

Annexure – I of MoA

Detailed Project Activities

Details of the activities to be undertaken by Goa University Taleigao Plateau, Taleigao, Goa under the project entitled “Bioprospecting for active oligosaccharides produced from marine polysaccharides by bacterial CAZymes”

Objectives:

1. Identifying multiple polysaccharides degrading bacterial strains from the PI's bacterial culture collection. Presently the PI has 25 bacterial strains that have been characterized up to genus level and are known to degrade single polysaccharide. Also around 5 bacterial strains have already been identified from NCCS culture collection determining polysaccharide activity of these strains.
 2. Preliminary screening for identifying promising bacterial strain that produces oligosaccharides with desired therapeutic activity. The oligosaccharides that are obtained by growing bacteria in respective polysaccharides will be evaluated for following therapeutic activities.
 - a. Anti-diabetic activity of oligosaccharides would be determined by using in vitro spectrophotometric assay using α -amylase and β -glucosidase for screening.
 - b. Spectrophotometric anti-tyrosinase activity of oligosaccharides determined using mushroom tyrosinase. GT.
 - c. The anti-biofilm activity of oligosaccharides will be evaluated using microtiter biofilm bioassay.
 - d. Antibacterial activity of the oligosaccharides will be confirmed by the disc diffusion and broth dilution method.
 - e. Antioxidant activities of oligosaccharides such as radical scavenging, metal chelating activities and reducing power will be evaluated by spectrophotometric assays.
 3. WGS of above selected bacterial strains by Illumina sequencing.
 4. Cloning of selected novel CAZyme gene in pGEM/pET vectors and CAZyme expression.
 5. Mass production of oligosaccharides using whole cell bacteria and immobilized purified enzyme and confirming therapeutic activity of purified oligosaccharide.
 6. Purification of oligosaccharides and structure evaluation.
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Annexure – II of MoA**Details of Funds****Prof Sanjeev C. Ghadi, Goa University, Goa**

Items	<i>I year</i>	<i>II year</i>	<i>III year</i>	Total
Non-recurring (Equipment etc.)	1,00,000			
Manpower	8,63,040	8,63,040	9,74,400	27,00,480
Consumables	8,00,000	8,00,000	8,00,000	24,00,000
Travel	50,000	50,000	50,000	1,50,000
Contingencies	50,000	50,000	50,000	1,50,000
Overhead	50,000	50,000	50,000	1,50,000
Others (If applicable)				
Total	28,13,040	18,13,040	19,24,400	65,50,480

TERMS & CONDITIONS OF THE GRANT

(To be signed and enclosed with MoA)

1. Approval of the Research proposal and the grant released would be for the specific project mentioned in paras I to V of this proposal and grant should be exclusively spent on the project for which it has been sanctioned within the stipulated time. The Institute is not permitted to seek or utilise funds from any other organisation (Government, Semi Government, Autonomous or Private) for this research project. Any unspent part of amount would be surrendered to the Govt. of India through an account payee demand draft drawn in favour of the "Drawing and Disbursing Officer, Department of Biotechnology, New Delhi", and carry forward of funds of the next financial year for utilization for the same project may be considered only with the specific approval of the Department of Biotechnology (DBT).
2. For permanent/semi-permanent assets acquired solely or mainly out of the grant, an audited record in the form of a register in the prescribed proforma (enclosed at **Appendix-'A'**) shall be maintained by the Institute. The term "**assets**" means (I) immovable property and (II) movable property of a capital nature, where the value exceeds Rs. 1000/- The grant will not be utilised for construction of any immovable property, Full facilities by way of accommodation, etc. for the project will be given by the Institute.
3. All the assets acquired from the grant will be the property of Govt. of India and should not without the prior sanction of the Deptt. of Biotechnology, be disposed of, or encumbered or utilised for purpose other than those for which the grant has been sanctioned.

4. At the conclusion of the project, the Govt. of India will be free to sell or otherwise dispose of assets which are the property of the Government. The Institute shall render to Govt. necessary facilities for arranging the sale / disposal of these assets. **The Government may, however, consider the request of host institutions to retain the assets created under a project for carrying out similar work for the promotion of science.**
5. The implementing Institute/PI will furnish progress report of work on the project every six months. The progress of the project will also be reviewed/monitored at least once a year by the concerned Task Force/Project Monitoring Committee, etc. In addition the DBT shall designate Scientists/Specialists to visit the Institute periodically for reviewing the progress of work and for suggesting such measures as to ensure early realisation of the objectives of the project. On completion of the project five copies of a consolidated report of the work done on the subject would be submitted to the Department of Biotechnology.
6. The Institute is required to send to DBT a list of assets referred to at Sl. No. 2 above at the end of each financial year as well as at the time of seeking further installments of the grant.
7. The Institute would furnish to the Deptt. of Biotechnology a Utilization Certificate (Copy enclosed at **Appendix - 'B'**) and an audited statement of expenditure (Copy enclosed at **Appendix - 'C'**) duly signed by the P.I., the Head of the Institute and the Head of the Finance wing, pertaining to the grant at the end of each financial year as well as a consolidated statement of expenditure at the end of the completion of the project.

8. A stamped receipt be sent to the Deptt. of Biotechnology on receipt of the Cheque/ Demand draft towards each release.
9. The Comptroller and Auditor-General of India at his discretion shall have the right of access to the books and accounts of the Institute for the grant received from the Government.
10. The Institute would maintain separate audited accounts for the project. If it is found expedient to keep a part or whole of the grant in a bank account earning interest, the interest thus earned should be reported to the Deptt. of Biotechnology.
11. Sale proceeds, if any, as a result of the development of the project arising directly from funds granted by the Deptt. of Biotechnology shall be reported to the Govt. of India. The Govt. of India may at its discretion allow a portion of such receipt to be retained by the Institute for its utilisation for the project activities.
12. Investigators/Institutes wishing to publish papers based on the research work done under Deptt. of Biotechnology projects should acknowledge the financial support received from the Deptt. of Biotechnology.
13. Investigators/Institutes may utilize various resources such as the Bioinformatics resources, experimental materials, reagents, cell lines, animals, etc. from the National facilities/Institutes/Centres established by this Department as per the terms of transactions followed by them. More information may be obtained about such facility from DBT websites: <http://www.dbtindia.org/> www.dbtindia.nic.in, www.btisnet.ac.in.

14. Investigators / Institutes shall follow the detailed instructions on technology transfer and Intellectual Property Rights (IPR) as given at Annexure - V. The same has the approval of the Ministry of Finance, Govt. of India vide Deptt. of Expenditure, Plan Finance II - Division Letter No. 33 (5) /PF.II/99 dated 22nd February, 2000. Any deviation from these instructions may be brought to the notice of this Department.
15. Investigators / Institutes may file patents with the help of the Biotechnology Patents Facilitating Cell (BPFC) established at DBT on priority bases. The format for filing the patents may be seen at Annexure -VI.
16. The Govt. of India (Deptt. of Biotechnology) will have the right to call for drawings, specifications and other data necessary to enable the transfer of know-how to other parties and the Institute shall supply all the needed information at the request of the Department of Biotechnology which will ensure confidentiality. The information required for commercializing Biotechnologies may be furnished to this Deptt. as per the format enclosed at Annexure - VII. More information on commercialization can be found at the website www.ebc.nic.in.
17. The Institute may not entrust the implementation of the work for which the grant is being sanctioned to another institution and to divert the grant receipts as assistance to the latter institution. However, in such situations the express permission of DBT may be obtained. In case the grantee is not in a position to execute or complete the project, it may be required to refund forthwith to the Govt. of India (Department of Biotechnology) the entire amount of grant received by it.

18. The human resources that may be engaged for the project by the Institute are not to be treated as employees of the Govt. of India and the deployment of such human resource at the time of completion or termination of project, will not be the concern/responsibility of the Govt. of India. The Organisation may make reservations for Scheduled Castes, Schedule Tribes etc. in the human resource to be engaged for the project in accordance with the instruction issued by the Govt. of India from time to time.
19. The Deptt. of Biotechnology reserves the right to terminate the grant at any stage and also to recover the amounts already paid if it is convinced that the grant has not been properly utilized or the work on the project has been suspended for any unduly long period or appropriate progress is not being made.
20. The project will become operative with effect from the date of release of the first installment for the project.
21. If the Investigator to whom a grant for a project has been sanctioned leaves the institution where the project is being implemented, he shall submit five copies of complete and detailed report of the work done by him on the project and the money spent till the date of his/her release and shall also arrange to refund the unspent balance, if any.
22. The Memorandum Agreement, to be sent to Department of Biotechnology should be on Non- Judicial stamp paper of Rs. 100/-.

23. The organisation should maintain subsidiary accounts of the Govt. of India grant and furnish it to the Audit Officer as and when the recurring and non-recurring expenditure exceeds the limits of Rs. 5.00 lakhs.

[Signature]
17/08/22

Signature of Executive Authority of Institute/ University With seal:

REGISTRAR
GOA UNIVERSITY
TALEIGAO GOA
403 206

Date :

Signature and seal of Project Coordinator (If applicable)

Date: Nov 21, 2022

[Signature]
Dr. Avinash Sharma
Scientist
National Centre for Cell Science,
Pune, India.

[Signature]
Signature and seal of all Principal Investigators (PI) (s):

Date : 12/8/22

Dr. Sanjeev C. Choudhary
Professor in Biotechnology
School of Biological Sciences and Biotechnology
Goa University, Goa.

[Signature]

Signature and seal of all Co-Investigator (s)

Date : 9/9/2022