Institute of Information & Computer Technology

Under

ઓલ ગુજરાત કોમ્પ્યુટર સાક્ષરતા અભિયાન સંસ્થા

(રજી. નં. GJ - F/2894)

Certificate

IICT

SM

COMPUTER EDUCATION

An ISO 9001:2008 Certified Institute

No 22155 Reg. No 80719 Date 07/06/2018

This is to certify that Shri/Smt./Ku.

Mahesh Shantaram Bhadane

having been examined and found pass in

Certificate Course in Programming

conducted by All Gujarat Computer Saksharta Abhiyan Sanstha for

3 (Three)

months and is being awarded this certificate.

He/She has been placed in Grade **A**

Expert Computer, Silvassa

- Computer Fundamental
- Programming Techniques
- C++

K.A. Trivedi

Chairman | Course Co-ordinator | Centre Seal

Grade Scale : E 90% and above, A+80%-89.9%, A 70%-79.9% , B+ 60%-69.9%, B 50%-59.9%, C 40%-49.9%

Head Office : 5, Raghuvanshi Flats, Station Road, Halvad (Guj.)

CERTIFICATE OF PARTICIPATION

INITIATIVE FOR RESEARCH & INNOVATION IN STEM
IRIS
NATIONAL FAIR 2018

Awarded to Mahesh Shantaram Bhadane

from Govt Higher Secondary Marathi Medium School , Silvassa, Dadra and Nagar Haveli

for participating at Initiative for Research & Innovation in STEM (IRIS) National Fair, held from December 2-4, 2018 at Manekshaw Centre, New Delhi.

Subject Environmental Management (EM)

Category Individual

Project Title Hermetia Sanitizing Bioconverter

Dr Rajiv K Tayal
Executive Director
Indo-US Science and Technology Forum

Dr Nisha Mendiratta
Head NCSTC
Department of Science and Technology

Ms Shweta Khurana
Director, Corporate Affairs
Intel India

35.6.2

राष्ट्रीय शैक्षिक अनुसंधान
और प्रशिक्षण परिषद्
श्री अरविन्द मार्ग, नई दिल्ली 110016

NATIONAL COUNCIL OF EDUCATIONAL
RESEARCH AND TRAINING
Sri Aurobindo Marg, New Delhi 110 016

बच्चों के लिए 42वीं जवाहरलाल नेहरू राष्ट्रीय विज्ञान, गणित एवं पर्यावरण प्रदर्शनी, केरल

42nd Jawaharlal Nehru National Science, Mathematics and Environment Exhibition for Children, Kerala

16–22 दिसम्बर 2015 16–22 December 2015

प्रमाण पत्र Certificate

प्रमाणित किया जाता है कि राजकीय उच्चतर माध्यमिक विद्यालय, टोकरखाड़ा (मराठी माध्यम), सिलवासा, दादरा और नगर हवेली के स्मिता सर्जेराव पाटिल के मार्गदर्शन में **महेश शांताराम भदाने** द्वारा निर्मित प्रदर्श **हरमेशिया सेनेटाइज़िंग बायो-कन्वर्टर** उपर्युक्त प्रदर्शनी में महेश शांताराम भदाने द्वारा प्रदर्शित किया गया।

Certified that the exhibit **Hermetia Sanitizing Bioconverter** developed by **Mahesh Shantaram Bhadane** from *Government Higher Secondary School (Marathi Medium), Tokarkhada, Silvassa, Dadra and Nagar Haveli* under the guidance of *Smita Sarjerao Patil* was displayed in the exhibition by Mahesh Shantaram Bhadane.

JNNSMEE 2015
MUVATTUPUZHA - KERALA
16 - 22 DECEMBER 2015

डा. गगन गुप्त
Dr. Gagan Gupta
समन्वयक, जेएनएनएसएमईई–2015
Coordinator, JNNSMEE–2015

प्रो. ए. के. वझलवार
Prof. A.K. Wazalwar
विभागाध्यक्ष, डीईएसएम
Head, DESM

प्रो. एच. के. सेनापति
Prof. H. K. Senapaty
निदेशक
Director

सत्यमेव जयते

DIRECTORATE OF EDUCATION

UT ADMINISTRATION OF DADRA AND NAGAR HAVELI

31st JAWAHARLAL NEHRU

U. T. LEVEL SCIENCE EXHIBITION

FOR CHILDREN 2014-15

Certificate

विद्यया ऽमृतमश्नुते

एन सी ई आर टी
NCERT

This is to certify that Shri/Smt./Kum. Mahesh Shantaram Bhadane

of Govt. H.S.S. Tokarkhada, Silvassa, (M.M.) D.N.H. *has participated*

in the activity of Static Model *and won* Second *Prize in the*

31st Jawaharlal Nehru U. T. Level Science Exhibition For Children 2014-15 held at Govt. Higher Secondary School, Tokharkhada, Silvassa from 24th to 26th February 2015, organised by Directorate of Education, U. T. Administration of Dadra and Nagar Haveli.

Education Officer (Admin.)
Dadra and Nagar Haveli
Silvassa

Director of Education
Dadra and Nagar Haveli
Silvassa

Place : Silvassa
Date : 26-02-2015

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Hermetia Sanitising Bioconverter

STUDENT
Mahesh Shantaram Bhadane

Government Higher Secondary School, Marathi Medium, Tokarkhada Silvasa, Dadra & Nagar Haveli

TEACHER
Smita Sarjerao Patil

Introduction

By using this model, we produce black soldier fly larvae. Basically this model is useful for establishing and building larvae colonies. The black soldier flies are allowed to lay eggs in small holes over the grub bin. The black soldier fly holds much promise for converting low value manures and many other organic waste into a valuable commodity. In this way amount of waste products or garbage are reduced.

This larvae are edible and are also best at quickly converting 'high- nutrient' waste into animal feed. Black soldier fly are better at converting high cellulose materials (Paper, cardboard, leaves, plant materials except wood) into an excellent soil amendment.

Process

Black soldier fly larvae (BSFL) are used to compost and sanitise wastes, and/or convert the waste into animal feed. The harvested pupae and prepupae are eaten by poultry, fish, pigs, turtles, dogs etc. The wastes include fresh manure, food wastes of both animal and vegetable origin

Fig. 1: Biopode

Construction of Biopode

This is our home made Biopode. This is also used for house-hold sanitising purpose.

First we take a plastic bucket. In the lower part of this bucket a plastic hole boll is attached. Then we put the layer of filter (scoth bright). For ventilation purpose around the round side of the unit a well crow is attached.

PVC pipe is also attached to the bucket and the box as shown in Figure 1. We put animal food in that box and the second pipe is used as outlet for sanitation purpose.

Working

Black Soldier Fly (Hermetia illucen)

Fig. 2: Black Soldier Fly

The black soldier fly or Hermetia illucens is a common and wi despread fly of the family stratiomyidae,whose larvae are common detritivores in compost heaps. Larvae are also sometimes found in association with carrion, and have significant potential for use in forensic entomology.

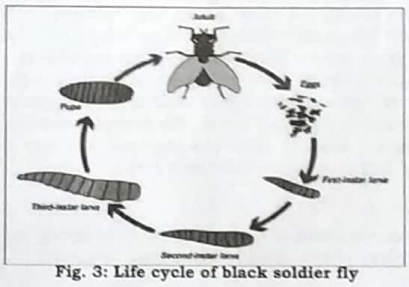

Fig. 3: Life cycle of black soldier fly

EM02

Mahesh Shantaram Bhadane

Govt HigherSecondary Marathi Medium School
Silvassa, Dadra and Nagar Haveli

HERMETIA SANITIZING BIOCONVERTER

"Harmetia Sanitizing Bioconverter" produce Black Soldier Fly Larvae. Basically this model is useful for Establishing & Building larvae colonies. The Black Solider Flies lay eggs in small holes over the grub bin. The BSF holds much promise for converting low-value manure & many other organic "Wastes" into a valuable commodity. In this way amount of waste products or garbage is reduced. These larvae are edible to humans and are also best at quickly converting "high – nutrient" waste into animal feed. BSF are better at converting high cellulose materials (Paper, cardboard, leaves, plant materials except wood) into an excellent soil amendment. No separate facility or special equipment is needed for production or harvest. This is possible because of the migratory habits of the pre-pupae. They are not a pest to humans.They do not regurgitate food along with digestive enzymes like houseflies, thus they do not spread diseases.This larvae is also best for human health because the larvae are highly efficient in converting proteins, containing up to 42% of protein, much calcium and many amino acids. In 43hours, 1g of BSF eggs convert into 2.4 kg of protein.

They thus can be a source of protein for human consumption.They do not produce protein,but convert human-inedible protein into edible food.Because of this BSF is also a type of medicine.Conclusion:-This model helps for Establishing & Building larvae colonies to flies, to convert waste into Valuable commodity and there is away for taking it as human medicine which converts human-inedible protein into edible at low cost,at home.