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Tender Details

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Basic Details

Organisation Chain	Department of Pharmaceuticals||National Institute of Pharmaceutical Education and Research (NIPER) Guwahati		
Tender Reference Number	NIPERG/SnP/01/EoI-Tech Transfer/26-27/09		
Tender ID	2026_MCF_835805_1		
Tender Type	EOI	**Form of contract**	EOI
Tender Category	Services	**No. of Covers**	2
Payment Mode	Not Applicable	**Is Multi Currency Allowed For BOQ**	No
Is Multi Currency Allowed For Fee	No		

Cover Details, No. Of Covers - 2

Cover No	Cover	Document Type	Description
1	Fee/PreQual/Technical	.pdf	Technical Bid
2	Finance	.xls	Financial Bid

Tender Fee Details, [Total Fee in ₹ * - 0.00]

Tender Fee in ₹	0.00		
Fee Payable To	NA	**Fee Payable At**	NA
Tender Fee Exemption Allowed	NA		

EMD Fee Details

EMD Amount in ₹	0.00	**EMD Exemption Allowed**	NA
EMD Fee Type	NA	**EMD Percentage**	NA
EMD Payable To	NA	**EMD Payable At**	NA

Work /Item(s)

Title	EOI for TECHNOLOGY TRANSFER/ COLLABORATION, INNOVATION, etc OF TECHNOLOGIES DEVELOPED				
Work Description	EOI for TECHNOLOGY TRANSFER/ COLLABORATION, INNOVATION, etc OF TECHNOLOGIES DEVELOPED at NIPER Guwahati				
Pre Qualification Details	Please refer Tender documents.				
Tender Value in ₹	1	**Product Category**	Miscellaneous Services	**Sub category**	TECHNOLOGY TRANSFER
Contract Type	Tender	**Bid Validity(Days)**	90	**Period Of Work(Days)**	365
Location	NIPER Guwahati	**Pincode**	781101	**Pre Bid Meeting Place**	NA
Pre Bid Meeting Address	NA	**Pre Bid Meeting Date**	NA	**Bid Opening Place**	NIPER Guwahati

Critical Dates

Publish Date	22-Apr-2026 05:50 PM	**Bid Opening Date**	13-May-2026 09:00 AM
Document Download / Sale Start Date	22-Apr-2026 05:55 PM	**Document Download / Sale End Date**	13-May-2026 09:00 AM
Clarification Start Date	NA	**Clarification End Date**	NA
Bid Submission Start Date	23-Apr-2026 09:00 AM	**Bid Submission End Date**	13-May-2026 09:00 AM

Tender Documents

NIT Document

S.No	Document Name	Description	Document Size (in KB)
1	Tendernotice_1.pdf	EOI for TECHNOLOGY TRANSFER/ COLLABORATION, INNOVATION, etc OF TECHNOLOGIES DEVELOPED	21495.91

Work Item Documents

S.No	Document Type	Document Name	Description	Document Size (in KB)
1	Tender Documents	EOI Technology Transfer.pdf	EOI for TECHNOLOGY TRANSFER/ COLLABORATION, INNOVATION, etc OF	21495.91

				TECHNOLOGIES DEVELOPED at NIPER Guwahati	

Tender Inviting Authority	
Name	Director NIPER Guwahati
Address	SilaKatamur, Halugurisuk, P.O. Changsari, Dist Kamrup, Assam, Pin 781101

Tender Creator Details	
Created By	Gitartha Goswami
Designation	Assistant Registrar
Created Date	22-Apr-2026 05:44 PM

NIPER GUWAHATI

EXPRESSION OF INTEREST (EoI) through CPPP (e-publishing)

FOR

TECHNOLOGY TRANSFER/COLLABORATION, INNOVATION, COMMERCIALIZATION AND TRANSLATION RESEARCH OF TECHNOLOGIES DEVELOPED AT NATIONAL INSTITUTE OF PHARMACEUTICAL EDUCATION & RESEARCH (NIPER) GUWAHATI, ASSAM

No. NIPER-G/S&P/01/EoI-Tech Transfer/2026-27/...09...
Date: 22/04/2026

NATIONAL INSTITUTE OF PHARMACEUTICAL EDUCATION AND RESEARCH GUWAHATI
Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers, Government of India
SilaKatamur, Halugurisuk,Changsari, Kamrup, Assam-781101, India

Ph: 7099007822
Email: *purchase@niperguwahati.in*

No. NIPER-G/S&P/01/EoI-Tech Transfer/2026-27/ 09 Date: 22/04/2026

ABOUT NIPER-GUWAHATI

National Institute of Pharmaceutical Education and Research (NIPER Guwahati) is the fifth institution to be included in the list of premier institutes under the Department of pharmaceuticals, ministry of chemicals and fertilizers, government of India. NIPER-Guwahati started functioning since 2008. This institute is a premier institute in the northeast region of our country for providing high quality education and research in pharmaceutical sciences.

It is also a place where knowledge in science and education stimulates technological innovation to inspire the student's community to pursue scientific or industrial careers under the national mission of Make in India and others.

VISION

To be an institution of excellence in promoting high standard pharmaceutical education & research through the dissemination of knowledge for the ultimate benefit of society and pharmaceutical industries.

At present, NIPER offers postgraduate and doctoral research programmes in Pharmacology and Toxicology, Pharmacy Practice, Biotechnology, Pharmaceutics, Pharmaceutical Analysis, Medicinal Chemistry, Pharmaceutical Technology (Formulations), Medical Devices and Biopharmaceuticals. The management of NIPER provides encouragement to faculty to pursue sponsored research of high relevance to pharma industry and offer industrial consultancy services to further strengthen the bonds with pharmaceutical industry from Northeastern and other regions.

PREPARATION AND SUBMISSION OF PROPOSALS IN HARD COPY/SEALED ENVELOP:

1. EoI is hereby invited by the undersigned, on behalf of Director, NIPER Guwahati from interested parties, including companies, research organizations, startups and entrepreneurs so as to reach in this office on or before **13th May 2026 up to 2:00 pm** and the proposals shall be opened on the same day at 2:30pm in Stores and Purchase Department, NIPER Guwahati by the Tender Opening Committee.

2. Tenders are to be submitted as per two bid system i.e., - Technical Bid and Financial Bid.

3. Both the bids (**Technical and Financial**) should be separately submitted in a sealed envelope super-scribing as "**Technical Bid**" and "**Financial Bid**", respectively. Both the envelops i.e. Technical Bid and Financial Bid must be kept in one bigger envelope and duly sealed and superscribing the subject "**EoI under Ref. No. NIPER-G/S&P/01/EoI-Tech-Transfer/2026-27/.....09... dated 22/04/2026 for TECHNOLOGY TRANSFER/COLLABORATION, ETC OF TECHNOLOGIES DEVELOPED AT NIPER GUWAHATI**" at the top of the envelope. If it is not so done or wrongly done, that tender shall be liable to rejection. The tender should reach this institute on or **before 13th May 2026 up to 2:00 pm** and will be opened on the same day at 3:30 pm. You may intimate dispatch of the tender to the e-mail address: purchase@niperguwahati.in

4. Technical Bid should contain the bidders' proposal as per format given at **Annexure-II.**

5. Financial Bid should be duly filled as per format given in **Annexure-III**. No overwriting, corrections, interlineations etc. are permitted in the Financial Bid. If such overwriting, corrections, interlineations etc. are found, bid shall be liable to rejection. The date and time of opening of Price Bid shall be informed to all such Tenderers who qualify in technical evaluation. The tenderer's representative may choose to attend the opening of Price bid.

6. Tenders should be addressed and submitted to "**The Director, National Institute of Pharmaceutical Education and Research- Guwahati, Sila Katamur (Halugurisuk), P.O.: Changsari, Dist: Kamrup, Assam, Pin: 781101**

7. In the event that only a single EOI is received, NIPER Guwahati reserves the right to proceed with the evaluation and further process with the said applicant, subject to meeting the Institute's requirements.

8. Each complete set of bidding documents may be downloaded by the bidders from the CPP portal or NIPER- Guwahati website http://niperguwahati.ac.in free of cost.

9. Bids will be opened in the presence of Bidders' authorized representatives who choose to attend at the specified date and time.

NIPER-Guwahati invites Expression of Interest (EoI) from interested parties for transfer and/or licensing of patent rights pertaining to technologies developed at NIPER Guwahati.

NIPER Guwahati is engaged in advanced research in pharmaceutical sciences and related domains, resulting in the development of innovative technologies and intellectual property. In order to facilitate commercialization, technology transfer, and industry collaboration, the Institute seeks to partner with suitable entities for the transfer and/or licensing of its patent rights.

The list of available patents/technologies is provided in *Annexure I*.

Interested parties, including companies, research organizations, startups and entrepreneurs, may submit their Expression of Interest (EoI) for one or more patent applications/technologies available with the Institute.

Validity of EOI

- The Proposals against this tender shall remain valid for a period of **90 days** from the date of the opening of bids. In exceptional cases, the Bidders may be requested by the Institute to extend the validity of their Bids up to a specified period. The Bidders, who agree to extend the Bid validity, are expected to extend the same without any change or modification.

Scope of EOI

The EOI is invited for:

- Transfer and/or licensing of patent rights
- Commercialization of technologies
- Collaborative development and scaling of innovations

Submission of EOI

Interested applicants are requested to submit their EOI along with relevant details including:

- Profile of the organization
- Area of interest / specific technology (if any)
- Proposed plan for utilization/commercialization
- Contact details

EOIs should be submitted within the prescribed timeline to the contact details mentioned below.

Confidentiality

All information shared in response to this EOI shall be treated as confidential and will be used solely for the purpose of evaluation.

Contact Details

The Director
National Institute of Pharmaceutical Education and Research (NIPER), Guwahati
SilaKatamur (Halugurisuk), P.O.: Changsari, Dist: Kamrup, Assam, Pin: 781101

Email: purchase@niperguwahati.in
Phone: 7099007822

NIPER Guwahati reserves the right to accept or reject any or all EOIs without assigning any reason thereof.

Date: 22/April/2026
Place: NIPER-G.

Stores and Purchase Officer

Annexure I

Technologies Developed at NIPERG

I. TO DEVELOP PHYTOPHARMACEUTICALS WITH NORTHEAST MEDICINAL PLANT AGAINST CANCER AND ALLIED BACTERIAL INFECTIONS

1. Background of the Project

The project involves the systematic development of plant-derived extracts and fractions for therapeutic use, with a focus on antibacterial and anticancer activity. Initial phase including plant material procurement, extraction, and phytochemical profiling have been completed. Preliminary in-vitro studies indicate promising anticancer and antibacterial efficacy. Ongoing work includes bioactive fractionation and biological evaluation to identify active constituents. The overarching goal is to develop a standardized phytopharmaceutical formulation (IND) for the treatment of breast cancer and bacterial infections.

Preclinical, clinical, and regulatory activities, including third-party laboratory validation will be conducted in collaboration.

2. Objectives

Completed:

- Identified, collected a medicinal plant with potential anti-proliferative properties against cancer cells.
- Pilot scale extraction and identification of Bioactive extract by Performing in-vitro anticancer and antibacterial efficacy studies.
- Validation of phytochemicals in the obtained extract.
- Identified key phyto metabolites by LCMS/MS based metabolomics study.

To be completed:

- Conduct in-vivo efficacy and toxicity studies as per regulatory guidelines.
- Develop optimized and scalable plant-extract formulations.
- Characterize formulations in compliance with ICH guidelines.
- Assess efficacy and safety in human subjects in relevant cancer models (breast cancer).
- Prepare comprehensive technical reports, publications, and translational outputs.

3. Expected Collaboration from Industry

- **Pre-clinical industrial validation:** Facilitation of extensive bioactive fraction testing and execution of production trials to ensure scalability of the developed product.
- **Regulatory clearance:** Management of CDSCO–DCGI regulatory pathways for phytopharmaceutical drug approval, including assessment of efficacy, safety, and standardized composition for IND submission.
- **Market analysis and promotion:** Evaluation of market potential and development of strategic marketing plans for the final product.

II. SMRITICALM: A POLYHERBAL FORMULATION WITH ANTI-INFLAMMATORY AND NEUROPROTECTIVE POTENTIAL

Abstract:

SmritiCalm is a novel polyherbal formulation comprising spray-dried extracts of *Bacopa monnieri*, *Asparagus racemosus*, and *Piper longum*, developed by integrating the traditional Ayurvedic concept of *Ksheera Basti* with a reverse pharmacological approach and modern scientific validation. The formulation and its process are protected under **Indian Patent No. 386296 (granted on 20/06/2020)**, highlighting its translational and commercial potential **(Developed with the funding support of DRDO LSRB-335 and NIPERG)**

The formulation is optimized for dual delivery: rectal administration (enema), enabling effective management of inflammatory bowel disease (IBD), and oral capsule form for maintenance therapy and neuroprotection. Preclinical evaluation demonstrated significant efficacy in DSS-induced colitis and MPTP-induced neurotoxicity models.

Phytochemical analysis confirmed the presence of bioactive constituents such as bacopaside and sarsasapogenin, known for their anti-inflammatory and cognition-enhancing properties.

SmritiCalm shows promise as a nutraceutical/ayurceutical candidate for managing inflammatory and neurodegenerative disorders. Further studies including stability assessment, pre-clinical toxicity, clinical validation, and regulatory approval are warranted for commercialization.

III. GLUCOBREATHE AND DIA DILL: A STANDARDIZED *DI BASED* HERBAL AND PHYTOPHARMACEUTICAL INTERVENTIONS FOR DIABETES AND ITS COMPLICATIONS

Abstract

DI, a medicinal plant widely used in the traditional healthcare practices of North-East India, has been documented in classical literature for its benefits in respiratory disorders and is also employed ethnomedicinally for diabetes management. Despite its therapeutic relevance, no standardized formulation from this species had been scientifically validated until now.

In the present study, a standardized extract and granule formulation, **Glucobreathe**, was developed and evaluated for its efficacy in experimental models of acute lung injury and diabetes. The process and product are protected under Indian **Patent No. 542628 (granted on 13/03/2023),** enhancing its commercial and translational value.

Phytochemical analysis confirmed the presence of key bioactive constituents, including betulinic acid, dillenetin-7-O-glucoside, isorhamnetin, and hesperidin. Preclinical studies demonstrated that Glucobreathe™ significantly reduced inflammatory responses in acute lung injury, improving lung architecture and respiratory parameters. In diabetic models, the formulation enhanced insulin secretion and improved glycemic control, suggesting mechanisms involving modulation of hyperglycemia and promotion of insulin release.

The formulation has been successfully validated at pilot scale (three batches) for standardized extract and granule preparation at CSIR-IIIM, Jammu, ensuring reproducibility and scalability.

Glucobreathe represents a first-of-its-kind standardized *DI*-based formulation with dual therapeutic benefits in pulmonary protection and metabolic regulation, highlighting its potential as a scientifically validated traditional medicine. This work was supported by: Department of Biotechnology (DBT), Government of India and the Infrastructure support from North Eastern Council, Ministry of DoNER, Government of India

Translational Status & Future Requirements

Further studies are required for successful commercialization, including:

- Long-term preclinical toxicity studies (6 months duration)
- Stability studies
- Large-scale validation
- Clinical trials

Invitation for Technology Transfer/Joint collaboration

We invite herbal and nutraceutical industries to collaborate for technology transfer/collaboration for further commercialization of Glucobreathe. This represents a valuable opportunity to license a patented, pilot-scale validated, and scientifically backed herbal product.

Collaborative Opportunity for Phytopharmaceutical Development

Industry partners will also have the opportunity to collaborate in the development of phytopharmaceutical **"Dia Dill"** from standardized extracts of *DI* fruits.

Exploratory studies in this direction are currently in progress with funding support from the **Department of Pharmaceuticals under CoE of the PRIP scheme to NIPERG.**

Conclusion

Glucobreathe and **Dia Dill** offers a unique dual-action herbal solution targeting both respiratory inflammation and metabolic disorders, with strong intellectual property protection, pilot-scale validation, and commercialization potential.

IV. TO DEVELOP PHYTOPHARMACEUTICALS WITH NORTHEAST MEDICINAL PLANT AGAINST METABOLIC DISORDER

Background of the Project

Fatty liver disease (NAFLD/MASLD) is a chronic metabolic condition marked by excess fat in liver cells, commonly linked to obesity and diabetes. Without lifestyle changes or any medication, it can progress from simple fatty liver to severe inflammation known as NASH/MASH, leading to liver fibrosis and cirrhosis, and increased cardiovascular risks. Very few plant-based research products are available for the treatment of NAFLD/MASLD. NIPER-Guwahati is interested to develop nutraceutical/ phytopharmaceutical for the prevention and treatment of NAFLD/MASLD. The project involves the systematic evaluation and development of plant-derived extracts and fractions for therapeutic use, with a focus on prevention and treatment of NAFLD/MASLD. The plant was chosen based on traditional use and ethnic knowledge. Collection and authentication of the plant, and extraction and phytochemical profiling of the extract have been completed. At initial phase, we have collected 4000kg raw materials and completed extraction for animal and small-scale human studies. Preliminary *in-vitro* cell-based studies with the extract and fraction indicate promising lipid accumulation effect in hepatic cell line and improvement of insulin resistance in myoblast cells. Ongoing work also includes identification of four marker compounds from the fraction for the development of phytopharmaceutical.

The project has two goals as stated below.

1. Development of nutraceuticals from the plant extract for the treatment of prediabetes and NAFLD/MASLD.
2. Development of a standardized phytopharmaceutical formulation (IND) for the treatment of MASLD.

We are expecting active collaboration with industries for formulation development, preclinical and clinical studies, and regulatory requirements.

Project activities completed till date at NIPER-Guwahati:

- Collection and authentication of plant materials.
- Extraction and phytochemical evaluation by HPLC/ GC-MS
- Fractionation and identification of two marker compounds
- Performed *in-vitro* cell-based studies for efficacy of the plant extract and fraction.
- *In-vivo* acute and sub-acute (safety) studies with the extract in rodents.

Need to be completed with industry collaboration:

- GLP study: Toxicity studies in animals.
- *In-vivo* efficacy study in animals.
- Formulation development with the extract and fraction.
- Clinical study with two formulations, nutraceuticals and phytopharmaceuticals.
- Filing for nutraceutical/phytopharmaceuticals regulatory requirements (FSSAI/ CDSCO–DCGI) in India.
- Promotion and marketing of the final products.

V. TO DEVELOP PHARMACEUTICAL ADDITIVE MANUFACTURING (3D/4D PRINTED PERSONALISED MEDICINES) IN INDIA

1. Background

Personalised medicine is emerging as a transformative approach in modern healthcare, enabling treatments tailored to the genetic, physiological, and lifestyle characteristics of individual patients. Conventional pharmaceutical manufacturing relies on mass production of standardised dosage forms, which often fails to address inter-patient variability in therapeutic response, dosage requirements, and drug release behaviour.

Pharmaceutical Additive Manufacturing (PAM), particularly 3D and 4D printing technologies, has emerged as a disruptive platform for the fabrication of personalised drug delivery systems. These technologies enable digitally controlled manufacturing of patient-specific medicines with customised geometry, dose, release kinetics, and multi-drug combinations.

Various additive manufacturing techniques such as Fused Deposition Modelling (FDM), Stereolithography (SLA), Selective Laser Sintering (SLS), Semi-Solid Extrusion (SSE), and Direct Powder Extrusion (DPE) allow the fabrication of complex pharmaceutical dosage forms including tablets, capsules, microneedles, implants, films, and hydrogels. These technologies provide the flexibility to produce medicines on-demand and at small scale, making them suitable for personalised therapy, paediatric and geriatric care, and treatment of chronic diseases.

The Lab of Additive Manufacturing in Pharmaceuticals (LAMP) at NIPER Guwahati focuses on the development of next-generation personalised medicines such as nano-filled capsules, bilayer tablets, QR-coded films, microneedles, implants, and responsive 4D constructs. These innovations aim to bridge the gap between conventional mass manufacturing and patient-centric pharmaceutical care.

2. Objectives

To develop and commercialise pharmaceutical additive manufacturing technologies for personalised drug delivery systems in India.

To translate laboratory-scale innovations into industrial-scale manufacturing platforms for 3D-printed medicines.

To develop customised dosage forms with controlled drug release profiles, multi-drug layering, and patient-specific dosing.

To enable on-demand manufacturing of medicines suitable for hospitals, specialised pharmacies, and decentralised healthcare settings.

To promote industry–academia collaboration for advancing personalised medicine technologies and regulatory pathways in India.

To improve therapeutic outcomes and patient compliance by enabling personalised drug formulations for paediatric, geriatric, and chronic disease patients

3. Expected Collaboration from Industry

The following support and collaboration are expected from industrial partners:

- ***Technology translation and scale-up support*** for pharmaceutical 3D printing platforms developed at NIPER Guwahati.
- ***Joint research and development*** for optimisation of formulations, printable materials, and device design suitable for industrial production.
- ***Infrastructure and manufacturing support*** for pilot-scale and commercial-scale manufacturing of personalised medicines.
- ***Regulatory support and compliance development*** for approval of 3D-printed pharmaceutical products.
- ***Investment and funding collaboration*** for product development, clinical validation, and commercialisation.
- ***Market deployment and distribution partnerships*** for introducing personalised medicines in hospitals, pharmacies, and specialised healthcare centres.

This collaboration will facilitate the translation of innovative pharmaceutical additive manufacturing technologies into practical healthcare solutions and strengthen India's capabilities in next-generation personalised medicine.

VI. TO DEVELOP METHOD FOR PREPARATION OF LAKADONG TUERMERIC OLEORESIN, HIGHLY PURE CURCUMIN, DESMETHOXYCURCUMIN AND BISDEMETHOXYCURCUMIN FROM LAKADONG TURMERIC IN INDIA

1. Background

Curcuminoids are very popular and have huge biomedical and pharmaceutical applications. Due to its antiviral qualities, it is one of the natural products that has been acknowledged with much courtesy among researchers worldwide. There are numerous products available in the market. It is well reported that pure curcuminoids have shown extraordinary therapeutic potential. Curcumin, desmethoxycurcumin, and bisdemethoxycurcumin reference materials/APIs are of paramount importance in routine QAQC analysis. The size of the world's curcumin market, estimated at USD 58,199.4 million in 2020, is projected to increase at a CAGR of 16.1% from 2020 to 2028.MSME and reference material producers are charging approx. Rs.30000/- per 30mg which is very high cost. No cheaper products are available in the market. Therefore, it was planned to prepare high quality reference materials/APIs from local turmeric of northeast region. Hence, our developed pure material will be used as API as well as reference material for QAQC and further production. Currently herbal medicines market is growing rapidly day by day due to its close tug-of-war with modern medicine system. The evolution of new drugs via modern medicine system has reached a limit. Nowadays, many big pharmaceutical companies are facing challenges to develop new drugs. So, increasing attention has been paid to herbal industries in the search for novel drugs. Herbal medicines have evolved over millions of years and have unique chemical diversity which results in diverse biological activities. Curcuminoids are also amid of the most demanding raw materials for developing numerous herbal products, but their cost is very high in pure form (Rs. 1000 per mg). The current invention proposed to develop a cheaper methodology for the development of strikingly pure reference materials from locally available lakadong turmeric. However, despite of good demand, farmers have not been able to realize the full economic potential of the lakadong turmeric because of the preponderance of small and marginal farmers, the absence of focused research, the lack of universal access to information, and skills and technology. This project will help local farmers to cultivate more lakadong variety to grab amassed margins. Cheaper reference material will attract global buyers and it will have good revenue generation. In this invention, a lab scale extraction and purification method has been developed with complete data. Therefore, it is proposed to develop it at pilot scale to further reduce its cost and have lots of export potentials. Curcuminoids endure in the turmeric extract as a very complex mixture from which the embarkation of curcuminoids is an arduous task. The isolation and purification of curcumin, desmethoxycurcumin and bisdemethoxycurcumin from the turmeric extract is very tedious and time engrossing. For the time being, the preowned methods like column chromatography, thin layer chromatography, counter-current chromatography (CCC), high-performance thin layer chromatography (HPTLC), etc. ensual in 70-90% immaculacy. In accession, the isolation of pure molecules in ample quantities or at a massive scale is of paramount importance. By the way of this innovation, a simple purification method using flash chromatography which can be easily scaled at industrial level using larger size glass cartridges has been revamped. It is a very economical and an easy scale up method.

As an active pharmaceutical ingredient, curcuminoids has a high demand in the pharmaceutical, nutraceutical, cosmetic, and food industries.

However, pharmaceutical and nutraceutical industries do not have a low-cost and high purity curcuminoids supply. Further, the industries take 2 weeks to complete one batch of curcuminoids production. For the first time, the inventors have identified the challenges and addressed the problems of the prior art by development of novel methods for the production of lakadong turmeric oleoresin followed by curcuminoids isolation from lakadong turmeric. The method leads to production of high purity and high yield curcumin, desmethoxycurcumin and bisdemethoxycurcumin at a low-cost.

2. Objectives

We are ready for technology transfer. Our requirement from the industry is for the scale-up of lakadong turmeric oleoresin and purification for different pharmaceutical/nutraceutical applications under the Schedule M facility. Product technology and know-how will be given who can scaleup and take forward for further commercialisation for different applications

1. Lakadong turmeric oleoresin >50curcumin dry basis (free from heavy metal, free from aflatoxin, free from microbiology contamination
2. Pure Cucrumin (from lakadong turmeric/from commercial turmeric extract)
3. Pure bisdesmethoxycurcumin
4. Pure desmethoxycurcumin

3. Expected Collaboration from Industry

Technology transfer of existing technology.

We have filed IP for the same as mentioned below

1. Method for preparation of highly pure curcumin, desmethoxycurcumin and bisdemethoxycurcumin from lakadong turmeric. Dr. Pramod Kumar etal, Application No.:202231066460 and filing date: November 18, 2022.

VII. TO DEVELOP BLACK PEPPER OLEORESIN AND PURIFICATION OF PIPERINE FROM LOCAL BLACK PEPPER

1. Background

Herbal medications are pharmaceuticals having active ingredients that come from plant tissue like leaves, roots, or flow ers. Due to the rising demand for products around the world, the market for herbal medicines is anticipated to expand. The report predicts that between 2022 and 2028, the market for herbal medicines would expand at a CAGR of more than 11.2%. The market for herbal medicines was evaluated at over US$ 166 billion in 2021 and is anticipated to reach US$ 348 billion by 2028. China, one of the huge economies in the world, it is estimated to reach a projected market size of US$ 50.2 billion by 2030, and from 2022 to 2030 it is increasing at a CAGR of 10.3%. Other countries like Japan, Canada, which is having major geographical market, are expected to increase at 6.8% and 6.9%, respectively, between 2022 and 2030 (2). Germany is anticipated to grow within Europe at a CAGR of roughly 6.3%. By 2030, Herbal market in the countries like Asia-Pacific might reach US$ 40.3 billion, same trend would be followed by the nations like Australia, India, and South Korea. The fruits of Piper nigrum, often known as black pepper, are utilized generally in cooking and traditional medical practices generally referred as king of spice. The type chemical constituents found in pepper are piperine alkaloid (8%), pungent resin (6%), volatile oil (1–2%), piperidine, and starch (about 31%). This conventional extraction and ease of purification allow it to be scaled up at industrial level enabling its applications in food and pharmaceutical industries. Since piperine has been shown in numerous studies to have bio-enhancing properties, it is intended to be used in conjunction with bioactive markers medications to increase bioavailability, lower dosages, and produce synergistic benefits in the treatment of a variety of disease states. These finding the way for broader application s of piperine in the food and pharmaceutical industries.

2. Objectives

We are ready for technology transfer. Our requirement from the industry is for the scale-up of Black pepper oleoresin and purification for different pharmaceutical/nutraceutical applications under the Schedule M facility. Product technology and know-how will be given who can scaleup and take forward for further commercialisation for different applications

5. Black Pepper oleoresin
6. Pure Piperine > 99% HPLC Purity

3. Expected Collaboration from Industry

Technology transfer of existing technology.

We have published research article for the same as mentioned below

Analytical Development of Piperine as Herbal Reference Material from Black Pepper for Quality Control Purposes: Liquid Chromatography-Quadrupole Time-of-Flight, Nuclear Magnetic Resonance, and Thermal Analysis

Journal of Chromatographic Science, 2025, 63, 6, bmaf036
https://doi.org/10.1093/chromsci/bmaf036
Article

OXFORD

Analytical Development of Piperine as Herbal Reference Material from *Black Pepper* for Quality Control Purposes: Liquid Chromatography-Quadrupole Time-of-Flight, Nuclear Magnetic Resonance, and Thermal Analysis

Swati Ramesh Pawar[1], Sachin Dattram Pawar[1,2], Sandeep Jat[1], Rashinikumar Samandram[1], Dnyaneshwar Maykar[1], Pratik Gore[1] and Pramod Kumar[1,3,*]

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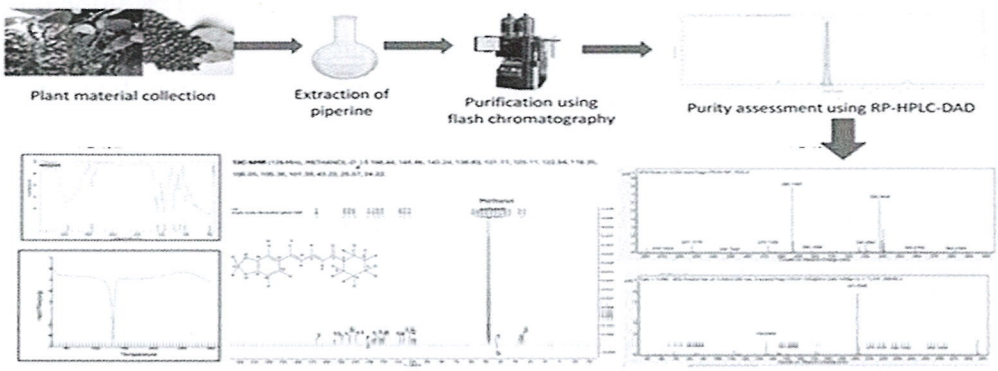
[3]http://www.niperguwahati.ac.in/pa_dfac.html

Various spices and their oleoresins are being marketed since long and it has multibillion market. One of the most often used spices is black pepper (*Piper nigrum*), which gets its pungent flavour from volatile chemical components, essential oils, and an alkaloid called piperine. Piperine is also known for huge therapeutic benefits and most people are using daily in food products also. Most significantly, piperine is recognised as a biosvailability enhancer by stopping CYP enzyme activity. Therefore, our aim is to develop black pepper extract and isolation of piperine from black pepper. Various analytical techniques including, UV–Visible Spectroscopy, Fourier Transform Infrared Spectroscopy, Differential Scanning Calorimetry, Thermogravimetric Analysis, Proton Nuclear Magnetic Resonance, Carbon-13 Nuclear Magnetic Resonance, High-Resolution Mass Spectrometry were used to characterize piperine. NMR confirms its structure and molecular weight was confirmed by HRMS. Purified piperine has shown HPLC purity >99.5%. DSC has shown the melting peaks of 130.12° C. Piperine have great commercial potential as reference materials for regular quality control in the herbal industries for black pepper-based products.

Graphical Abstract



Thorough characterization of purified piperine employing RP-HPLC-DAD, HRMS/MS, NMR, DSC, and FT-IR analysis

Received: September 15, 2024. Revised: April 24, 2025. Editorial decision: May 23, 2025

VIII. TO DEVELOP VALUE-ADDED GINGER OLEORESIN USING SPRAY DRYING TECHNOLOGY AND PURIFICATION, CHARACTERIZATION OF 6-GINGEROL FROM ASSAM-BASED GINGER VARIETY (*ZINGIBER OFFICINALE*) IN INDIA

1. Background

The most abundant source of herbal medicine is Ayurveda, and a wide variety of effective medicines are readily available on the market. However, because there is no recognised herbal reference material available and the expense of accessing reference materials using modern analytical techniques is prohibitive, quality control in herbal medicine remains a difficult undertaking. Generally speaking, the reference material should follow ISO Guide 35:2017. Herbal medicine is extensively utilized in the market to treat a variety of disorders as an extract from ginger and as a nutraceutical. India is the world's biggest producer of ginger, and *Zingiber officinale* is known for having the highest concentration of gingerols and shogaols, therefore, India is symbolised as 'spice bowl of the world'. The North-East region of India specially Tinsukia district of assam produce largest amount of ginger having the highest content of gingerols and shogaols and improve ginger productivity to boost farmer income and the raw material's awareness worldwide. In 2023, the global ginger market was worth USD 6.04 billion. The global ginger oleoresin market is expected to grow at a CAGR of 11.62% from 2025 to 2033, with the market size projected to reach over USD 49 million by 2033. Another estimate indicates a growth rate of 10.4% from 2022 to 2032. Historically, ginger (Zingiber officinale Roscoe) has been used both for its medicinal benefits and as a plant. It is also a common culinary spice in many countries. These plants serve as reservoirs for a variety of elements, such as nitrogen containing compounds2, carotenoids, organosulfur compounds, and polyphenols, all of which have unique structural and functional characteristics.

The primary biomarker of *Zingiber officinale* is 6-gingerol, which is a highly expensive pure version of the substance. MSME and reference material producers charge approximately Rs.54000/- per 500 ppm mixture of (6,8,10-gingerols and 6,8,10-shogaol). The separation of gingerols and shogaols mixtures is a laborious procedure due to their similar structures and wavelengths. There have been reports of 2–4 nm structural and spectral similarity between gingerols and shogaols (282 and 280 nm, respectively). The current purification process relies on recrystallization, which will not yield very pure material and requires expensive, time-consuming preparative procedures for separation. There is lack of investigation on the commercial potential of *Zingiber officinale*. Thus, it was suggested to create an intuitive extraction and purification method in order to obtain extremely pure reference material for 6-gingerol from *Zingiber officinale* that is readily available in the area. In this study, 6-gingerol was extracted from Zingiber officinale rhizomes with a high yield (14.3%). Hence, our developed pure 6-gingerol can be utilized as API as well as reference material for QAQC of ginger-based products and further production. The high purity of the extract and ginger oleoresin can be utilized as a reference material for future manufacturing. This approach is dependable, affordable, and easily scaled up to an industrial setting. As reference molecules or APIs, these very pure identifiers offer enormous commercial potential and are in great demand across a variety of business areas, including the pharmaceutical and agro-based industries.

2. Objectives

We are ready for technology transfer. Our requirement from the industry is for the scale-up of local ginger oleoresin and purification for different pharmaceutical/nutraceutical applications under the Schedule M facility. Product technology and know-how will be given who can scaleup and take forward for further commercialisation for different applications

1. Ginger oleoresin

2. Pure 6 gingerol with >99% HPLC purity.

3. Expected Collaboration from Industry

Technology transfer of existing technology.

We have filed IP for the same as mentioned below

2. Process for preparation of 6-gingerol and ginger oleoresin powder from *Zingiber officinalis*. Dr. Pramod Kumar *et. al.,* Application No.:202331080570 and filing date: November 28, 2023.

IX. TO DEVELOP LOW-COST SCALE-UP PROCESS FOR LUTEIN PRODUCTION FROM MARIGOLD FLOWERS IN INDIA

1. Background

Mention the Background of the Technology

One of the best natural sources of lutein is marigold flowers. Lutein is a plant-based active pharmaceutical ingredient. It was prepared by a chemical reaction from the plant's-based fatty-acid esters, called lutein ester. Lutein esters are isolated from the marigold (*Tagetes erecta* L.). Lutein is a pigment that accumulates in the retina and lens of the human eye. This pigment is also known as macular pigment. This pigment cannot be produced in the body by mammals and must therefore be required from an external source. Lutein has been proven scientifically to reduce the risk of age-related macular degeneration (AMD). Lutein is also reported to have strong antioxidant and anti-inflammatory properties. Moreover, many studies have reported that lutein has positive effects in different clinical conditions, thus ameliorating cognitive function, decreasing the risk of cancer through increased cell type-specific ROS generation and alternation of several signaling pathways, and improving measures of cardiovascular health. Lutein proved to be safe at a dose of 20 mg/day. It is having high demand in the pharmaceutical, nutraceutical, cosmetic, and food industries. Thus, a robust low-cost scale-up process for high pure lutein production is highly required.

Problem/limitation in the existing technology does invention address

Pharmaceutical and Nutraceutical Industries do not have a low-cost and high-purity Lutein production process from marigold

- Industries taking 28-40 days to complete one batch of lutein production.
- Lutein is having high demand in the pharmaceutical (US$190 million), nutraceutical (US$110 million), cosmetic, and food industries (US$2 billion).
- Cost of Pure Lutein sky rocketing.
- In India, no such big manufacturing company is available for the production of pure Lutein.
- Temple waste (majorly flowers, i.e., marigold) is thrown into local water bodies like rivers, ponds, and lakes causing pollution.

Thus, a robust low-cost scale-up process for high pure lutein production is required.

2. Objectives

Objectives sought to be achieved through this Technology Transfer
The process technology developed for low-cost lutein scale-up is **novel**
The time duration to complete one batch production is **4 days**
The process to get **high yield (12%) lutein** from marigold flowers
The process to get **high purity (>95%) lutein** from marigold flowers
Produce the **reference standard lutein** from marigold flowers.
The technology can be used for **waste flower management.**

3. Expected Collaboration from Industry

Look forward for Technology Transfer/Collaboration work with Industries

X. TO DEVELOP PATIENT-SPECIFIC EXPANDABLE INTERBODY CAGE FOR SPINAL FUSION IN INDIA

1. Background

Orthopedic implants play a vital role in enabling movement and restoring daily activities for patients suffering from bone fractures, joint degeneration, and spinal disorders. Spinal disorders such as degenerative disc disease, trauma, and deformities often require surgical intervention using interbody cages to restore disc height, maintain spinal alignment, and facilitate fusion between adjacent vertebrae. Conventional interbody cages, typically made from materials such as titanium or PEEK, are designed as static implants that requires bigger intraoperative sizing and placement. However, these implants present several clinical challenges, including suboptimal fit, uneven load distribution, endplate damage during insertion, and the risk of subsidence or implant migration. Additionally, mismatch in stiffness between the implant and surrounding bone may lead to stress shielding, adversely affecting the fusion process and long-term clinical outcomes.

To overcome these limitations, expandable interbody cages have been introduced as an advanced alternative. These devices can be inserted in a compact configuration and expanded in situ, allowing improved restoration of disc height, enhanced endplate contact, and minimally invasive surgical procedures. Despite these advantages, current expandable cage designs still face challenges related to mechanical stability, controlled expansion mechanisms, load distribution, and manufacturability. Furthermore, the translation of innovative designs into clinically viable products requires close integration between design optimization and fabrication capabilities.

In this context, the present work is motivated by the need to develop a mechanically efficient and clinically translatable expandable interbody cage through a collaborative academia–industry approach. The academic component focuses on conceptual design, computational modeling, and finite element-based biomechanical evaluation to optimize implant geometry, expansion behavior, and load-sharing characteristics. The industrial partner contributes expertise in the fabrication of titanium-based implants using advanced manufacturing techniques, ensuring precision, scalability, and compliance with medical standards. This collaboration will bridge the gap between theoretical design and practical implementation, enabling the development of next-generation spinal implants that are both biomechanically optimized and manufacturable for real-world clinical use.

2. Objectives

The objectives are:-

To design, and develop a expandable lumbar interbody cage with improved structural performance and controlled expansion mechanism. To perform finite element analysis (FEA) to evaluate stress distribution, load transfer, and structural stability under physiological loading conditions. To optimize implant geometry for improved endplate contact, reduced subsidence risk, and compatibility with standard manufacturing techniques. To develop a prototype of the expandable interbody cage based on the optimized design. To evaluate the biocompatibility of

the implant through in-vitro characterization and explore its feasibility for future in-vivo (animal) studies.

3. Expected Collaboration from Industry

The academic component of the project is centered on conceptual design, computational modeling, and finite element–based biomechanical analysis using tools like Solidworks and ANSYS to optimize the implant's geometry, expansion mechanism, and load-sharing behavior under physiological conditions. This involves iterative design development, simulation-driven optimization, and evaluation of mechanical performance to ensure structural stability and functional efficiency. We aim to expand the cage height from 8 mm to 12mm after in situ placement.

In parallel, the industrial partner contributes expertise in the fabrication of titanium-based implants, utilizing advanced manufacturing techniques such as precision machining and additive manufacturing. The implants will be modular, consisting of 2-3 components. Their role ensures that the optimized design is translated into a high-quality, scalable, and clinically compliant product, meeting relevant manufacturing standards and regulatory requirements.

XI. TO DEVELOP AN EFFECTIVE POLY-HERBAL MEDICINE FOR THE TREATMENT OF DIABETES INDUCED ALZHEIMER'S DISEASE IN INDIA

1. Background

A clinically validated ***poly-herbal oral dietary supplement capsule formulation*** using four plant extracts; a blend of *Medhya Rasayana, Yogvahi and Rasayana*, which is aimed at addressing the dual pathology of Type-2 Diabetes Mellitus (T2DM) and Alzheimer's Disease (AD). This initiative is grounded in the growing recognition of the metabolic-neurodegenerative axis, particularly the role of ***insulin resistance (IR)*** as a shared pathological feature. While T2DM is characterised by systemic IR, accumulating evidence suggests that IR also contributes to AD pathogenesis, prompting the characterisation of AD as ***"Type-3 Diabetes".*** Insulin crosses the blood-brain barrier via a saturable transport mechanism and is also synthesised within the brain. The insulin-degrading enzyme (IDE), widely distributed across cortical and subcortical regions, regulates both insulin and β-amyloid clearance. IDE deficiency leads to insulin accumulation and enhanced β-amyloid plaque formation, triggering neuroinflammation and oxidative stress.

To address these intertwined mechanisms, the selected herbal extracts will be evaluated for their antioxidant and neuroprotective potential using Neuro-2a mouse neuroblastoma cells. In parallel, anti-diabetic efficacy will be assessed using α-amylase and α-glucosidase inhibition assays, as well as glucose uptake studies in L6 myotubes. Following *in vitro* validation, therapeutic doses will be tested in rodent models of diabetes-induced AD.

A key innovation in this project is the encapsulation of the validated poly-herbal extracts into mesoporous silica nanoparticles (MSNs). MSNs offer a highly tunable platform with large surface area, uniform pore size, and excellent biocompatibility & biodegradability, making them ideal carriers for enhancing the solubility, stability, and targeted delivery of bioactive compounds. Their ability to protect sensitive phytoconstituents from premature degradation and facilitate controlled release can significantly improve bioavailability and therapeutic outcomes. By leveraging MSN-based delivery, the formulation aims to overcome pharmacokinetic limitations commonly associated with herbal therapeutics, thereby potentiating efficacy against both metabolic and neurodegenerative dysfunctions.

Ultimately, this research envisions the development of a market-ready oral capsule formulation tailored for patients with T2DM and AD co-morbidities, with potential for licensing to the healthcare industry. The integration of traditional herbal knowledge with advanced nanotechnology positions this project at the frontier of translational phytopharmaceutical innovation.

2. Objectives

• Industrial Validation (pre-clinical)

• Scaling-up of the developed product (Production Trial)

• Regulatory Clearance for FASSI approval [(Modified Delivery Method/Adjuvant; Delivery format under FSS (approval of non-specified food and food ingredients) Regulations, 2017) etc.]

• Market analysis and promotional strategies of the finished product

3. Expected Collaboration from Industry

The collaborating industry partner is expected to actively participate in the translational and scale-up phases of the project through technical, infrastructural, and regulatory support. Specific areas of collaboration are as follows:

Technology Transfer and Scale-Up: Assistance in process optimization, pilot-scale production of the MSN-encapsulated poly-herbal formulation, and establishment of GMP-compliant manufacturing protocols.

Analytical and Quality Assurance Support: Standardization of raw materials and finished formulation, stability studies, and development of validated analytical methods in accordance with FSSAI and phytopharmaceutical guidelines.

Regulatory Facilitation: Guidance and support in preparing dossiers for Food Safety and Standards Authority of India (FSSAI) approval under "non-specified food and food ingredients" category, including safety and efficacy documentation.

Pre-Clinical and Product Validation: Participation in required pre-clinical safety/toxicity studies, shelf-life evaluation, and bioavailability assessments, in line with regulatory expectations for nutraceutical products.

Market and Commercialization Strategy: Support in market feasibility analysis, branding, packaging, intellectual property assessment, and development of a commercialization road map for the finished oral capsule product.

Financial and Infrastructural Contribution: Partial financial support or resource sharing as per mutually agreed terms under a formal MoU, facilitating seamless transition from laboratory validation to industrial production.

XII. TO DEVELOP ANTI-AGING NUTRACEUTICAL POWDER FORMULATION COMPRISING UNDERUTILIZED HIMALAYAN FRUITS IN COMBINATION WITH OTHER FRUITS/SEEDS" IN INDIA

1. Background

The project aims to develop an anti-ageing nutraceutical powder formulation using Indian origin fruits/seeds with proven antioxidant and collagen-boosting properties. We will be using some underutilized fruits from the Himalayan region. The formulation will target reducing oxidative stress, enhancing collagen synthesis, and promoting overall skin rejuvenation. The product will undergo laboratory validation for phytochemical characterization, *in-vitro*assessment, and pre-clinical safety and efficacy studies.

The medicinal plants to be used have well-documented antioxidant and anti-ageing properties, but their synergistic potential remains unexplored. The project will explore the potential to formulate a nutraceutical powder for oral delivery from a medicinal plant part.

The proposed technology under the Centre of Excellence focuses on the identification, standardization, and validation of bioactive constituents from natural sources, followed by their formulation into advanced drug-deliverysystems. These formulations are intended to enhance bioavailability, enable targeted delivery, and improve therapeutic outcomes in anti-ageing.

Despite strong preclinical evidence, translation into clinically viable, commercially scalable products remains limited due to gaps in standardization, regulatory alignment, and industrial integration. This EOI aims to bridge these gaps by fostering academia–industry collaboration for technology transfer and product development.

2. Objectives

- Raw material collection, Processing and preparation of phytoconstituents rich extracts
- Phytochemical profiling of medicinal plant extracts and their evaluation for secondary metabolites
- To develop standardized phyto-pharmaceutical formulations with defined bioactive profiles and its optimization
- Preclinical studies on a developed oral nutraceutical formulation
- To validate safety and efficacy using *in vivo* models
- To establish scalable manufacturing processes compliant with regulatory standards
- To facilitate technology transfer for commercialization of validated formulations

3. Expected Collaboration from Industry

- Support in scale-up and process optimization for pilot and commercial manufacturing.
- Assistance in regulatory compliance, including documentation for phytopharmaceutical approval.
- Co-development of formulation technologies and product pipelines.
- Investment in clinical validation and translational research.
- Participation in intellectual property (IP) management and commercialization strategies.
- Market access support, including branding, distribution, and global outreach.

XIII. To synthesis and characterization of standards of certain drugs and their metabolites for anti-doping testing purposes

1. Background

Anti-doping analysis is essential for ensuring fairness and integrity in competitive sports by detecting the misuse of prohibited substances and their metabolites. The World Anti-Doping Agency (WADA) regularly updates the list of banned substances, including stimulants, selective estrogen receptor modulators (SERMs), and related compounds that can enhance athletic performance. The identification of these substances in biological matrices such as urine and blood relies heavily on advanced analytical techniques like LC-MS/MS and HRMS, which require highly pure and well-characterised reference standards for accurate detection and quantification. However, one of the major challenges faced by anti-doping laboratories is the limited availability and high cost of certified reference materials, especially for metabolites and newly emerging doping agents. Many important compounds are either not commercially available or require complex, time-consuming purification processes. This creates a critical gap in routine anti-doping testing, where the sensitivity, selectivity, and reproducibility of analytical methods depend directly on the quality of reference standards. Selective estrogen receptor modulators such as toremifene are widely used in clinical therapy but are prohibited in sports due to their performance-enhancing effects. Several metabolites of toremifene have been reported, among which carboxy-toremifene is a key marker for doping detection. Despite its analytical importance, there is a lack of commercially available, highly pure reference material for this metabolite. Therefore, the development of an efficient, scalable synthetic route to carboxy-toremifene is essential to support anti-doping laboratories. Similarly, octopamine, a stimulant structurally related to endogenous catecholamines, is included under the prohibited category by WADA. Its metabolite, octopaminesulfate, serves as a crucial target molecule for doping analysis. However, the absence of reliable synthetic methods and reference standards for octopamine sulfate poses a significant challenge in its identification and quantification. In addition to these, several structurally diverse compounds such as para-hydroxy prenylamine, ethylmorphine, nor-ethylmorphine, ethilfrine sulfate, norfenefrine sulfate, are also of high relevance in anti-doping studies due to their pharmacological activity and potential misuse. The availability of high-purity reference standards for these molecules is crucial for improving the robustness and reliability of analytical detection methods. In this context, we have already developed efficient and reproducible synthetic pathways for the preparation of these compounds with high purity. The synthesized molecules have been thoroughly characterized using advanced spectroscopic and analytical techniques and have been successfully supplied as reference standards to the National Dope Testing Laboratory (NDTL) for routine anti-doping analysis. This demonstrates our expertise in synthetic method development, impurity control, and production of certified reference materials aligned with regulatory requirements. Hence, the developed high-purity reference standards for all the target molecules can be effectively utilized both as analytical reference materials and potential active pharmaceutical ingredients (APIs) for anti-doping and pharmaceutical applications. The availability of these compounds in highly pure form will significantly support quality assurance and quality control (QA/QC) of doping analysis and related formulations. The developed synthetic methodologies are robust,

cost-effective, and scalable, making them suitable for large-scale production and technology transfer. Furthermore, these well-characterised reference materials can be reliably used in routine anti-doping laboratories, including the National Dope Testing Laboratory (NDTL), for accurate identification and quantification of prohibited substances and their metabolites. The approach ensures consistent supply, affordability, and reproducibility, thereby addressing the current limitations associated with commercially unavailable or expensive standards. As high-purity reference compounds and APIs, these molecules possess significant commercial potential and are expected to be in high demand across pharmaceutical, analytical, and regulatory sectors, contributing to both scientific advancement and industrial applications.

2. Objectives

We are ready for technology transfer. Our requirement from the industry is for the scale-up of and technology transfer for further production. Product technology and know-how will be given who can scaleup and take forward for further commercialisation for different applications

1. Para hydroxy prenylamine
2. nor-ethylmorphine
3. Ethylmorphine
4. Carboxy toremifene [IP protected]
5. Octopamine sulfate [IP protected]
6. Ethilfrine sulfate
7. norfenefrine sulfate

3. Expected Collaboration from Industry

Technology transfer of existing technology and further collaboration

We have filed IP for the same as mentioned below

1. Process to prepare octopamine sulfate. 2022. Subarna Jyoti Kalita, Sachin Dattram Pawar, Prachi Vernekar, Mayur Arun Pawar, Veena K. S., Km Abha Misra, Kalyan Kumar Sethi, Pullapanthula Radhakrishnanand, Upadhyayula Suryanarayana Murty, Puran Lal Sahu, Sachin Dubey, Kapendra Sahu, Awanish Upadhyay, Pramod Kumar, Application No.: 202231000058 and Patent No. Patent number: 560947

2. Process to prepare carboxy-toremifene. 2021. GangasaniJagadeesh Kumar, Sachin Dattram Pawar, PullapanthulaRadhakrishnanand, Upadhyayula Suryanarayana Murty, Puran Lal Sahu, Sachin Dubey, Kapendra Sahu, AwanishUpadhyay, Pramod Kumar. Application No. : 202131058419 Filing Date: December 15, 2021

Annexure-II

EXPRESSION OF INTEREST (EOI) TO DEVELOP

_____ *(name of the technology)* IN INDIA

1. Background / Objectives / Expected Collaboration from Industry

Mention the details of the Technology and Problem Statement. *(Please refer to annexure I)*

Format of EoI to be submitted

Interested Companies/Industries may submit the EoI with the following components:

1. Rationale of proposed work

The proposal should clearly state the aim and objectives of the proposed study.

2. Background:

The proposal should provide evidence from previous research on the proposed area (in the country or elsewhere); any challenges and opportunities envisaged in the proposed area of work.

3. Study implementation plan

Provide a clear and brief description of implementation plan pertaining to the study including definite timelines

4. Address feasibility and scalability

Address the feasibility and scalability of the technology, including the resources needed for development, the intellectual property rights, and the immediate potential for wider adoption and scale-up in India.

5. Project team

Summarize the composition of the working team based on the expertise of the individual team members in designing and implementing the project.

6. Capacity-building and knowledge transfer components

7. Licensing Details

Provide the details of Licensing Interest like- Territories of interest, Field of Application (if any specific Field), Tentative Tenure for License ***(the period of exclusive license shall be five years)***, Specific rights of interest (E.g., develop/manufacture/supply/ distribute/ commercialize/ all or any other rights, Exclusive/Non-Exclusive)

8. Extent of collaboration sought from NIPER-G

9. Legal and Regulatory Compliance

Company must be legally registered entity and meets all national and local regulatory requirements

10. Registered Full Address

11. Availability of adequate infrastructure/competence for the production of licensed technological processes and technical expertise

a) Minimum of 3 years' experience (in the preceding 05 years) in executing similar projects and should submit supporting documents of good track record.
b) Letter of interest clearly indicating the project reference and detailed company organizational structure/information.
c) Details of similar projects executed in the last 5 years and those of currently under execution along with details of total executed project cost. Details of completion of similar type of projects in the last five years under heading: a) Brief scope of work b) Value of work in INR c) Contractual Duration d) Actual completion of Project, e) Client's name f) Contact details of the Client etc.
d) Details of Equipment owned by the company relevant to the execution of the advertised project. Quality assurance & quality control practices are currently in place for the execution of similar work.
e) Details of Particular experience of providing Services in remote areas where rapid mobility and flexibility to accommodate the company's program is paramount for added advantage. Evidence supporting successful major operations in remote areas if available, must be submitted for overall boosting the confidence to the client.

List of policies, procedures and quality assurance practices currently in place for the execution of similar work.

12. Financial Requirements

i. Company's financial performance documents (Audited Balance sheets and Profit and Loss statements, Auditors Report and Notes to Accounts etc.) for the last 2 (two) years. The latest financial statement should not be older than 12 months on the date of submission of the response to the Expression of interest.
ii. Positive net worth in each of the immediately preceding two financial years.
iii. Bidders shall not be under liquidation, court receivership or other similar proceedings.

Also, note –
i. Normally standalone financials of the bidding entity only will be considered. However, consolidated financials at the bidding entity level, if available, can also be submitted. Parent company or Affiliate's financials can be submitted and considered, subject to the submission of the Parent/ Affiliate company guarantee. This should be clearly mentioned in the EoI response.

ii. Evaluation will be done only based on the published annual reports / audited financials containing Auditor's report, Balance sheet, Profit & Loss a/c and Notes to Accounts.

iii. In case of unaudited statements (if there are no audit requirements for auditing of financials as per the local law), the financials shall be accompanied by a certificate from a Certified Accountant. The certificate should also mention the fact that there is no requirement of audit of the financials as per the local law.

All qualifications and exceptions brought out in the Auditor's report and Notes to Accounts would be factored in while undertaking the financial evaluation.

13. Additional documents

Please provide the following:

☐ One-page company profile mentioning the experience in developing the products

☐ Patents granted

14. Who can submit the EoI?

The EoI can be submitted through Offline/Online Mode by pharmaceutical/biotechnology companies primarily, (but if any other industry association is required, it will be announced accordingly) which are already involved or are ready to work in the area of _____ (documentary evidence of their recognition).

Points to be kept in mind while submitting the EoI

- The EoI must address the specific need in the above-mentioned area.
- Please mention of there are any prerequisites, regulatory approvals as required for the development of the Technology to be transferred.
- A concept note in the above-mentioned format should be mailed as a PDF

14. Contact Details

Phone:
Mobile:
E-mail:
Website:

Last date of Submission: _____

For any queries related to the call, please contact:

UNDERTAKING

I.....Designation.....
..... representing the above company is authorized to fill and sign this EOI.

Date: _____
Place: _____

Signature of Authorized Official with Seal

Annexure III

FINANCIAL OFFER

(to be submitted in separate envelop)

I/ We submit the following financial offer as the fee for technology transfer in respect of _____(name)
(Note- financial offer may include both an initial lumpsum payment and an annual royalty based on sales)

Option A : For a non-exclusive licence

- A lump sum payment of Rs ____(in figures and words) at the time of signing agreement
  OR
- Lump sum payment of Rs _____(in figures and words) in three instalments (50% - at the time of agreement signing, 25% - on completion of training, 25% - on handing over of the Technology Transfer documentation)

AND

- Annual Royalty of _____% of the ex-factory sales price of the product for as long as the product is sold

Option B : For an Exclusive licence

- A lump sum payment of Rs _____(in figures and words) at the time of signing agreement
  OR
- Lump sum payment of Rs _____(in figures and words) in three instalments (50% - at the time of agreement signing, 25% - on completion of training, 25% - on handing over of the Technology Transfer documentation)

AND

- Annual Royalty of _____% of the ex-factory sales price of the product for as long as the product is sold

Note:

1. Exclusive license will require substantially higher license fee. You may choose to make an offer for only one or both options. Institute will consider all offers and reserves right to accept /reject any offer.
2. Exclusivity offered is subject to the applicant commercializing the product within 1 year from date of signing license agreement, failing which the license will be converted as non-exclusive license. There will be no refund of any higher license fee paid for exclusivity.

The above is only an indication of the technology payments. The bidder is free to quote the price based on the above or may have own option.

Date: _____ **Signature of Authorized Official with Seal**
Place: _____