भाकृअनुप-राष्ट्रीय प्राकृतिक रेशा अभियांत्रिकी एवं प्रौद्योगिकी संस्थान
ICAR-National Institute of Natural Fibre Engineering and Technology
(पूर्व भाकृअनुप-निरजैफ्ट Erstwhile ICAR-NIRJAFT)
भारतीय कृषि अनुसंधान परिषद INDIAN COUNCIL OF AGRICULTURAL RESEARCH
12, रीजेन्ट पार्क, कोलकाता -700040 12, REGENT PARK, KOLKATA -700040
(आईएसओ 9001:2015 प्रमाणित संस्थान ISO 9001:2015 CERTIFIED INSTITUTE)
दूरभाष Phone: 2471-1807 (कार्यालय Office), 24212115/16/17 (ईपीबीएक्स EPBX), फैक्स Fax: ++91-33-24712583
ई-मेल E-Mail- director.nirjaft@icar.gov.in , nirjaftdirectorcell13@gmail.com,
वेबसाइट/Website: www.nirjaft.res.in

ICAR-National Institute of Natural Fibre Engineering and Technology, (Erstwhile ICAR-NIRJAFT) is inviting an **Expression of Interest (EOI)** regarding the Technology Transfer through Non-Exclusive License of eight very potential technologies as follows :

1.	Automatic Electronic Fibre Bundle Strength Tester for Multiple Fibre
2.	Digital Fineness Meter for Multiple Fibres
3.	Digital Colour Lustre Meter for Multiple Fibres
4.	Thermal Insulation Value Tester
5.	Electronic Fibre Bundle Strength Tester for Jute (Semi-Auto)
6.	A System For Extraction Of Fibre From Flax Stalk
7.	Jute Stick Activated Carbon (JAC)
8.	Jute Leaf Drink (JLD)

Interested parties are requested to submit their details within 28 days, from date of publication of this advertisement, along with their specialization and credentials.

For detail, interested parties, who are interested for technology Serial No. 1-6, may please visit Institute's website www.nirjaft.res.in.

Interested parties, who are interested for technology Serial No. 7 & 8 may please visit Agrinnovate India Limited(AgIn) website http://www.agrinnovateindia.co.in/technologies

Automatic Electronic Fibre Bundle Strength Tester for Multiple Fibre

Background:

Natural fibres are not graded properly and all qualities of produce are sold in one common lot. Thus farmers producing better qualities are not assured of a better price. Besides, the chain of middle man in agricultural market is so large that the share of the farmers is reduced substantially. In order to prevent such type of deprivation it was a crying need to develop a set of instruments especially for jute, ramie, sisal, sunhemp and flax fibres growers to be used for finding the correct grade of the fibre, as the price of the products depends upon the grades of the fibre.:

Technology Details:

Important contributions have been made by NINFET in the domain of instrumentation in relation to grading for jute, ramie, sisal, sunhemp and flax fibres. The instruments Automatic Electronic Fibre Bundle Strength Tester, which are now being used for accurate measurement and testing of strength, an important parameter for quality assessment of the fibre and thereby preventing deprivation of the farmers from getting their proper dues.

Digital Fineness Meter for Multiple Fibres

Background:

The main problem is to measure the fibre fineness where a widely variety fibre parameters are present using a system which will be least dependent upon the operating staff and environmental variables but automatically convert and compute results that will be produced digitally within a very short span of time.

Technology Details:

The whole process will be controlled by a central processing unit using computerized micro controller. This multifunctional controller will first run a small motor to produce the airflow through the sample under test. The controller in turn measures the pressure difference of the orifice plate using sensitive sensors. These sensors will provide their results which will be compared and computed in the controller unit to produce results. These result will be shown digitally on LCD display instantly.

Digital Colour Lustre Meter for Multiple Fibres

Background:

To compare the colour & lustre of jute and others natural fibres with respect of the absolute value of white and to present the result in digital form. A low cost instrument for measuring the colour and lustre of jute and allied fibre has been developed by NINFET almost two decade ago using the principal of reflectance photometer, which can measure the brightness and lustre of the fibre sample in terms of diffused and secular reflectance using photo electric cell. But this method is not sufficiently accurate as here the illumination of light source and parameters of the output from the light sensor are manually adjustable, and thus the method provides a probable source of error:

Technology Details:

To combat the problem, types of instrument have been developed. There is provided a system for colour and/or lustre based lingo-cellulosic fibre grading comprising a light source for illuminating the fibre sample surface to be tested; sensor to detect reflection from the fibre sample surface a computing unit operatively connected to convert the said detected reflection to its equivalent whiteness value for grading of the fibre sample according to the computed colour and/or lustre.

Thermal Insulation Value Tester

Background:

The thermal insulation property of textile materials is considerable practical importance, particularly when these materials are used in clothing, winter garments, blanket, quilt, carpet, floor coverings, room insulation etc. Nowadays jute and others natural fibres is used to produce various products either by weaving and knitting and/or by nonwoven technologies. Hard boards from jute stick particles, dust and sticks of other plants of allied fibres are also very much under production. The resistance offered by a textile material to the movement of heat through it, is obviously of critical importance to its comfort. A suitable instrument for measuring the thermal resistance or insulation value of the products is very much essential need of the day. There is no single instrument available so far. An instrument, which can accommodate both thick and thin textile materials and non-textile sheet like products, may need to meet the demand of the present day. In view of the above the instrument has been developed for quick assessment of TIV properties of textile and non-textile materials.

Technology Details:

In this instrument, the thermal resistance of the material is determined by using two-disc method, an application of Lee's disc apparatus tp textiles. Following internationally accepted standards, guarded two plate method has been employed to develop the instrument. The instrument can be used for the products having the thickness of wider range and under the more relaxed atmospheric control.

Electronic Fibre Bundle Strength Tester for Jute (Semi-Auto)

Background:

For measuring bundle strength of jute & allied fibres, Bundle Strength Testing Instrument is used, which has been developed by ICAR-NINFET and accepted by Bureau of Indian Standards. The instrument is controlled by hand so the human errors are there. To eliminate the human error totally an electronic automated instrument has been developed with the aim to replace the manual system with automatic system. The instrument is more precise, very simple, easy to operate and maintain.

Technology Details:

The conventional instrument for jute fibre bundle strength tester has been modified and fabricated by introducing motorized constant loading system and digital representation of data. In this way possibility of human error in the testing method has been eliminated and also the testing time become less. In addition to breaking strength it can display the tenacity/quality index value, time to break and breaking extension (elongation). Moreover it can store the results in the built-in memory unit of the instrument, which can be down loaded in a computer at later stage in Excel format using USB interface.

Flax Fibre extractor

Background:

Extraction of fibre from Indian flax plant is gaining attention day by day. The outer bark covering the stalks of the plant contains the valuable fibre. It can be separated by retting the green plant followed by drying and scutching in a mechanical extractor. Design and development of an efficient mechanical extractor is the need of the hour:

Technology Details:

The present innovation (extractor) is having numbers of pairs of scutching rollers. The arrangement helps in breaking the dried stalk at multiple points for easy separation of fibers from the stalk. In operation, the manually fed dried stalk at one end/feed end passed through these set of paired rollers and fibre is collected by the same person at the opposite/delivery end.

Jute Activated Carbon (NINFET-JAC) as low-cost clean-up agent

Background:

The analysis of pesticide residues in agricultural and food commodities often suffers from matrix effects, leading to inaccurate estimation of residues. A clean-up step is therefore necessary not only to remove the co-extracted, matrix-derived compounds but also minimise the effects on signal enhancement or suppression of a target pesticide. Among various forms of adsorptive carbons, a commonly used petroleum-derived one is graphitised carbon black (GCB). Nevertheless, as this petroleum-based carbon is high-priced, developing a low-cost carbon clean up agent is highly warranted. Further, there is no information on any sorts of carbon developed from jute stick biomass/ agro-residue for pesticide residue analysis in food commodities.

Technology Details:

The 'golden fibre' of jute (Corchorus sp.) is largely cultivated in many Asian countries including India, Bangladesh, Pakistan, among many others. Around 4 MT of jute stick is generated every year in India, posing disposal challenges for the jute growers. As a natural and an abundant by-product of the jute cultivation system, jute activated carbon (JAC) could be a low-cost clean-up agent as opposed to petroleum-based ones, although its potential has never been folded in food testing.

NINFET-Jute Leaf Drink

Background:

Jute (Corchorus sp.), is a commercial crop grown for yielding the "Golden fibre" and conventionally appreciated in industries for making sacks, coarse clothes and diversified products. Despite of its wide acclaimed functional applications jute has dwindled its identity for gaining significance in commercial diaspora. Income from jute fibre has attained the stagnation point and needs further motivation for the cultivation of jute. Therefore, harnessing jute biomass for alternate application is the need of the hour.

Technology Details:

The utilization of huge jute leaf biomass (approx. 4-6 t/ha, on green weight basis) has opened a new vista towards increasing farmers income from jute cultivation. Jute leaf, a popular vegetable to many countries, contains good amount of antioxidants, minerals, vitamins and protein has been exploited for preparation an enriched herbal beverage. It is apprehended that jute leaf drink constituting large group of organic components would lead to an alternative to the traditional available beverages to the consumers. Major population consuming tea has developed it as a habit, subsequently may contribute in the growth of the jute leaf drink market.

Submission of EoI

Interested companies should submit their **EoI** in a sealed envelope labelled **'TECHNOLOGY NAME"**, addressing the **"DIRECTOR"**, which should be delivered to ICAR-NINFET's office located at **12, Regent Park, Kolkata-700040, West Bengal** with following detailed information of respective parties

1. Company name and address
2. Company profile/ history
3. Legal status (limited liability, sole proprietorship, partnership etc.)
4. Company contact information
5. Copy of certificate of incorporation
6. An outline proposal for functional modality to execute the work

The closing date and time for the receipt of the EoI is 09.08.2022 upto 5.00 P.M.

Minimum Rate of Licence fees and Royalty :

Sl. No.	Name of the Technologies	Proposed License Fee	Propose Royalty
1.	Automatic Electronic Fibre Bundle Strength Tester for Multiple Fibre	Rs. 40,000/- + applicable taxes	5% for initial 3 years and 10% for 4th and 5th year
2.	Digital Fineness Meter for Multiple Fibres	Rs. 40,000/- + applicable taxes	5% for initial 3 years and 10% for 4th and 5th year
3.	Digital Colour Lustre Meter for Multiple Fibres	Rs. 40,000/- + applicable taxes	5% for initial 3 years and 10% for 4th and 5th year
4.	Thermal Insulation Value Tester	Rs. 40,000/- + applicable taxes	5% for initial 3 years and 10% for 4th and 5th year
5.	Electronic Fibre Bundle Strength Tester for Jute (Semi-Auto)	Rs. 40,000/- + applicable taxes	5% for initial 3 years and 10% for 4th and 5th year
6.	A System For Extraction Of Fibre From Flax Stalk	Rs. 40,000/- + applicable taxes	5% for initial 3 years and 10% for 4th and 5th year
7.	Jute Stick Activated Carbon (JAC)	Rs. 1,50,000/- + applicable taxes	5% for initial 3 years and 10% for 4th and 5th year
8.	Jute Leaf Drink (JLD)	Rs. 1,00,000/- + applicable taxes	5% for initial 3 years and 10% for 4th and 5th year

Note:

This EOI is an invitation to receive responses from prospective parties in keeping with the terms and conditions expressed herein. ICAR-NINFET is not bound to accept any of the EoI responses received and reserves the right to cancel this EoI at any time, and for any reason.

ICAR-NINFET will consider all EoI responses received and may enter into further discussions with parties which satisfy the requirements of this EoI in order to determine eligibility for the offer. Failure by a party to provide information that is essential in the evaluation of this EoI may result in rejection of that party's EoI.

For further information, contact us at: 033-24212115/16/17 or email: director.ninfet@icar.gov.in , nirjaftdirectorcell13@gmail.com, nirjaftitmu@gmail.com ; Find out more about ICAR-NINFET on our website: www.nirjaft.res.in