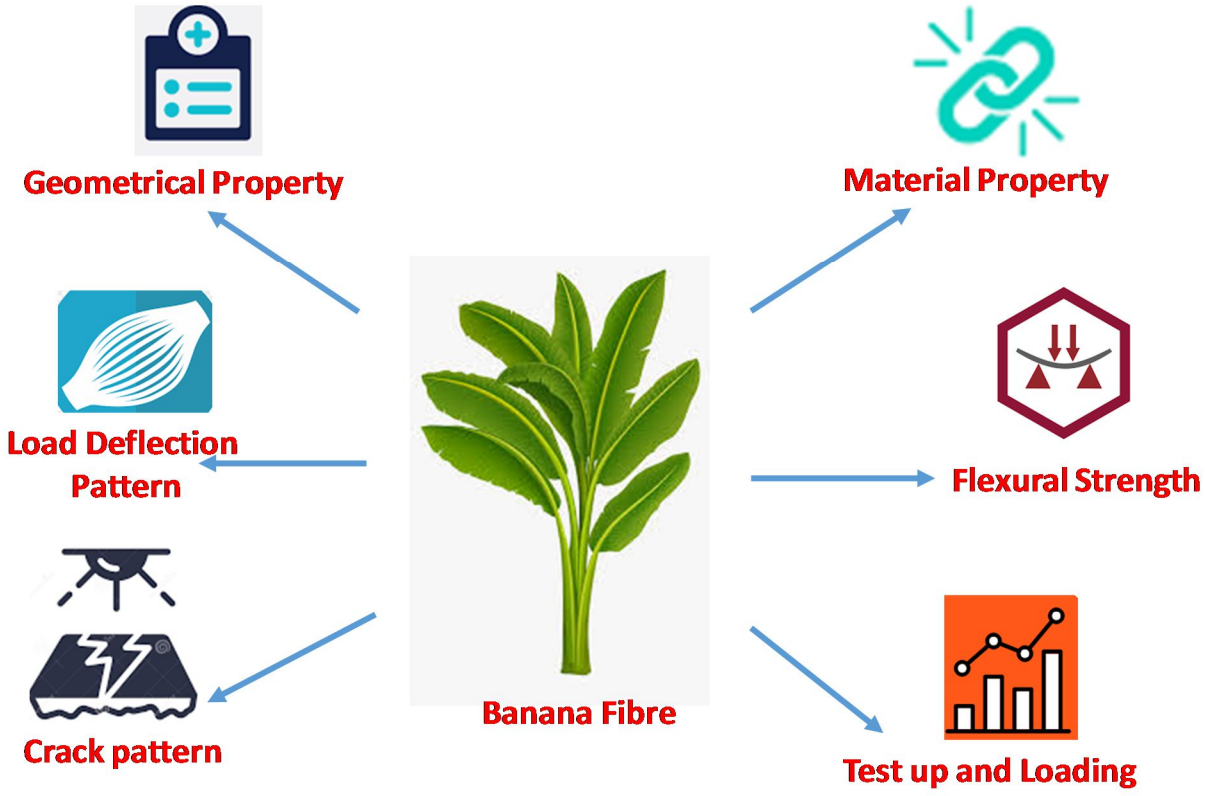


Figure. 1. Schematic view of methodology adapted in the present research in banana fibre.

The detailed chemical comparison between the different species of banana fibre was presented (**Figure. 2**). The different chose filaments properties are selected Poovan, Red banana, Nendran and Manzano. Banana strands are for the most part comprised of lignocelluloses materials, which contain Celluloses, Hemicelluloses, Lignin, and Pectin. The specific composition of different banana species and their banana fiber is reserved by chemical analysis.

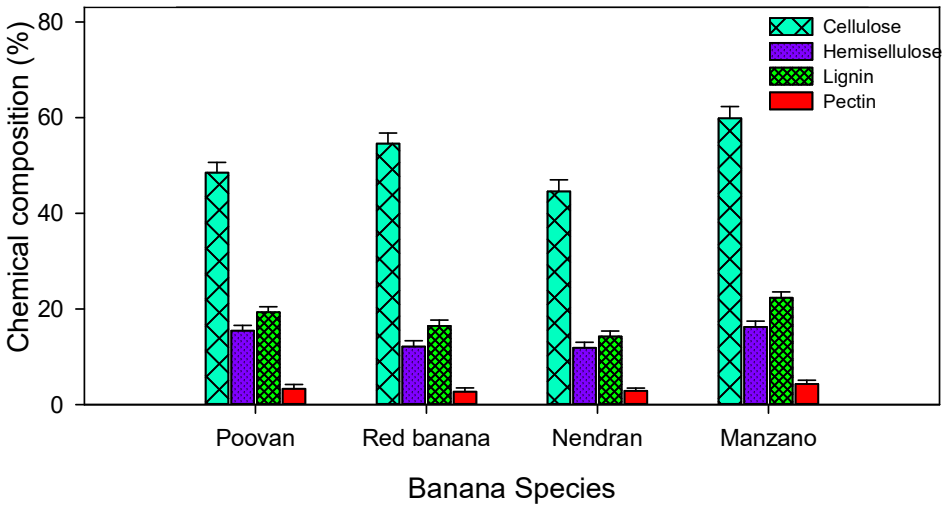


Figure. 2. Chemical Composition different banana fibers extracted from different banana species.

The stress and strain investigation revealed that significant strain (%) was observed in different banana species with Poovan (1.03%), Red banana (1.67%), Nendran (1.24%), and Manzano (1.36%) respectively. Moreover, the tensile strength (MPa) of the different banana species was also investigated and the results were presented (**Figure. 3**).

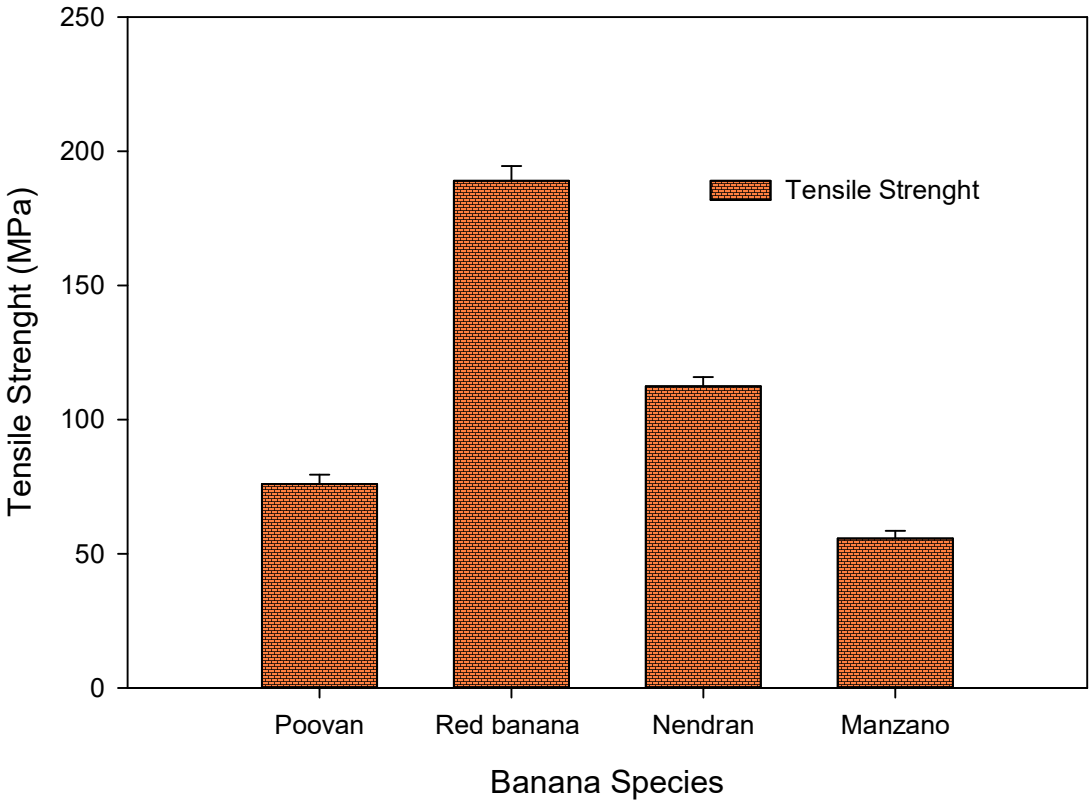


Figure. 3. Tensile properties (MPa) of different banana fibers extracted from different banana species.

The geometry property of banana fibre was also been investigated and the results were presented (**Table. 1**).

Fibre strength	**Poovan**	**Red Banana**	**Nendran**	**Manzano**
Breaking Strength (gf)	462	492	452	432
Breaking Elongation (%)	1.67	1.47	1.43	1.37
Avg. Fibre Diameter (mm)	0.1456	0.1356	0.1436	0.1256

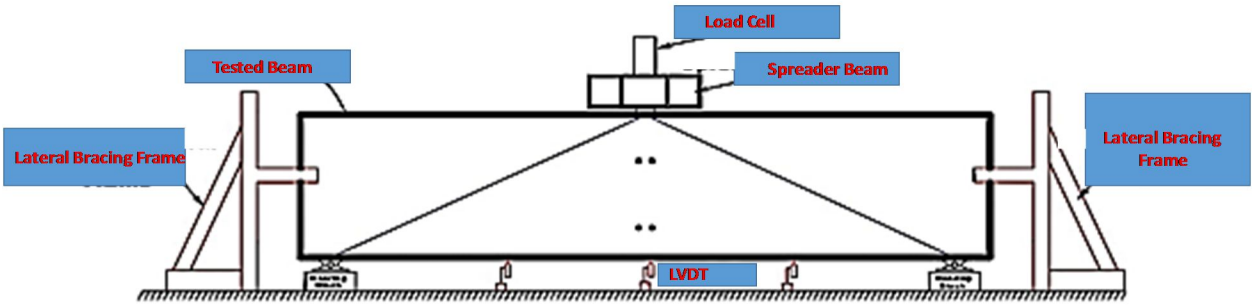


Figure. 4. Schematic view of Test Setup of the proposed work.

The impact of concrete strength on the ultimate load of different banana fibres was displayed (**Figure. 5**). The results showed that the ultimate load was significant in the red banana fibres as compared to other species.

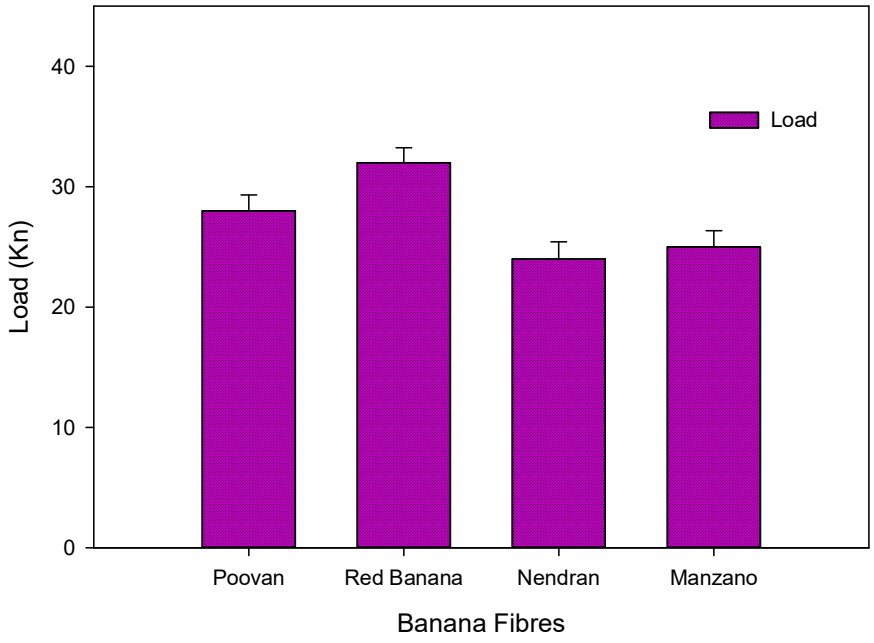


Figure. 5. Effect of concrete strength on the ultimate load on different banana fibres.

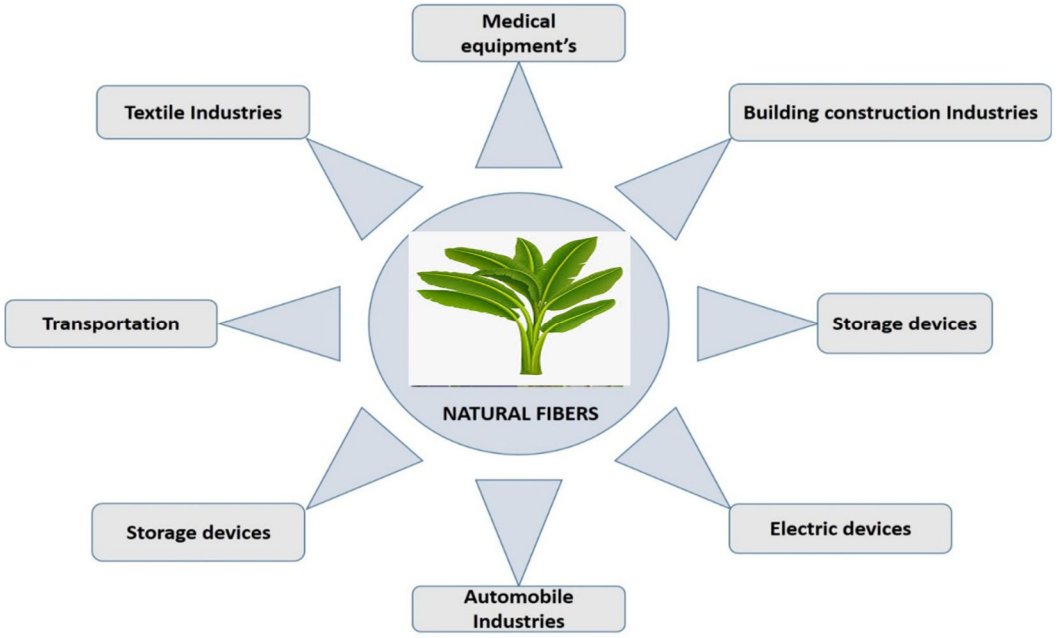


Figure. 6. Multipotent applications of banana fibres in different industrial sectors.

CONCLUSION

The use of banana bars in composite and substantial material is another method which can be monetary, eco-accommodating also, recyclable. Banana fiber has high cellulosic content. These properties are appropriate for its application as building and development material. The general objectives of this exploration is to concentrate because of the banana bars on the flexure conduct of the RC radiates. The flexural strength results from the tried examples showed an expansion in flexural strength with expanding strands content. The present outcome of the research delivers:-

- Banana fiber bars as a support for cement footers give more flexural strength contrasted with plain cement by around twenty-five percentage.
- The substantial strength has no impact on a definitive burden and the disappointment of the cement footers supported utilizing banana fiber bars.

CLAIM (S)

1. A system for producing a plant fiber bio composite material comprising a reducer for separating fibers of the plant material and press for pressing the fibers and removing liquids from the plant material.
2. The system of claim 1 , wherein the mechanical legitimacies of the supported cement footers utilizing banana fiber bars. To accomplish this point, a few lab tests have been performed to discover the capacity of banana fiber bars for working on the properties of cement.
3. The system of claim 1 , wherein the synthetic and actual properties of the fiber material are significantly examined. Through this review, the most basic elements influencing the exhibition of flexure conduct of supported cement (RC) radiates utilizing banana fiber bars are researched
4. The system of claim 1 , wherein the used strands were imported as single filaments from India, and many tests were performed like a rigidity with a manual assembling at the research center. We made a heap of strands with a solidifying rate not surpass 10 %. Then, at that point, we adjusted the examples in the model with various measurements to play out a few tests. In this review, the mathematical properties of banana fiber bars have been investigated.
5. The system of claim 1 , wherein the homogeneous between the banana fiber bars and concrete, the banana strands have been treated with NAOH prior to utilizing it as bars. This is credited to the cement can be addressed as soluble base in which the pH esteem is more than 7 and banana fiber is acidic material that under 6.
6. The system of claim 1 , wherein the stress and strain investigation revealed that significant strain (%) was observed in different banana species with Poovan (1.03%), Red banana (1.67%), Nendran (1.24%), and Manzano (1.36%) respectively. Moreover, the tensile strength (MPa) of the different banana species was also investigated.
7. The system of claim 1 , wherein the banana bars in composite and substantial material is another method which can be monetary, eco-accommodating also, recyclable. Banana fiber has high cellulosic content. These properties are appropriate for its application as building and development material.

ABSTRACT

EXPERIMENTAL STUDIES ON BANANA FIBRE WITH CONCRETE COMPOSITES

The present research dissect the exhibition of utilizing banana fiber bars on the mechanical properties of supported cement footers. To accomplish this point, a few trial considers on the use of banana filaments to improve the strength and properties of substantial designs were performed. The exploratory investigations, are directed dependent on a gathering of examples of cement footers with various angles with the following objectives (i) decide the most basic variables influencing the exhibition of flexure conduct of built up concrete (RC) radiates utilizing banana fiber bars, (ii) concentrate on the blend plan parts of the banana fiber bar in RC, (3) concentrate on the conduct of banana fiber bars on substantial conduct, (4) concentrate on the impact of banana fiber with various substantial grades. Results displays that utilizing banana bars as a support material can essentially expand the capacity to oppose breaking and spalling in cement footers. Overall, utilizing banana bars as a primary support in substantial give more flexural strength with around 45 % contrasted with plain concrete.

FORM 3
THE PATENTS ACT 1970
(39 of 1970)
&
The Patent Rules, 2003
STATEMENT AND UNDERTAKING UNDER SECTION 8
(See Section 8, rule 12)

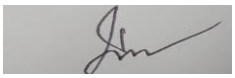
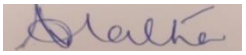
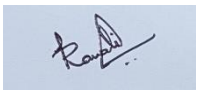
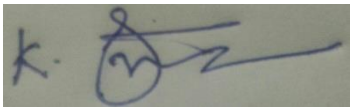
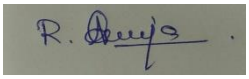
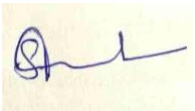
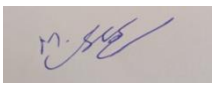
NAME OF APPLICANTS & INVENTORS

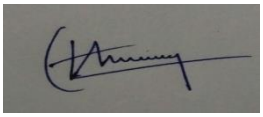
EXPERIMENTAL STUDIES ON BANANA FIBRE WITH CONCRETE COMPOSITES

Name	Nationality	Address
Dr. T. AYYAPPAN	An Indian National	ASSOCIATE PROFESSOR DEPARTMENT OF CIVIL ENGINEERING KODHADA INSTITUTE OF SCIENCE AND TECHNOLOGY FOR WOMEN NEAR RANGANI GUDI, ANANTHAGIRI ROAD, KODAD,SURYAPET DIST, TELANGANA 508206 MOBILE NO.:9962354006 E-MAIL:prayyappan@gmail.com
Dr.A.HEMALATHA	An Indian National	PROFESSOR &HEAD DEPARTMENT OF CIVIL ENGINEERING NPR COLLEGE OF ENGINEERING AND TECHNOLOGY NPR NAGAR, NATHAM, DINDIGUL, TAMIL NADU 624401 MOBILE NO.:9894879990 E-MAIL:hemalathaalagar0@gmail.com
N. V. N. RAVALI	An Indian National	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING CMR COLLEGE OF ENGINEERING & TECHNOLOGY KANDLAKOYA(V), MEDCHAL ROAD HYDERABAD, TELANGANA, INDIA - 501401 MOBILE NO.: 9160776667 E-MAIL: nvnravali@gmail.com
Dr. K. SRINIVASAN	An Indian National	ASSISTANT PROFESSOR (SS) DEPARTMENT OF CIVIL ENGINEERING Dr. MAHALINGAM COLLEGE OF ENGINEERING AND TECHNOLOGY, UDUMALAI ROAD, POLLACHI, TAMIL NADU 642003 MOBILE NO: 8072125425 E-MAIL: salemvasan@gmail.com
Ms.R.ANUJA	An Indian National	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING Dr. MAHALINGAM COLLEGE OF ENGINEERING AND TECHNOLOGY, UDUMALAI ROAD, POLLACHI, TAMIL NADU 642003 MOBILE NO: 8754309011 E-MAIL: anujaramalingam96@gmail.com
Mrs.S.RAMESHWARI	An Indian National	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING Er. PERUMAL MANIMEKALAI COLLEGE OF ENGINEERING PMC MAIN ENTRANCE, CHENNEKOTHAPALLI RD, NALLAGANAKOTHAPALLI, HOSUR,TAMIL NADU 635117 MOBILE NO: 8098886058 E-MAIL:rameshwarime@gmail.com

Mr.M.SUDHARSANAN	An Indian National	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING Dr. MAHALINGAM COLLEGE OF ENGINEERING AND TECHNOLOGY, UDUMALAI ROAD, POLLACHI, TAMIL NADU 642003 MOBILE NO.: 9025638478 E-MAIL: sudharshanmail01@gmail.com
Mr. K HAREESH	An Indian National	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING CMR COLLEGE OF ENGINEERING & TECHNOLOGY KANDLAKOYA(V), MEDCHAL ROAD HYDERABAD, TELANGANA, INDIA - 501401 MOBILE NO.:8121068558 E-MAIL: khareeshcivil@gmail.com
Dr.S.ROBERT RAVI	An Indian National	PROFESSOR DEPARTMENT OF CIVIL ENGINEERING ACE ENGINEERING COLLEGE ANKUSHAPUR, GHATKESAR, HYDERABAD, TELANGANA 501301 MOBILE NO.: 9442513349 E-MAIL: srravi1969@gmail.com
Dr. C. SELIN RAVI KUMAR	An Indian National	ASSOCIATE PROFESSOR DEPARTMENT OF CIVIL ENGINEERING MALLA REDDY ENGINEERING COLLEGE(AUTONOMOUS) MAISAMMAGUDA, SECUNDERABAD, TELANGANA-500100 MOBILE NO: 9840202071 E-MAIL: selin.ravikumar@gmail.com

Hereby declare, We have not made any application for the same / substantially the same invention outside India.

NAME	SIGNATURE	DATE
Dr. T. AYYAPPAN		16/11/2021
Dr.A.HEMALATHA		16/11/2021
N. V. N. RAVALI		16/11/2021
Dr. K. SRINIVASAN		16/11/2021
Ms.R.ANUJA		16/11/2021
Mrs.S.RAMESHWARI		16/11/2021
Mr.M.SUDHARSANAN		16/11/2021

Mr. K HAREESH		16/11/2021
Dr.S.ROBERT RAVI		16/11/2021
Dr. C. SELIN RAVI KUMAR		16/11/2021

To
The Controller of patents, The Patent office at CHENNAI.

FORM 5
THE PATENTS ACT, 1970 (39 of 1970)
&
THE PATENTS RULES, 2003
DECLARATION AS TO INVENTORSHIP
(See section 8, rule 12)

1. Name of Applicant & Inventors

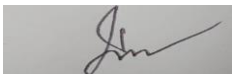
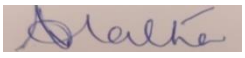
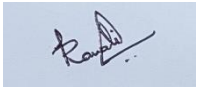
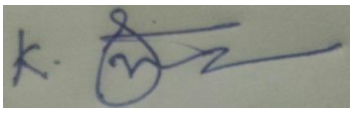
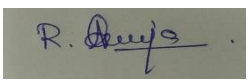
Name	Nationality	Address
Dr. T. AYYAPPAN	An Indian National	ASSOCIATE PROFESSOR DEPARTMENT OF CIVIL ENGINEERING KODHADA INSTITUTE OF SCIENCE AND TECHNOLOGY FOR WOMEN NEAR RANGANI GUDI, ANANTHAGIRI ROAD, KODAD,SURYAPET DIST, TELANGANA 508206 MOBILE NO.:9962354006 E-MAIL:prayyappan@gmail.com
Dr.A.HEMALATHA	An Indian National	PROFESSOR &HEAD DEPARTMENT OF CIVIL ENGINEERING NPR COLLEGE OF ENGINEERING AND TECHNOLOGY NPR NAGAR, NATHAM, DINDIGUL, TAMIL NADU 624401 MOBILE NO.:9894879990 E-MAIL:hemalathaalagar0@gmail.com
N. V. N. RAVALI	An Indian National	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING CMR COLLEGE OF ENGINEERING & TECHNOLOGY KANDLAKOYA(V), MEDCHAL ROAD HYDERABAD, TELANGANA, INDIA - 501401 MOBILE NO.: 9160776667 E-MAIL: nvnravali@gmail.com
Dr. K. SRINIVASAN	An Indian National	ASSISTANT PROFESSOR (SS) DEPARTMENT OF CIVIL ENGINEERING Dr. MAHALINGAM COLLEGE OF ENGINEERING AND TECHNOLOGY, UDUMALAI ROAD, POLLACHI, TAMIL NADU 642003 MOBILE NO: 8072125425 E-MAIL: salemvasan@gmail.com
Ms.R.ANUJA	An Indian National	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING Dr. MAHALINGAM COLLEGE OF ENGINEERING AND TECHNOLOGY, UDUMALAI ROAD, POLLACHI, TAMIL NADU 642003 MOBILE NO: 8754309011 E-MAIL: anujaramalingam96@gmail.com
Mrs.S.RAMESHWARI	An Indian National	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING Er. PERUMAL MANIMEKALAI COLLEGE OF ENGINEERING PMC MAIN ENTRANCE, CHENNEKOTHAPALLI RD, NALLAGANAKOTHAPALLI, HOSUR,TAMIL NADU 635117 MOBILE NO: 8098886058 E-MAIL:rameshwarime@gmail.com

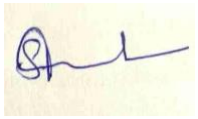
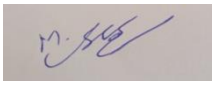
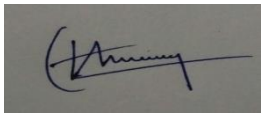
Mr.M.SUDHARSANAN	An Indian National	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING Dr. MAHALINGAM COLLEGE OF ENGINEERING AND TECHNOLOGY, UDUMALAI ROAD, POLLACHI, TAMIL NADU 642003 MOBILE NO.: 9025638478 E-MAIL: sudharshanmail01@gmail.com	
Mr. K HAREESH	An Indian National	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING CMR COLLEGE OF ENGINEERING & TECHNOLOGY KANDLAKOYA(V), MEDCHAL ROAD HYDERABAD, TELANGANA, INDIA - 501401 MOBILE NO.:8121068558 E-MAIL: khareeshcivil@gmail.com	
Dr.S.ROBERT RAVI	An Indian National	PROFESSOR DEPARTMENT OF CIVIL ENGINEERING ACE ENGINEERING COLLEGE ANKUSHAPUR, GHATKESAR, HYDERABAD, TELANGANA 501301 MOBILE NO.: 9442513349 E-MAIL: srravi1969@gmail.com	
Dr. C. SELIN RAVI KUMAR	An Indian National	ASSOCIATE PROFESSOR DEPARTMENT OF CIVIL ENGINEERING MALLA REDDY ENGINEERING COLLEGE(AUTONOMOUS) MAISAMMAGUDA, SECUNDERABAD, TELANGANA-500100 MOBILE NO: 9840202071 E-MAIL: selin.ravikumar@gmail.com	

Hereby declare that the true and first inventor of the invention disclosed in the complete specification filed in pursuance of my application numbered _____ dated _____

TITLE OF THE INVENTION:
EXPERIMENTAL STUDIES ON BANANA FIBRE WITH CONCRETE COMPOSITES

3.Declaration to be given when the application in India is filed by the Applicant in the convention country: -
I the applicant in the convention country hereby declare that our right to apply for a patent in India is by way or assignment from the true and first inventor.

NAME	SIGNATURE	DATE
Dr. T. AYYAPPAN		16/11/2021
Dr.A.HEMALATHA		16/11/2021
N. V. N. RAVALI		16/11/2021
Dr. K. SRINIVASAN		16/11/2021
Ms.R.ANUJA		16/11/2021

Mrs.S.RAMESHWARI		16/11/2021
Mr.M.SUDHARSANAN		16/11/2021
Mr. K HAREESH		16/11/2021
Dr.S.ROBERT RAVI		16/11/2021
Dr. C. SELIN RAVI KUMAR		16/11/2021

To
The Controller of patents, The Patent office at CHENNAI.

FORM 9
THE PATENTS ACT, 1970
(39 of 1970)
&
THE PATENTS RULES, 2003
REQUEST FOR PUBLICATION
(See section 11A(2); rule 24A)

We (state name, address and nationality of Applicant & Inventors)

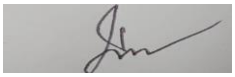
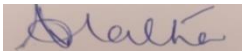
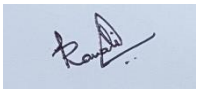
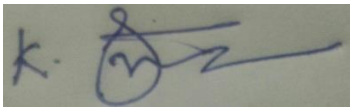
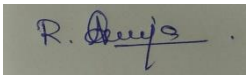
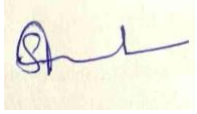
TITLE OF THE INVENTION:

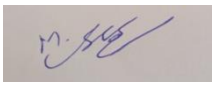
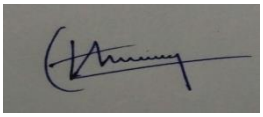
EXPERIMENTAL STUDIES ON BANANA FIBRE WITH CONCRETE COMPOSITES

Name	Nationality	Address
Dr. T. AYYAPPAN	An Indian National	ASSOCIATE PROFESSOR DEPARTMENT OF CIVIL ENGINEERING KODHADA INSTITUTE OF SCIENCE AND TECHNOLOGY FOR WOMEN NEAR RANGANI GUDI, ANANTHAGIRI ROAD, KODAD,SURYAPET DIST, TELANGANA 508206 MOBILE NO.:9962354006 E-MAIL:prayyappan@gmail.com
Dr.A.HEMALATHA	An Indian National	PROFESSOR &HEAD DEPARTMENT OF CIVIL ENGINEERING NPR COLLEGE OF ENGINEERING AND TECHNOLOGY NPR NAGAR, NATHAM, DINDIGUL, TAMIL NADU 624401 MOBILE NO.:9894879990 E-MAIL:hemalathaalagar0@gmail.com
N. V. N. RAVALI	An Indian National	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING CMR COLLEGE OF ENGINEERING & TECHNOLOGY KANDLAKOYA(V), MEDCHAL ROAD HYDERABAD, TELANGANA, INDIA - 501401 MOBILE NO.: 9160776667 E-MAIL: nvnravali@gmail.com
Dr. K. SRINIVASAN	An Indian National	ASSISTANT PROFESSOR (SS) DEPARTMENT OF CIVIL ENGINEERING Dr. MAHALINGAM COLLEGE OF ENGINEERING AND TECHNOLOGY, UDUMALAI ROAD, POLLACHI, TAMIL NADU 642003 MOBILE NO: 8072125425 E-MAIL: salemvasan@gmail.com
Ms.R.ANUJA	An Indian National	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING Dr. MAHALINGAM COLLEGE OF ENGINEERING AND TECHNOLOGY, UDUMALAI ROAD, POLLACHI, TAMIL NADU 642003 MOBILE NO: 8754309011 E-MAIL: anujaramalingam96@gmail.com
Mrs.S.RAMESHWARI	An Indian National	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING Er. PERUMAL MANIMEKALAI COLLEGE OF ENGINEERING PMC MAIN ENTRANCE, CHENNEKOTHAPALLI RD, NALLAGANAKOTHAPALLI, HOSUR,TAMIL NADU 635117 MOBILE NO: 8098886058 E-MAIL:rameshwarime@gmail.com

Mr.M.SUDHARSANAN	An Indian National	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING Dr. MAHALINGAM COLLEGE OF ENGINEERING AND TECHNOLOGY, UDUMALAI ROAD, POLLACHI, TAMIL NADU 642003 MOBILE NO.: 9025638478 E-MAIL: sudharshanmail01@gmail.com
Mr. K HAREESH	An Indian National	ASSISTANT PROFESSOR DEPARTMENT OF CIVIL ENGINEERING CMR COLLEGE OF ENGINEERING & TECHNOLOGY KANDLAKOYA(V), MEDCHAL ROAD HYDERABAD, TELANGANA, INDIA - 501401 MOBILE NO.:8121068558 E-MAIL: khareeshcivil@gmail.com
Dr.S.ROBERT RAVI	An Indian National	PROFESSOR DEPARTMENT OF CIVIL ENGINEERING ACE ENGINEERING COLLEGE ANKUSHAPUR, GHATKESAR, HYDERABAD, TELANGANA 501301 MOBILE NO.: 9442513349 E-MAIL: srravi1969@gmail.com
Dr. C. SELIN RAVI KUMAR	An Indian National	ASSOCIATE PROFESSOR DEPARTMENT OF CIVIL ENGINEERING MALLA REDDY ENGINEERING COLLEGE(AUTONOMOUS) MAISAMMAGUDA, SECUNDERABAD, TELANGANA-500100 MOBILE NO: 9840202071 E-MAIL: selin.ravikumar@gmail.com

Hereby request for early Publication of our application for Patent No. _____ dated _____ under section 11A(2) of the act.

NAME	SIGNATURE	DATE
Dr. T. AYYAPPAN		16/11/2021
Dr.A.HEMALATHA		16/11/2021
N. V. N. RAVALI		16/11/2021
Dr. K. SRINIVASAN		16/11/2021
Ms.R.ANUJA		16/11/2021
Mrs.S.RAMESHWARI		16/11/2021

Mr.M.SUDHARSANAN		16/11/2021
Mr. K HAREESH		16/11/2021
Dr.S.ROBERT RAVI		16/11/2021
Dr. C. SELIN RAVI KUMAR		16/11/2021

To
The Controller of patents, The Patent office at CHENNAI.