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School of Life Sciences

B. S. Abdur Rahman Crescent Institute of Science and Technology

Chennai – 600048, Tamil Nadu, India

newsletter.sls@crescent.education

slsc.newsletter@gmail.com




Mobile : +91-9943535774


Phone : +91-044-2240380

Contents

S.No.	Particular	Page No.
1.	Editorial: Awards and Honours in SLS - Dr. D. MubarakAli	3
2.	Research Highlights: Benefits of Oral Administration of <i>Lactocaseibacillus paracasei</i> strain Shirota in Reducing Insulin Resistance - Noor Hammna Anwardeen	5
3.	Mini Review: Use of Environmental Stress to Enhance Biofuel Production in Microalgae - Zainab S Zafar	8
4.	Scientific Tips: Culture Collection Centres in India - Keerthana K	12
5.	Idea Corner: Student Startups in SLS - Ranjani, S.	14
7.	Guide to authors	23
8.	SLS Newsletter FREE membership form	

❖ **Editorial****Honours and awards received by SLS faculties during the year 2022**

Faculty	Honours and awards
 <p>Dr. S. Hemalatha</p>	<ul style="list-style-type: none"> • Coordinator and course organizer-Turing Scheme Study Mobility programme, funded by Govt. of UK, 2022 • Associate Editor, Applied biochemistry and biotechnology, Springer, 2022-current • Guest Editor, <i>In silico</i> Pharmacology, Springer, 2022 • Section editor, Current Pharmacology reports, Springer, 2021-current • Associate Editor, Inorganic Nano metal chemistry (Taylor and Francis). 2020-current • InRes Research Excellence Award 2022 • InRes C V Raman Prize 2022
 <p>Dr. P. Ashok Kumar</p>	<ul style="list-style-type: none"> • Received CV Raman prize 2022 for the recognition of outstanding professional & research achievements in the field of Life Sciences by the Institute of Researchers Wayanad, Kerala, India. • Listed in the Top 2% of Scientists (2022) in the field of Oncology and Toxicology by Stanford University, USA. (Sr. No. 113,369).
 <p>Dr. D. MubarakAli</p>	<ul style="list-style-type: none"> • Awarded a merit certificate for “Top 2% scientist in the world” published by Stanford University, USA in Elsevier for the year 2020 during 2021 conferred by B.S. Abdur Rahman Crescent Institute of Science and Technology in the Teacher Day celebration held on Sep 6, 2022. • Awarded a “Young Scientist Award” sponsored by DRDO, DST and CSIR held in the National Conference on

	<p>Anthropology: Biological diversity and affinities – a critical rethinking of the enduring issues in India at St. Joseph University, Dimapur, Nagaland, India held on March 17-18, 2022.</p> <ul style="list-style-type: none">• Awarded a “Cash Prize / Certificate under Research Incentives Scheme of BASCIST for the Research Publications category for the year 2020 & 2021” conferred by B.S. Abdur Rahman Crescent Institute of Science and Technology in the Teacher Day celebration held on Sep 6, 2022 for the outstanding research contribution.• Awarded First Prize in Paper Presentation in the International Conference on Antimicrobial Resistance & Microbiome under changing Climate Changes (AMRMIC 2022): Wonders of the Small 3.0 held on October 10-12, 2022 at Department of Microbiology, Pondicherry University, Puducherry (UT), India.
 <p>Dr. S.Ranjani</p>	<ul style="list-style-type: none">• Awarded with InRes Vivekananda Prize 2022.• Awarded with Young Researcher Award 2022.

❖ Research Highlights

Benefits of Oral Administration of *Lacticaseibacillus paracasei* strain Shirota in Reducing Insulin Resistance

Noor Hammna Anwardeen

III - B. Tech Biotechnology, School of Life Sciences, B.S. Abdur Rahman Crescent Institute of Science and Technology, Chennai-600048, Tamil Nadu, India

Research Highlights:

This study aims to determine the effects of *Lacticaseibacillus paracasei* (previously known as *Lactobacillus casei*) strain Shirota (LcS) in alleviating insulin resistance. Insulin resistance is defined as the failure of target organs to respond normally to the action of insulin. This condition further leads to various metabolic abnormalities such as hypertension, less tolerance to glucose and elevated levels of lipids in the blood. One of the major determinants of insulin resistance is the presence of excess level of visceral fat, which causes chronic low-grade inflammation. This causes increased production of pro-inflammatory adipokine production. These adipokines interfere with the insulin signaling pathway, thus facilitating the development of insulin resistance. Obesity-associated inflammation causes increased Toll-like receptor 4 (TLR4) signaling. TLR4 recognizes lipopolysaccharide (LPS) and nonesterified fatty acids (NEFA) which are present in higher levels in obese individuals. Lipopolysaccharide-binding protein (LBP) is a central mediator in TLR4-mediated immune response. Plasma LBP level is an indicator of the intensity of TLR4 signaling, and can also represent level of obesity and insulin resistance. When there is an increase in level of plasma LBP, it represents increased insulin resistance.

Lactobacillus casei strain Shirota is a commercially available probiotic strain. Probiotics are live microorganisms which are beneficial to the host organism when administered in adequate amounts. *Lactobacillus casei* strain Shirota YIT 9029 (LcS) was obtained from the culture collection of the Yakult Central Institute for Microbiological Research (Tokyo, Japan). The bacterial cells were prepared for administering to mice by preculturing in IL

(ionic liquid) medium, then inoculating seventy millilitres of the preculture in 7 litres of IL medium (selective medium for isolation and enumeration of *Lactobacilli* which was described by Rogosa *et al.* 1951) in a fermenter and incubating for 24 hours. The cultured cells were collected and washed three times using distilled water by centrifugation at 9000 g for 30 minutes at 4°C. Then, the cells were heat killed at 100°C for 30 minutes, lyophilized and stored at -20°C until use.

Four types of mice were used in this study. These include: Ten-week-old C57BL/6J DIO (Diet induced obese) mice which were fed commercial high fat (HF) diet from 4 weeks of age, ten-week-old ob/ob mice, ten-week-old db/db mice, ten-week-old KK-*A^y*/Ta mice. The first 3 types of mice were purchased from Charles River Japan, Yokohama, Japan. The 4th type of mice was purchased from Clea Japan, Tokyo, Japan. All mice were housed individually in plastic cages under conventional conditions. The ob/ob mice (obese mice) are mutants which eat excessively due to mutation in the gene for leptin production and become obese. These ob/ob mice are commonly used as an animal model for type II diabetes. db/db mice are used as models for type II diabetes and obesity. KK-*A^y*/Ta mice are used as animal models for type II diabetes, and they develop hyperglycemia and obesity.

DIO mice received tap water and high fat diet for 14 days. Then, they were assigned randomly into two groups; one group was fed a high fat diet whereas the other group was fed a high fat diet supplemented with 0.05% (w/w) *Lactobacillus casei* strain Shirota (LcS) for 5 weeks. The high fat diet was referenced from D12492; Research Diets, Inc., New Brunswick, NJ, USA. The other types of mice (ob/ob, db/db, KK-*A^y*) received a normal mouse chow diet for one week. The body weight of mice was recorded once a week. Mice were subjected to insulin tolerance test (ITT) and oral glucose tolerance test (OGTT) to study insulin resistance and glucose intolerance respectively.

Insulin Tolerance Test (ITT) was done by injecting human insulin (Humulin R, Eli Lilly Japan) intraperitoneally into the mice and then collecting blood samples from the tail vein. Oral glucose tolerance test (OGTT) was done by oral administration of glucose using oral gavage, then collecting blood samples from the tail vein. It was confirmed that the DIO

mice which was fed commercial high fat diet from 4 weeks of age developed obesity, insulin resistance and glucose intolerance. The effect of LcS was studied by comparing results between control group (high fat diet alone) and LcS group. From the ITT, it was observed that plasma glucose levels were significantly lower in the LcS group at 30, 60, 90 and 120 minutes after insulin injection.

The insulin tolerance test results were as follows: the plasma glucose levels in control population were 140 mg dl⁻¹, 120 mg dl⁻¹, 150 mg dl⁻¹, 190 mg dl⁻¹ at 30, 60, 90, and 120 minutes respectively after insulin loading. Whereas, in the LcS group, the plasma glucose levels were 120 mg dl⁻¹, 90 mg dl⁻¹, 100 mg dl⁻¹ and 120 mg dl⁻¹ at 30, 60, 90, and 120 minutes respectively after insulin loading. The most significant difference between control group and LcS group was observed at 120 minutes, where the LcS group has 70 mg dl⁻¹ less plasma glucose level compared to control group. The OGTT results also showed that plasma glucose levels were significantly lower in the LcS group and followed a similar pattern as ITT results. The control group was also found to have higher level of plasma lipopolysaccharide-binding protein (LBP) of 5.2 µg ml⁻¹ compared to 4.6 µg ml⁻¹ in the LcS group. The administration of LcS in DIO mice caused less plasma LBP levels, which shows that LcS treatment may reduce obesity-associated inflammation by attenuating metabolic endotoxaemia. The above findings show the positive effect of LcS in reducing insulin resistance and improving glucose intolerance.

For Further Reading: Naito, E., Yoshida, Y., Makino, K., Kounoshi, Y., Kunihiro, S., Takahashi, R., Matsuzaki, T., Miyazaki, K., & Ishikawa, F. (2011, February 1). Beneficial effect of oral administration of *Lactobacillus casei* strain Shirota on insulin resistance in diet-induced obesity mice. *Journal of Applied Microbiology*, 110(3), 650–657. <https://doi.org/10.1111/j.1365-2672.2010.04922.x>

***Author Correspondence:** Ms. Noor Hammna Anwardeen, B. Tech Biotechnology, School of Life Sciences, B.S. Abdur Rahman Crescent Institute of Science and Technology, Chennai-600048, Tamil Nadu, India. E-Mail: noorhammna@gmail.com

❖ Mini Review**Use of Environmental Stress to Enhance Biofuel Production in
Microalgae****Zainab S Zafar**

B.Tech - Biotechnology, School of Life Sciences, B.S. Abdur Rahman Crescent Institute of Science and Technology, Chennai-600048, Tamil Nadu, India

Research Highlights:

This research was conducted to test the biofuel productivity of microalgae by exposing two strains of microalgae (*Scenedesmus dimorphus* and *Selenastrum minutum*) to stressful conditions. In the recent years, the use of microalgae to produce biodiesel has gained importance. This is because algae are a renewable source and environment friendly. Commercial microalgal cultivation for biofuel under optimal growth conditions contains low lipid content, which reduces the biodiesel quantity. However, subjecting the microalgae to various stresses during their growth phase can increase the lipid content, thereby yielding a greater amount of biodiesel in a short span of time.

In this article, the researchers subjected the algae to two different environmental stresses: salt stress and nutrient deprivation to check their effect on the lipid content and FAME composition. FAME content is the amount of various fatty acid methyl esters present in the fuel after transesterification. The microalgae used for this study were purchased from UTEX, The Culture Collection of Algae at the University of Texas, USA and grown in filtered municipal wastewater locally obtained. This was cultured for 6 days and further treatments were carried out. Both the microalgae were subjected to salt stress by suspending the centrifuged pellets in 5% salt solution and nutrient deprivation by placing in tap water for up to 3 days. The samples were centrifuged at 3520g for 5 minutes and

resuspended in salt solution and tap water. A reference sample, which contained the algal strains in wastewater obtained for 3 days after culturing.

The lipids from *Scenedesmus dimorphus* and *Selenastrum minutum* were extracted using a chloroform/methanol (2:1 v/v) mixture and 0.73% NaCl solution. The quantity of lipids was determined gravimetrically. For obtaining fatty acid content, the cells pellets obtained after centrifugation were boiled in 1–2 ml of isopropanol for 10 min and then stored at -20°C . The samples were allowed to cool down and dry. After drying, the samples were exposed to N_2 . Transesterification of the derived fatty acids (FA) into FA methyl esters (FAME) was carried out by adding 1 ml of 5% H_2SO_4 in dry methanol to the samples and boiled at 80°C for 2 h. Centrifugation at 1,250 g for 2 min was carried out again after adding 1 ml of distilled water and 2 ml of pure petroleum ether. The supernatant was transferred into a vial and redried and flushed with N_2 to remove air. Dry samples were dissolved in 50–60 μl hexane and 1 μl was injected and analyzed using a gas chromatograph. The identification of fatty acids was carried out by comparing their retention times with those of a standard. Based on the observations carried out for the three days, the following information regarding the lipid content was as follows:

Nutrient Deprivation

In *S. dimorphus* the total lipid content (in percentage) went from 17.4% initially to 24.3%, 38.2% and 29.6% at days 1, 2 and 3 respectively, showing maximum increase at day 2. In *S. minutum* the total lipid content was 26% at start and had a significant increase only till day 2. Day 1 showed 42%, day 2 showed 43% and day 3 showed 33% of lipid content.

Salt Stress

In *S. dimorphus*, total lipid content increased from 17.4% to 24.5% in day 1, 33.8% in day 2 and 28.9% in day 3. The maximum amount of lipid being at day 2 after introduction of salt stress. In *S. minutum*, the highest lipid content was recorded at day 1 at 40%, followed by 36.8 at day 2 and 36% at day 3. There was a significant increase in percentage after day 1. On comparing with the samples growing directly in wastewater, samples undergoing

nutrient deprivation and salt stress had slightly higher quantity of lipids. The fatty acids derived from the two algal strains comprised mainly of C16 and C18 chains.

The most commonly found fatty acids were palmitic acid, linoleic acid, oleic acid, linolenic acid and some other C15 fatty acids in low concentrations. The predominant ones were palmitic acid and linoleic acids which are ideal for biodiesel production.

Upon determination of the ratio of various FAME produced, the researchers inferred that samples grown under nutrient deprivation and wastewater showed a greater amount of unsaturated fatty acids to saturated fatty acids, while samples exposed to salt stress displayed the opposite, saturated fatty acid content being more than unsaturated fatty acids. The greater the saturated fatty acid content, the greater the oxidative property of the fuel. Hence, according to the research, samples grown under salt stress are ideal for use as biofuel. However, the challenge to utilize the biofuels derived from the algae arises when their application is done in colder climate regions due to poor cold flow properties of the oils derived. Similarly, the amount of monounsaturated fatty acids was found to be more than polyunsaturated fatty acids, when samples were subjected to nutrient deprivation, which was shown to have better oxidative properties.

It was concluded that the microalgae, *S. dimorphus* and *S. minutum* had an increase in lipid content and a decrease in protein and carbohydrate content when subjected to nutrient deprivation and salt stress. The results showed that the predominant fatty acids were C16 and C18 fatty acids, which are similar to that of vegetable oils used for biodiesel production. The fatty acids can be transesterified to produce biodiesel, along with the stresses to improve the quality of the biodiesel produced. The study also states that salt water present in industrial effluents and sea water can be utilized to culture freshwater microalgae for industrial biofuel production.

For further reading: Nirupa Pushpakumari Kudahettige, Jana Pickova and Francesco G. Gentili (2018, December 3). Stressing Algae for Biofuel Production: Biomass and Biochemical Composition of *Scenedesmus dimorphus* and *Selenastrum minutum* Grown in Municipal Untreated Wastewater. *Frontiers in Energy Research (Biofuels and Bioenergies)*, <https://doi.org/10.3389/fenrg.2018.00132>

***Author Correspondence:** Ms. Zainab Sultana Zafar, School of Life Sciences, B.S. Abdur Rahman Crescent Institute of Science and Technology, Chennai-600048, Tamil Nadu, India.
E-Mail: zaina.zafar614@gmail.com

❖ **Scientific Tips****Microbial Culture Collection Centres in India****Keerthana K**

M.Sc. Microbiology, School of Life Sciences, B.S. Abdur Rahman Crescent Institute of Science and Technology, Chennai-600048, Tamil Nadu, India

S.NO	CULTURE COLLECTION CENTRE	URL
1	Microbial culture collection-ICMR-Vector control Research centre. Puducherry	https://vcrc.icmr.org.in/facilities/microbial-culture-collection
2	National Collection of Industrial Microorganisms. Pune	https://www.ncl-india.org/ncim
3	Microbial Type Culture Collection and Gene Bank (MTCC).Chandigarh	https://mtccindia.res.in
4	Culture collection department of microbiology Bose institute CCDMBI. kolkata	http://www.jcbose.ac.in/microbiol
5	North Maharashtra microbial culture Collection centre, Maharashtra	http://grbio.org/cool/0gc0-dy4w
6	Gujarat biodiversity gen bank,Gujarat	http://btm.gujarat.gov.in/btm/sgb-inti.html
7	MACS Collection of micro organisms MCM gharkar Reserch Institue,Pune	https://aripune.org/microbial-collection/

8	National collection of diary cultures National dairy research institute karnal	http://www.ndri.res.in
9	NII Microbial Culture Collection NIICC National Institute for Interdisciplinary Science and Technology (CSIR) Trivandrum, Kerala	https://www.niist.res.in/
10	National Bureau of Agriculturally Important Microorganisms (NBAIM), Indian Council of Agricultural Research (ICAR), Kushmaur, Uttar Pradesh	https://nbaim.icar.gov.in/
11	National Facility for Marine Cyanobacteria Bharathidasan University Tiruchirappalli, Tamil Nadu	https://www.bdu.ac.in/centers/NFMC/

***Author Correspondence:** Ms. Keerthana, K., School of Life Sciences, B.S. Abdur Rahman Crescent Institute of Science and Technology, Chennai-600048, Tamil Nadu, India. E-Mail: 220532601010@crecident.education

❖ Student Corner :

Student Startups in SLS

Ranjani, S

School of Life Sciences, B.S. Abdur Rahman Crescent Institute of Science and Technology, Chennai-600048, Tamil Nadu, India



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MSME UDYAM Registration number: UDYAM-TN-34-0004598

Name of the start up: **COS-NO-ACNE**
 Name of the student: **O Chanchal Kumari Jangam, M.Sc. (2020-22)**
 Name of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

Organic nano based formulation to cure acne.
 A natural solution for **young, healthy and glowing skin**.
 COS-NO-ACNE cream completely **clears ACNE**.



School of Life Sciences



MSME UDYAM Registration number: : UDYAM-TN-34-0004573

Name of the start up: **Bio-Nawrap**
 Name of the student: **D.B. Madhu varshini, M.Sc. (2020-22)**
M. Nisar Fathima, B.Tech. (2018-22)
 Name of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

Developing an eco-friendly Bio-Nawrap which enhances the **protection of food** items placed inside the wrap against **food borne pathogens** and also **increase the shelf life** of food.



School of Life Sciences



MSME UDYAM Registration number: UDYAM-TN-34-0004709

Name of the start up: **LAC GEL**
 Name of the student: **Dhanushwari, Priyadarshini, N, B.Tech. (2018-22)**
 Name of the Mentors: **Dr. Gulzar Shamim**

An **antimicrobial gel** formulation for topical use, effective in cuts, burns and wounds.



School of Life Sciences



MSME UDYAM Registration number: UDYAM-TN-34-0004709

Name of the start up: **VISU Biological effluent management**
 Name of the student: **Nivedita, V, M.Tech (2020-22)**
 Name of the Mentors: **Dr. Mt. Khurshid Alam Khan**

Focusing on **microbe-free water** and research footsteps to make effluents **contamination free**.



Clensella

School of Life Sciences

MSME UDYAM Registration number: UDYAM-TN-34-0004598

Name of the start up: **Clensella**
 Name of the student: **M. Bhavani, R. Swathi Shri, Jaya shree. A, M.Sc. (2020-22)**
 Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

A safe natural cleanser which acts as a **bio-defensor** against multi drug resistant pathogens.



Fish grow-N

School of Life Sciences

MSME UDYAM Registration number: UDYAM-TN-34-0004591

Name of the start up: **Fish grow-N**
 Name of the student: **Santhana Lakshmi, V, B.Tech. (2018-22)**
 Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

Divulging a plant derived **nano formulated fish feed additive**, highly effective towards prevention of vibriosis in fishes. A multifaceted product, serve as **immune booster** and growth stimulant which is cost effective, **eco-friendly** and easy to use product.



ForeverTeen

School of Life Sciences

MSME UDYAM Registration number: UDYAM-TN-34-0004593

Name of the start up: **ForeverTeen**
 Name of the student: **Osama Aryan, Shreya Verma M.Sc. (2020-22)**
 Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

An organic, **nano based anti aging cream** to reduce the wrinkles and fine lines for visibly firmer-looking skin.



Sensocan

School of Life Sciences

MSME UDYAM Registration number: UDYAM-TN-34-0004576

Name of the start up: **Sensocan**
 Name of the student: **Deebalakshmi, S, Madhumitha, H, Rajalakshmi, S, Vishal, J B.Tech. (2018-22)**
 Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

An accessible, affordable, **non-invasive** and easy to use **diagnostic kit** for detecting **oral cancer** using **salivary based biomarkers**.



UTI-CIDE

School of Life Sciences

MSME UDYAM Registration number: UDYAM-TN-34-0004602

Name of the start up: **UTI-CIDE**
 Name of the student: **Pradeesh Kumar A, Md. Arsath Farveez K. A, M.Sc. (2020-22)**
 Names of the Mentors: **Dr. Ashok Kumar, P**

Developing **novel drugs** for **Urinary tract infecting pathogens**.



Herbolblend

School of Life Sciences

MSME UDYAM Registration number: UDYAM-TN-34-0004598

Name of the start up: **Herbolblend**
 Name of the student: **Sridhyya K, B.Tech. (2018-22)**
 Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

We harness the power of science to support animal health and performance by natural blend of herbal and spice **stimulate the immune system** and **gut health extract feed additive** with state-of-the-art of nanotechnology to against various antibiotic resistant poultry pathogens.



CanCur-G

School of Life Sciences

Name of the start up: **CanCur-G**
 Name of the student: **Rairunya J.B., M.Tech. (2020-22)**
 Names of the Mentor: **Dr. S. Hemalatha**

Alternative **natural supplements** for chemotherapeutic drugs used in the **treatment of cancer** using plant-based Natural substances with no Side-effects. Prepared in a **Cost-effective** manner.



Nan-O-drop

School of Life Sciences

MSME UDYAM Registration number: **UDYAM-TN-34-0004582**

Name of the start up: **Nan-O-drop**
 Name of the student: **Raihan A, Divyatharathi.M, M.Sc. (2020-22)**
Saranya.J, M.Tech. (2020-22)
 Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

An anti fungal eye drops using nanotechnology to **cure eye infections**, caused by various fungal species.



Vibrotic

School of Life Sciences

MSME UDYAM Registration number- **UDYAM-TN-34-0004587**

Name of the start up: **Vibrotic**
 Name of the student: **Vishwanand V, Vanjimalar, N, M.Sc. (2020-22)**
 Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

Feed additives to **prevent vibriosis** and to **promote fish growth**.



CITRUS

School of Life Sciences

MSME UDYAM Registration number- **UDYAM-TN-34-0004570**

Name of the start up: **CITRUS**
 Name of the student: **Kavya.C, M.Sc. (2020-22)**
 Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

Nanobead spray to control and prevent **citrus canker** in various species of Citrus.



Nan-o-fresh

School of Life Sciences

MSME UDYAM Registration number- **UDYAM-TN-34-0004577**

Name of the start up: **Nan-o-fresh**
 Name of the student: **G. Arivuli Aravindhan, Tasveem Juas, B.Tech. (2018-22)**
 Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

As our guardians against hazardous microbes in and around our bodies, **environmentally safe nanomaterials** are integrated into our products.



Sil-Chill-Burn

School of Life Sciences

MSME UDYAM Registration number- **UDYAM-TN-34-0004586**

Name of the start up: **Sil-Chill-Burn**
 Name of the student: **S. Vijayarathi, M.Sc. (2020-22)**
 Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

Sil-chill-burn gel bandages are **nano-infused gel bandages** that can interact with the skin and are used for **topical treatment**. It is simple to use and sterile and it **prevents secondary infection** from the external environment.




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TRANQUIL NANOMEDS
GIVE YOUR CELLULITE



MSME UDYAM Registration number- UDYAM-TN-34-0004586

Name of the start up: **Tranquil nanomedics**
 Name of the student: **Janakiraman.S, M.Sc. (2020-22)**
 Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

Nano based cream to control bacteria induced secondary wound infections.




School of Life Sciences



innovatins



MSME UDYAM Registration number- UDYAM-TN-34-0004586

Name of the start up: **Innovatins**
 Name of the student: **Reshma K.J, Ramya. S. K. M.Sc. (2020-22)**
 Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

Multipurpose nanobased plant growth promoter and protector from bacterial fungal diseases, green and eco friendly, biodegradable, non toxic formulations developed by Innovatins




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MHS
CREATING BIODEGRADATION



MSME UDYAM Registration number- UDYAM-TN-34-0004579

Name of the start up: **MHS**
 Name of the student: **Lavanya. S, M.Sc. (2020-22)**
 Names of the Mentors: **Dr. S. Hemalatha, Dr. I. Faridha Begum**

Development of biomaterials for the treatment of effluent water sludge to achieve zero sludge disposal




School of Life Sciences



BacKAM



MSME UDYAM Registration number- UDYAM-TN-34-0004598

Name of the start up: **MHS**
 Name of the student: **Manikandan. K, Ph.D. Research Scholar**
 Names of the Mentors: **Dr. S. Hemalatha**

BacKAM Capsule is an Eco-friendly product to remove dyes from various industrial effluents to utilize for sustainable agriculture




School of Life Sciences



ZANA SOLUTIONS



MSME UDYAM Registration number- UDYAM-TN-34-0032407

Name of the start up: **ZANA SOLUTIONS**
 Name of the student: **Mohamed Juvaid. N, M.Tech. (2021-23)**
 Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

Organic nano based formulation as natural fertilizers. A natural solution for promoting plant growth. ZANA fertilizers promotes plant growth and promote biochemical constituents




School of Life Sciences



AHR- Gug Lyf



MSME UDYAM Registration number- UDYAM-TN-34-0032407

Name of the start up: **AHR- Gug Lyf**
 Name of the student: **M Amish Shabiya, B.Tech. (2019-23)**
 Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

Fortified Soup Mix
 Boost your health and delight your taste buds with our fortified soup mix. "Fuel your body with a soup that goes beyond flavor, offering effective antioxidant, antibacterial, anti-inflammatory, and antidiabetic properties in every spoonful."



Rejuven-U
ANTIFACING CREAM

School of Life Sciences

Name of the start up: **Rejuven-U**
Name of the student: **S Jaswanthika, Lina Fatima M, B.Tech. (2019-21)**
Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

Nanocream with **antifaging** formulation.
An organic solution for **rejuvenating** your skin.
Rejuven-U cream **reduces aging** in skin



ENVY-WRAP

School of Life Sciences

Name of the start up: **ENVY-WRAP**
Name of the student: **Kanisha J, B.Tech. (2019-21)**
Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

BIO- based FOOD WRAPPER have unique properties that can help extend the shelf life of food and maintain its freshness ,mitgate climate change and prevents the cause of global warming.



A-Z anti-microbial cream

School of Life Sciences

Name of the start up: **A-Z anti-microbial cream**
Name of the student: **Nusrissa Fatimah, B.Tech. (2019-21)**
Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

Organic nano based formulation to bacteria infection.
A natural solution for **inhibit the growth and reduce the inflammation** from the bacterial infection.
A-Z cream completely inhibit the bacterial growth



NINO-PGP

School of Life Sciences

Name of the start up: **NINO-PGP**
Name of the student: **U.Miranjana, B.Tech. (2019-21)**
Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

Organic nano based formulation for plant growth promotion.
A natural solution for growing plants naturally.



MR Hair Dye

School of Life Sciences

Name of the start up: **MR Hair Dye**
Name of the student: **Mohammed Riyaz, B.Tech. (2019-21)**
Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

MR Hair dye helps to **colour the hair completely** without any damage and side effects to scalp and hair.



Napro

School of Life Sciences

Name of the start up: **Napro**
Name of the student: **I. Suha Kouser, B.Tech. (2019-21)**
Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

Green tea enriched **mano serum gel** ; Unlock your skin's radiance with Napro





Name of the start up: No 'NO-WOUNDS'

Name of the student: Manideepsa Guha, M.Sc. (2021-23)

Names of the Mentors: Dr. S. Hemalatha, Dr. S. Ranjani

Our **organic nano cream** helps **heal diabetic wounds**.
 Say goodbye to inflammation, pain and have a better healing process.
Because No 'NO-WOUNDS' says NO to WOUNDS!





Name of the start up: NIVRAKSHI

Name of the student: Nivethairi R V, M.Sc. (2021-23)

Names of the Mentors: Dr. S. Hemalatha, Dr. S. Ranjani

Green nano-based formulation to treat infected commercial plants
 A natural solution to protect plants from pathogenic fungal spc.
NivRakshi – nano fungicidal spray completely safe and green





Name of the start up: FUNGOPEDIA

Name of the student: Ragul M, M.Tech. (2021-23)

Names of the Mentors: Dr. S. Hemalatha, Dr. S. Ranjani

Organic nano based formulation to protect perishable fruits.
 FUNGOPEDIA spray completely **control the fungal growth**.





Name of the start up: AQUA SAFE

Name of the student: R.Swathika, M.Sc. (2021-23)

Names of the Mentors: Dr. S. Hemalatha, Dr. S. Ranjani

"AQUA SAFE" is a fish feed that protects the fish from **"VIBRIO"** species





Name of the start up: BioNourish

Name of the student: V. Divyaa, M.Tech. (2021-23)

Names of the Mentors: Dr. S. Hemalatha, Dr. S. Ranjani

Organic plant growth booster for stronger and faster growth.
 Our growth enhancer - your shortcut to a green thumb.
BioNourish, the secret to lush, vibrant plants





Name of the start up: BioNourish

Name of the student: Siddikha Sultana L. M.Sc. (2021-23)

Names of the Mentors: Dr. S. Hemalatha, Dr. S. Ranjani

Green nano based product for the treatment of cancer- **"Unleash Your Inner Warrior: Conquer Cancer Naturally"**






Name of the start up: **Silica life**
 Name of the student: **Devipriya, A, M.Sc. (2021-23)**
 Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

Plant growth promoter enhances secondary metabolites and antioxidant enzymes.
"Grow plants for a better tomorrow with Silica life"






Name of the start up: **MastiCare**
 Name of the student: **Akash B N, M.Tech. (2021-23)**
 Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

Organic nano based formulation to cure bovine mastitis.
Stronger Cows, Happier Herds: Our Mastitis Solution






Name of the start up: **DIYA GAL**
 Name of the student: **V Sandhya, M.Tech. (2021-23)**
 Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

Green synthesized nano spray to prevent food spoilage.
A way to extend the life span of food.






Name of the start up: **Mama's Silica wrapper**
 Name of the student: **Monisha T, M.Tech. (2021-23)**
 Names of the Mentors: **Dr. S. Hemalatha, Dr. S. Ranjani**

Antibacterial meat wrapper for keeping meat healthy and extended shelf life.
Antibacterial film wrapper for healthy coating and storing of meat.






MSME UDYAM Registration number: **UDYAM-TN-34-0004592**

Name of the start up: **SMART FUEL**
 Name of the student: **Mohamed Usama, M.Sc (2020-22)**
 Name of the Mentor: **Dr. D. MubarakAli**

SMART FUEL, production of high quality biofuel from green microalgae






MSME UDYAM Registration number: **UDYAM-TN-34-0004589**

Name of the start up: **ALION**
 Name of the student: **Rajon Batsam, M.Sc (2020-22)**
 Name of the Mentor: **Dr. D. MubarakAli**

ALION, manufacturing of **algal bag** for waste water treatment.





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MSME UDYAM Registration number: UDYAM-TN-34-0033032

Name of the start up: HEFT Green Environ
 Name of the student: A Hajara , M.Sc (2020-22)
 Name of the Mentors: Dr I .Faridha Begum

Enhancing biomaterials to treat industrial effluent to produce Zero sludge Disposal





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MSME UDYAM Registration number: UDYAM-TN- 34-0032949

Name of the start up: ZEFT Green Environ Enterprises
 Name of the student: Zebo Biswas, M.Sc (2021-2023)
 Name of the Mentors: Dr I .Faridha Begum

Creating a biomaterial that will result in zero waste Generation.





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MSME UDYAM Registration number: UDYAM-TN-34-0033032

Name of the start up: NEFT-Green Environ
 Name of the student: Gausalyan K, M.Sc (2021-2023)
 Name of the Mentors: Dr I .Faridha Begum

Developing of bioproduct for the treatment of tannery effluent to achieve the clear azo dye





School of Life Sciences




MSME UDYAM Registration number: UDYAM-TN-34-0032998

Name of the start up: FaME Zero Pollution
 Name of the student: Aarthi Punraj, M.Sc (2021-2023)
 Name of the Mentors: Dr I .Faridha Begum

Executing of Biomaterial to attain Zero Effluent Disposal.
 Go Zero pollution with FaME Zero Pollution. FaME accelerates to Eco Friendly Environment.

***Author Correspondence: Dr. S. Ranjani**, Assistant Professor, School of Life Sciences, B.S. Abdur Rahman Crescent Institute of Science and Technology, Chennai-600048, Tamil Nadu, India. E-Mail: ranjani.sls@crescent.education

❖ INSTRUCTIONS TO AUTHORS:

SLS newsletter, a biannual publication by the School of life science intends to enlighten the readers with research articles, reviews, reports, research highlights, news and facts, concerned to the advancing field of biotechnology.

In order to acknowledge recent advancements and potential knowledge, bringing it to the notice of the science community through the newsletter, SLS welcomes original research, review and reports and details of the forthcoming events (conferences, seminars, symposia, trainings and workshops.)

❖ GUIDELINES FOR SUBMISSION:

- ✓ The article submitted must be an own write up on the selected article.
- ✓ References: The research paper referred must be assessed from renowned publishers (science, nature etc.,) and the references must be mentioned in the article.
- ✓ No Plagiarism will be entertained.
- ✓ The article should be typed in double space in word format limited to > 1000 words with font “Cambria” and font size 12 with 1.5 line spacing.
- ✓ Illustration and tables: Illustrations must be reduced to one – third of the page. Typed tables should be provided with tittles. Authors are specially requested to reduce the number of tables, illustrations and diagrams to a minimum (maximum 2).
- ✓ The SLS newsletter assumes no responsibility for statements and opinions advanced by the contributors to the journal.



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