

BIO-PLASTIC CENTRE

Co-Ordinator Dr. A. ARUN

AIM

- The aim of the Bio Plastic Centre running in the university is to promote research, development, and implementation of sustainable bioplastic solutions, reducing reliance on traditional plastics and mitigating environmental impact.

OBJECTIVES

- To conduct research on innovative bioplastic materials derived from renewable resources, such as plant-based polymers, algae, and agricultural waste.
- To develop bioplastic manufacturing processes that are energy-efficient, cost-effective, and environmentally sustainable.
- To collaborate with industry partners to identify market needs and applications for bioplastics, fostering the adoption of sustainable alternatives to conventional plastics.
- To educate students, researchers, and industry stakeholders about the benefits and potential of bioplastics through workshops, seminars, and outreach programs.



ACTIVITIES 2018-2023

Bogar Bio Bee Stores Pvt Ltd., Coimbatore
Emirates Professor Mukesh Doble from IIT Madras, Chennai, Founding Director,
Start-up Company – Theevanam) at IIT Madras Incubation Cell (IITMIC).
Dr. A. Arun, Dept. of Microbiology
PLA (Biodegradable Plastic) Production
7 Lakhs for 6 Months



Ref: BBS/CON/PROJ/2023/01

Date: 15-May-2023

CONSULTANCY PROJECT

To

1. Prof. Mukesh Doble,
Director,
THEEVANAM ADDITIVES &
NUTRACEUTS PVT LTD, IIT MADRAS
RESEARCH PARK,
CHENNAI- 600036.
2. Prof A. Arun,
Professor and Head,
Department of Microbiology,
Science Campus,
Alagappa University,
Karaikudi ,630003.

Sub: Looking for Bioplastic - PLA product development based on the consultancy project proposed - Reg:

Dear Prof. Mukesh Doble and Prof. Arun,

Good Wishes.

Continuing our telephone discussion, I am sending this official request for the Research Consultancy.

Bogar Bio Bee Stores Private Limited is involved in offering top-quality products that spell excellence. Bogar Bio Bee Stores Pvt Ltd is ISO 9001-2015, ISO 13485:2016 certified company. Our platform is driven by insightful professionals and Research and Development facility with innovative and inventive products.

Bogar Bio Bee Stores Private Limited wants to do R&D and make products based on your research experience. Hence, we want a consultancy project, especially in Poly Lactic Acid (PLA) product development.

Bogar Bio Bee Stores Private Limited would like to start this consultancy project tentatively from May 2023 and will pay a sum of Rs 7,00,000.00 for six months for doing the PLA work. The instruments at our labs and Alagappa University In-house R&D lab, which will be developed, can be utilized for this consultancy project.

We hope you will consider the offer and await any communication from you.

Thanking you
With Regards



BOGAR BIO BEE STORES PRIVATE LIMITED

TICEL bio park Phase -III, Module No.104, 1st floor, Maruthamalai Road, Coimbatore-641046. Tamil Nadu.

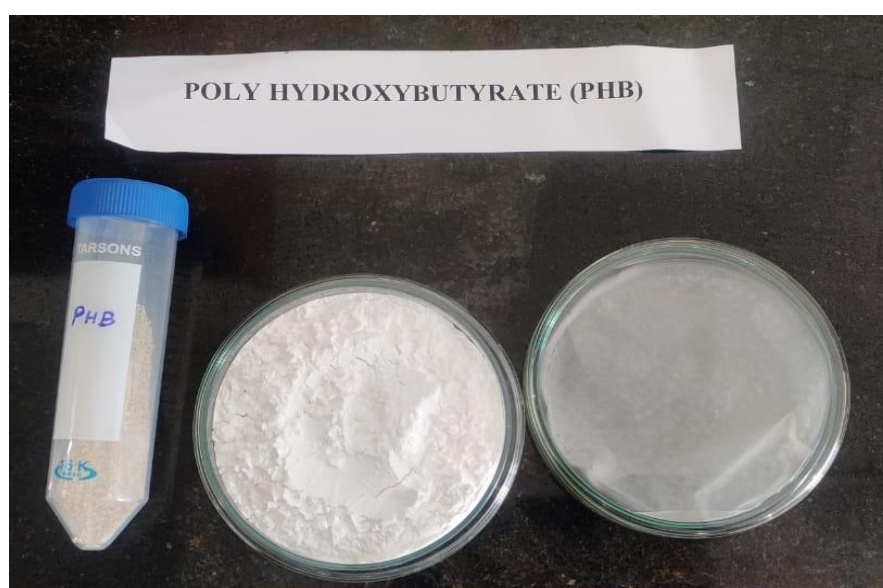
Ph +91 9043755205 Web: www.biobeestore.com Email: info@biobeestore.com

GSTIN:33AAGCB6892G1Z1 | Drug Licence No.: TN/CBS/21B/00037 | TN/CBS/20B/00037

Galaxy Research Technologies, Karaikudi

Galaxy Research Technologies (Consultancy Project)

Rs. 3.6 for 1 Year



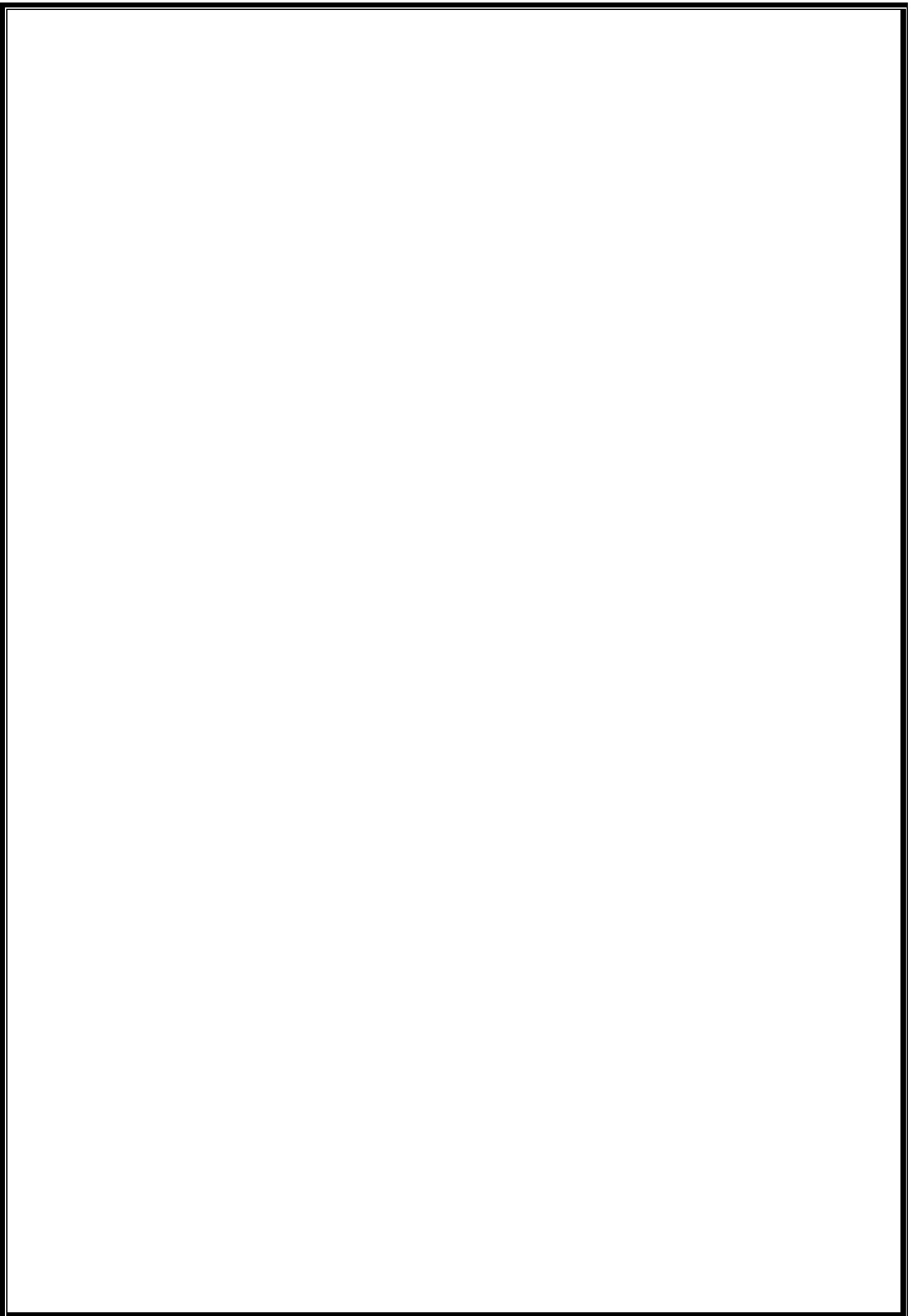
Biodegradable plastic (PHB) Produced at Department of Microbiology Mohanrasu, K., Premnath, N., Siva Prakash, G., Sudhakar, M., Boobalan, T., Arun, A., 2018. Exploring multi potential uses of marine bacteria; an integrated approach for PHB production, PAHs and polyethylene biodegradation. Journal of Photochemistry and Photobiology B: Biology, Vol.185, (August 2018), Pages 55-65 (IF 6.814), ISSN: 1011-1344. <https://doi.org/10.1016/j.jphotobiol.2018.05.014>

RUSA 2.0 – Entrepreneur in Residence (EIR) Scheme

Rs. 2.00 L

Ongoing

1. Mohanrasu, K., Guru Raj R.R., Dinesh, G.H., Zhang, K., Siva Prakash, G., Song, D., Muniyasamy, S., Pugazhendhi, A., Jeyakanthan, J., **Arun, A.**, 2020. Optimization of media components and culture conditions for polyhydroxyalkanoates production by *Bacillus megaterium*. *Fuel*. Volume 271, 117522. (IF – 8.035). <https://doi.org/10.1016/j.fuel.2020.117522>
2. Jiang, H., Ding, Y., Liu, J., **Arun, A.**, Pan, L., Song, D., Zhang, K., Li, Y., 2020. Super-Tough Poly (lactic acid) and Sustainable Elastomer Blends Compatibilized by PLLA-*b*- PMMA Block Copolymers as Effective A-*b*-CType Compatibilizers. *Industrial & Engineering Chemistry Research*. ACS Publication. <https://doi.org/10.1021/acs.iecr.0c09888> (IF: 4.326).
3. Dinesh, G.H., Nguyen, D.D., Ravindran, B., Chang, S.W., Dai-Viet, N.Vo., Quang-Vu Bach, Tran, H.N., Jothi Basu, M., Mohanrasu, K., Murugan, R.S., Swetha, T.A., Sivaprakash, G., Arokiyaraj, S., **Arun, A.**, 2020. Simultaneous Biohydrogen (H₂) and Bioplastic (Poly-β-Hydroxybutyrate-PHB) Productions under Dark, Photo, and Subsequent Dark and Photo Fermentation Utilizing Various Wastes. *International Journal of Hydrogen Energy*. ISSN: 0360-3199. (IF: 7.139) <https://doi.org/10.1016/j.ijhydene.2019.09.036>
4. Mohanrasu, K., Guru, R.R., Dinesh, G.H., Zhang, K., Sudhakar, M., Pugazhendhi, A., Jeyakanthan, J., Kumar, P., Govarthanan, M., **Arun, A.**, 2021. Production and Characterization of biodegradable Polyhydroxybutyrate by *Micrococcus luteus* isolated from marine environment. *International Journal of Biological Macromolecules*. DOI: <https://doi.org/10.1016/j.ijbiomac.2021.07.029> (IF – 8.025).
5. Mohanrasu, K., Premnath, N., Siva Prakash, G., Sudhakar, M., Boobalan, T., **Arun, A.**, 2018. Exploring multi potential uses of marine bacteria; an integrated approach for PHB production, PAHs and polyethylene biodegradation. *Journal of Photochemistry and Photobiology B: Biology*, Vol.185, (August 2018), Pages 55-65 (IF 6.814), ISSN: 1011-1344. <https://doi.org/10.1016/j.jphotobiol.2018.05.014>
6. Mohanrasu, K., Guru, R.R., Sivaprakash, G., Dinesh, G.H., **Arun, A.**, 2022. Chapter 16: Microbial bio-based polymer nanocomposites for food industry applications. In *Handbook of Microbial Nanotechnology*. (Ed. Chaudhery Hussain). P – 331-354. ISBN: 9780128234266, Academic Press, Publishing Date: March 2022. Doi: <https://doi.org/10.1016/B978-0-12-823426-6.00012-7>
7. Sudhakar, M., Ozgur, S., Boobalan, T., **Arun, A.**, 2018. Biopolymer Synthesis and Biodegradation. In *Book: Sustainable Biotechnology- Enzymatic Resources of Renewable Energy*. Om V. Singh • Anuj K. Chandel (Edt). Springer International Publishing AG, Cham, Switzerland. ISBN 978-3-319-95479-0. Page 399-421. Doi: https://doi.org/10.1007/978-3-319-95480-6_15
8. Sivagami, M., Selvambigai, M., Devan, U., Antony Joseph, A.V., Karmegam, N., Biruntha, M., **Arun, A.**, Kim, W., Govarthanan, M., Kumar, P., 2021. Extraction of microplastics from commonly used sea salts in India and their toxicological evaluation. *Chemosphere*. (IF – 8.943). <https://doi.org/10.1016/j.chemosphere.2020.128181>



9. [Sudhakar, M., Mohanrasu, K., Gada, A., Mokshang, T., Mitha, A., Boobalan, T., Vinila, P., Arun, A., 2019.](#) Biobased Biodegradable Polymers for Ecological Applications: A Move Towards Manufacturing Sustainable Biodegradable Plastic Products. In Book: Integrating Green Chemistry and Sustainable Engineering, Shahid-ul-Islam (ed.) (215–254). Scrivener Publishing LLC., Wiley. DOI: <https://doi.org/10.1002/9781119509837.ch8> . ISBN:9781119509837/Online ISBN:9781119509868
10. Muniyasamy, S., Ofosu, O., Thulasinathan, B., Thondi Rajan, A.S., Ramu, S.M., Soorangkattan, S., Muthuramalingam, J.B., **Arun, A.**, 2019, Thermal-chemical and biodegradation behaviour of alginic acid treated flax fibres/ poly(hydroxybutyrate-co-valerate) PHBV green composites in compost medium, Biocatalysis and Agricultural Biotechnology, doi: <https://doi.org/10.1016/j.beab.2019.101394> (IF: 4.26)
11. Vignesh, B.K., Muthumari, B., Kavitha, M., Praveen Kumar, J.K.J., Thavamurugan, S., **Arun, A.**, Jothi Basu, M., 2022. Studies on Optimization of Sustainable Lactic Acid Production by *Bacillus amyloliquefaciens* from Sugarcane molasses through Microbial Fermentation. Sustainability, 14, 7400. <https://doi.org/10.3390/su14127400>. (IF – 3.251).
12. Chidhambaram, M., Natchimuthu, K., Muniyandi, B., **Arun, A.**, Kheraif, A.A., Kim, W., Kumar, P., 2022. Extraction, identification, and environmental risk assessment of microplastics in commercial toothpaste. Chemosphere. 296: 133976. <https://doi.org/10.1016/j.chemosphere.2022.133976> (IF - 8.943).

ALAGAPPA UNIVERSITY

(A State University Established in 1985)
KARAIKUDI - 630 003, Tamil Nadu, India
www.alagappauniversity.ac.in

2017

2018

2018

2018

DEPARTMENT OF MICROBIOLOGY
Organises
International Conference on

BIOPLASTICS

Sponsored Under RUSA Phase 2.0 Scheme

Date : 2nd April, 2019
Venue : Conferenc Hall, 4th Floor, Science Campus

Speakers

- ★ **Prof. Mukesh Doble**
IIT Madras, Chennai
- ★ **Prof. Kunyu Zhang**
Tianjin University, China

Patron
Prof. N. Rajendran
Vice-Chancellor,
Alagappa University

Co-Patron
Prof. H. Gurumallesh Prabu
Registrar,
Alagappa University

- ★ **Prof. Dong-Po Song**
Tianjin University, China
- ★ **Dr. Sundhakar Muniyasamy**
CSIR, South Africa

Convener & Organizing Secretary
Dr. A. Arun

Organizing Committee Members
Dr. T. Kavitha
Dr. T. Sathiamoorthi
Dr. V. Balasubramanian
Mrs. K. Subha
Mrs. G. Suba

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2019

Registration: Free of cost.
Send your request for participation to alubioplastics19@gmail.com.
The confirmations of the participation will be informed by email.
Make your own arrangements for attending conference, TA/DA will not be provided.
Refreshments alone will be provided to the participants.

Establishment of Alagappa University Bioplastic Manufacturing Facility (AUBPMF) & Biodegradation Testing Facility (AUBPTF)

Collaborative Initiative between Alagappa University and CSIR, South Africa

CSIR
Touching lives through innovation

science & innovation
Department: Science and Innovation
REPUBLIC OF SOUTH AFRICA

1. Mohanrasu, K., Guru Raj R.R., Dinesh, G.H., **Zhang, K.**, Siva Prakash, G., Song, D., **Muniyasamy, S.**, Pugazhendhi, A., Jeyakanthan, J., **Arun, A.**, 2020. Optimization of media components and culture conditions for polyhydroxyalkanoates production by *Bacillus megaterium*. *Fuel*, Volume 271, 117522. <https://doi.org/10.1016/j.fuel.2020.117522> (IF – 8.035).
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3. Mohanrasu, K., Guru, R.R., Dinesh, G.H., Zhang, K., **Sudhakar, M.**, Pugazhendhi, A., Jeyakanthan, J., Kumar, P., Govarthanam, M., **Arun, A.**, 2021. Production and Characterization of biodegradable Polyhydroxybutyrate by *Micrococcus luteus* isolated from marine environment. *International Journal of Biological Macromolecules*. DOI: <https://doi.org/10.1016/j.ijbiomac.2021.07.029> (IF – 8.025).
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6. **Muniyasamy, S.**, Ofosu, O., Thulasinathan, B., Thondi Rajan, A.S., Ramu, S.M., Soorangkattan, S., Muthuramalingam, J.B., **Arun, A.**, 2019, Thermal-chemical and biodegradation behaviour of alginic acid treated flax fibres/ poly(hydroxybutyrate-co-valerate) PHBV green composites in compost medium, *Biocatalysis and Agricultural Biotechnology*, doi: <https://doi.org/10.1016/j.bcab.2019.101394> (IF: 4.26)

