Karnataka State Council for Science and Technology

Indian Institute of Science Campus, Bengaluru - 560 012

Telephone: 080-2334 1652, 2334 8848, 2334 8849 ♦ Telefax: 080-2334 8840

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KSCST

Dr. S. G. Sreekanteswara Swamy
Executive Secretary

27th March 2017

Ref: 7.1.03/SPP/1112

The Principal
Alva's Institute of Engineering and Technology
Shobavana Campus,
Mijar, Moodbidri - 574 225.
Mangaluru.

Dear Sir,

Sub : Sanction of Student Project - 40th Series: Year 2016-2017
Your Project Proposal Reference No. : 40S_BE_0841

Ref : Your Project Proposal entitled " **A FEASIBILITY STUDY ON TREATMENT OF DAIRY WASTEWATER AIDED WITH ELECTRICITY GENERATION USING DUALCHAMBERED MICROBIAL FUEL CELL**

I am happy to inform that your project proposal referred above, has been approved by the Secretary, KSCST for "Student Project Programme - 40th Series" and has been sanctioned with a budgetary break-up as detailed below:

Student /s	Mr. Shivakumar S G and others	**Budget**	**Amount (Rs)**
		Materials/Consumables	3,500.00
Guide/s	Prof. Sanjay S	Labor	-
		Travel	500.00
Department	Civil Engineering	Miscellaneous	-
		Report	500.00
		TOTAL	4,500.00
	Rupees Four Thousand Five Hundred		

The following are the guidelines to carryout the project work :

a) The project should be performed based on the objectives of the proposal sent by you.

b) The project should be completed in all respects and one copy of the hardbound report along with softcopy of the full report in a CD (.pdf format) should be submitted to KSCST.

c) Any change in the project title and objectives, etc., or students is liable to rejection of the project and the amount sanctioned needs to be returned to KSCST.

d) Please quote your **project sanction reference number printed above** in all your future correspondences.

e) **Important:** After completing the project, 2 to 3 page write-up (synopsis) needs to be sent by e-mail [spp@kscst.iisc.ernet.in] and should include following :

1) Title of the project
2) Name of the College & Department
3) Name of the students & Guide(s)
4) Keywords

PRINCIPAL
Institute of Engg. & Technology,
MOODBIDRI - 574 225, D.K

5) Introduction / background
   (with specific reference to the project, work done earlier, etc) - about 20 lines
6) Objectives (about 10 lines)
7) Methodology (about 20 lines)
   (materials, methods, details of work carried out, including drawings, diagrams etc)
8) Results and Conclusions
   (about 20 lines with specific reference to work carried out)
9) Scope for future work (about 20 lines).

(Note: The write-up (Synopsis) should be sent with the approval of project guide. The softcopy of the write-up, in MS Word format, should be sent by e-mail (spp@kscst.iisc.ernet.in). In your e-mail, please also include project proposal reference number and title of the project.)

e) Projects selected for Seminar / Exhibition will be awarded.

The sanctioned amount will be sent separately by our Accounts Department.

The sponsored projects evaluation will be held in the Nodal Centre and the details of the nodal centre will be intimated shortly.

Please visit our website for further announcements / information and for any clarifications please email to spp@kscst.iisc.ernet.in

Thanking you and with best regards,

Yours sincerely,

(SGS Swamy)

Copy to:

1) The Head of the Department of
   Civil Engineering
   Alva'S Institute Of Engineering And Technology
   Shobavana Campus,
   Mijar, Moodbidri - 574 225.
   Mangaluru.

2) Prof. Sanjay S
   Department of Civil Engineering
   Alva'S Institute Of Engineering And Technology
   Shobavana Campus,
   Mijar, Moodbidri - 574 225.
   Mangaluru.

3) The Finance Officer, KSCST, Bangalore

"A Feasibility Study on Treatment of Dairy Wastewater Aided With Electricity Generation Using Dual Chambered Microbial Fuel cell"

PROJECT REPORT

Submitted by

HEMANTHA KUMAR K.R	4AL13CV115
LATHA	4AL13CV126
MADHUSHREE .S	4AL13CV118
SHIVAKUMAR . S.G	4AL14CV422

In partial fulfillment of the requirements for the degree of

BACHELOR OF ENGINEERING

in

CIVIL ENGINEERING

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI 590018

Under the Guidance of

Mr. SANJAY S

ASSISTANT PROFESSOR

Department of Civil Engineering

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MOODBIDRI-574225, KARNATAKA

2016 – 2017

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MIJAR MOODBIDRI D.K. -574225 – KARNATAKA

DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE

Certified that the project work entitled **"A Feasibility Study On Treatment Of Dairy Wastewater Aided With Electricity Generation Using Dual Chambered Microbial Fuel cell"** is a bonafide work carried out by

HEMANTHA KUMAR K.R	**4AL13CV115**
LATHA	**4AL13CV126**
MADHUSHREE .S	**4AL13CV118**
SHIVAKUMAR . S.G	**4AL14CV422**

Are bonafide students of Department of Civil Engineering, Alva's Institute of Engineering and Technology in partial fulfillment for the award of BACHELOR OF ENGINEERING in **CIVIL ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2016–2017. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

15/05/17

Mr. Sanjay. S
Project Guide

31/5/2017

Prof. B. Durgaprasad Baliga
Head of the Department

H.O.D.
Dept. of Civil Engineering
Alva's Institute of Engg. & Technology
Mijar, Moodbidri - 574 225

Dr.PeterFernandes.
Principal

PRINCIPAL
Alva's Institute of Engg. & Technology,
Mijar, MOODBIDRI - 574 225, D.K.

Name of the Examiners **Signature with Date**

1:

2

ABSTRACT

The increasing risk of global warming by greenhouse gasses requires further development of renewable energy sources. Sharp escalation in prices and fast depletion of conventional energy sources leads to search for an alternative energy. Microbial fuel cell technology is a new type of renewable and sustainable technology for electricity generation. It recovers energy from materials that are difficult to dispose of such as sugar waste water, municipal waste water, dairy waste water and paper industry waste water. Biological hydrogen production processes are found to be more environment friendly and less energy intensive.

Microbial fuel cells are electrochemical device used for converting chemical energy contained in organic matter into electricity by means of catalytic (metabolic) activity of living microorganisms. It is an alternative method to reduce cost of treatment and generate electricity. Microbial source uses dairy waste water as a substrate for the production of electricity. Microbial fuel cells have an advantage over other electricity production methods because of their high efficiency.

For experimental studies conducted in the laboratory, considerable reduction in Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Dissolved Solids (TDS) and Oil and Grease has been achieved. The removal efficiencies ranged between 90.4% to 91.12% for BOD, 89.9% to 90.3% for COD, 94.09% to 98.7% for TDS and 92.25% to 94.81% for Oil and Grease. The maximum electricity generated was 296mV. Hence the overall reactor efficiency is very encouraging and could be scaled up easily in the near future.

Key words: DC-MFC, Dairy Wastewater, Copper Electrodes.