One Day Orientation Program
On
Plant Morphology, Plant Anatomy, Primary Health Care and Biodiversity Conservation for the students of Government School, Bangalore

5th December 2017

Organized by
TransDisciplinary University, Bangalore (TDU)
(Supported by Infosys Foundation, Bangalore)

74/2, Jarakbande Kaval, Via Yelahanka, Attur P.O., Bangalore – 560106, Karnataka, India
Ph: 91 80 28568006

One Day Orientation Program for School Students of Government School, Yelahanka, Uppanagara

Introduction

Cities have been witnessing an erratic urbanization, which has led to rapid diminishing of green cover. As a result of this, our cities are experiencing the incidences of increase in temperature, reduction in air quality, water scarcity, urban floods, etc. Hence, there is an urgent need to maintain an ecological balance, a truth not sufficiently felt and understood in the sphere of urbanist advocacy. Cities developed in harmony with beauty and function of nature would certainly help building a healthy urban ecosystem.

In this context, it has become important that young minds have to be informed more about various biotic components in the urban ecosystem. This could happen through simply taking them close to nature and making them understands its importance. It would bring forth a future generation with environmental consciousness, which can build a sustainable urban environment.

The TransDisciplinary University **(**TDU) with the support of Infosys Foundation, Bangalore has developed a unique one-day orientation program for the students pursuing their secondary education, to give them an opportunity to learn the basics of plant taxonomy, anatomy, primary health care and biodiversity conservation. This program has been designed in line with their school curriculum. It is expected that this program will broaden their understanding about the nature specifically plants and help them develop their interest in the urban nature conservation.

This could be a precursor to any environment education program that government likes to introduce at the school level.

Introductory Session

Dr. M. Abdul Kareem, Associate Professor and Course Coordinator gave an overview on the TDU and Ms. Amrita. G gave a brief introduction about the Program. Around 47 students from class 9th Standard participated in the program accompanied by two teachers.

Session: 1: Plant Morphology

Students were taken to ethno medicinal garden which comprises of over 1500 taxa of medicinal plants, and the nursery has 450 taxa with green house and mist chambers for propagation. Ms. Nandini D, Consultant, TDU explained about characteristics of plants like habitat, structure and shape of leaves, size of fruits, branching patterns and uses of medicinal plants. Students explored the garden with the plants and tree species such as orchids, *Centella asiatica*, lemon grass, aquatic plants, *Garcinia indica* etc. They were taken to nursery garden where could see various medicinal plants along with their uses.

Session:2: Anatomy and Herbarium

Dr. Noorunnissa Begum gave hands on training on plant anatomy. She demonstrated the preparation of anatomy slides by taking sections of a monocot (Peniciatum species) and dicot stem (*Tinospora cordifolia)* and staining technique. Students were asked to take the sections and observe the specimen through the microscope and examine the xylem, phloem, epidermis and cortex. The students were then asked to form a group of five each and prepare similar slides. They were also shown herbarium sheets and its techniques to prepare them. Ms. Preethi, Research Fellow, Ms. Sridevi guided them in conducting the session

Session: 3: Primary Health Care

Dr. Shilpa Naveen, Research Officer defined primary health care and explained about the importance of being healthy in today's world. She explained on ways to prepare medicines using commonly found medicinal plants such as Tulsi, Aloe vera, Ginger etc. to cure common diseases such as cold, fever, cough, indigestion, headache etc. They were told to how to manage their general immunity, common problems faced during adolescent age such as pimples, acne etc. Students were enthusiastic to interact and ask more questions related to remedies to cure common health problems.

Session:4: Manuscripts

Students was also exposed to the world of manuscripts by showing physical copy of manuscripts, where Mr. Anantha, Research Fellow, explained about the different scripts of India and different methods of writing manuscripts that was followed by ancients to document the information. They were educated about different types of scripts, languages of India. They came to know about different types of writing materials like palm-leaf, hand-made paper, birch-bark, metal-plates, inks used to write, iron-pen used to write / etch on palm-leaf etc. Along with they came to know that from Center for Theoretical Foundation manuscripts have been published in the form of physical books and E-books. Bhojanakutuhalam has been shown to them and the aspects of food have been explained to them

Session: 4: Functional Unit of Life

Dr. Balasubramani, Assistant Professor and Mr. Deepak, Research Scholar explained the concept of "Central Dogma" of cell and molecular biology was introduced to the students. Basic structure and organization of the DNA and chromosomes were taught.

- The Theory and principle of DNA separation using Agarose gel electrophoresis was explained and demonstrated using the electrophoresis apparatus.
- Method for documenting the gels was also exhibited using gel documentation system (BioRad) and students visualized the DNA bands

The program was culminated with the feedback of the students and distribution of certificates to the students.

Learnings:

It was a general perception among students that only a few plants are medicinal. However, they found that most of the plants have medicinal value after undergoing this orientation program. The practical sessions on anatomy were very useful particularly for those students who like to pursue a career in life sciences. A basis understanding of uses of medicinal plants for primary health care was also notable. Exploring the garden thought wide range flora in the country and its key characteristics and features. They are also exposed to the world of manuscripts where different types of scripts and different methods of writing manuscripts were explained to them.

Feedback:

Students were asked to fill up a questionnaire to analyses the flow of the program, its content and also to understand as to how far the students were able to graph the subject. It will also enable the organizers to get the vibe of students and make necessary corrections. Students expressed their feelings of attending such program conducted for the students of government school. It is great exposure to them as they are exposed to various fields such as plant identification, anatomy home remedies, understanding the importance of conservation through activity and having an overview about the functional unit of life such as DNA. Students liked all the session conducted them for a day. They were very happy to come to campus and explore the nature and see many plants and understand the importance associated with it. Exposure to the world of manuscripts was very useful to them. Following graph depicts the feedback obtained from the participant in each batch.

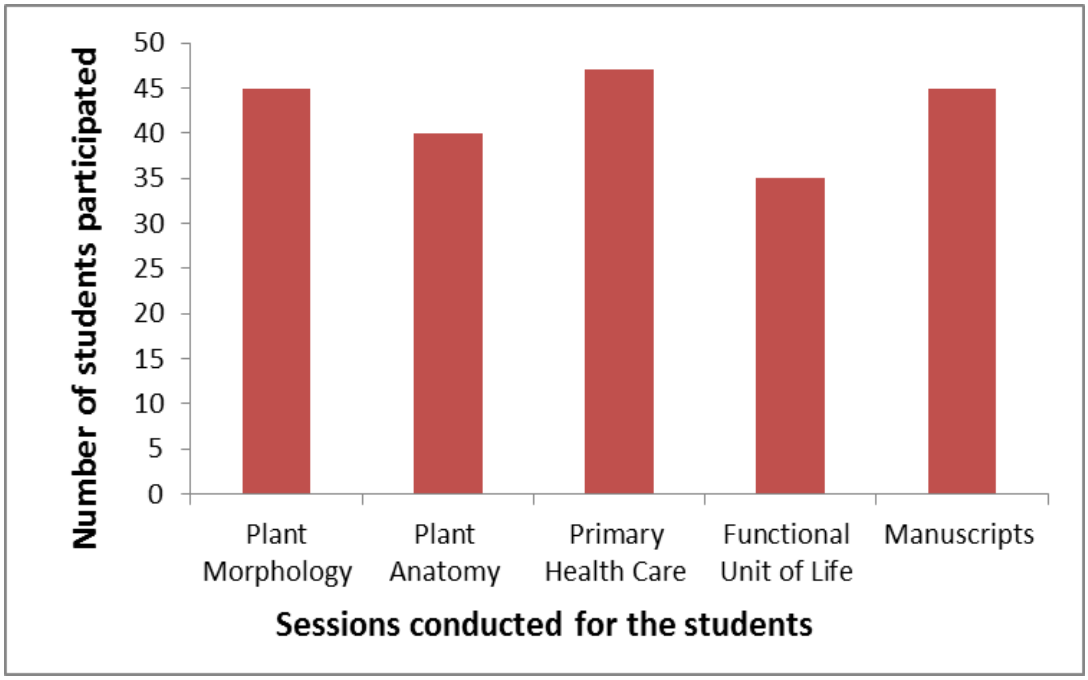

Fig. No.1: Graph depicting the number of students liked the program on 5th December 2017

List of Faculty

1. Dr. M. Abdul Kareem, Associate Professor and Course co-ordinator, TDU
2. Dr. Noorunnissa Begum, Associate Professor, TDU
3. Dr. S.P. Balasubramani, Assistant Professor, TDU
4. Ms. Nandini D., Consultant, TDU
5. Dr. Shilpa Naveen, Research Officer, TDU
6. Mr. Deepak, Research Fellow, TDU
7. Mr. Anantha. M.A, Research Fellow, TDU
8. Ms. Preethi, Research Scholar, TDU
9. Ms. Anu V., Senior Research Fellow, TDU
10. Ms. Amrita G., Research Fellow, TDU

List of Participants:

9th Standard Students- 5th December 2017

1. Akkamaha Devi
2. Dhanalakshmi
3. Rajeshwari
4. Suchitha
5. Aishwarya.G
6. Shruthi B.K
7. Harini. A
8. Rachamma
9. Bhimamma
10. Abhirami
11. Aritha
12. Jayashree
13. Prathibha.N
25. Anushree
26. Sowmya. D
27. Varsha. V
28. Gangaraj
29. Vinoda
30. Abhi
31. D. Vamshi
32. Sagar
33. Lakshmikanthu
34. Mallikarajuna
35. Punith
36. Raju
37. Darshan

14. Lavanya. B.A
15. Kanaka. M
16. Rekha. R
17. Poornashree,S
18. Ramlingamma
19. Sakamma.G
20. Sushmitha.H
21. Keran Jasmine
22. Nagarathina
23. Akshatha
24. Pallavi
38. Pawan Kuamr
39. Harish
40. Sampath Kumar
41. Mahesh
42. Madhu. H
43. Lakshminarasimha. A
44. Basavaraj
45. M.D. Zubair
46. Bhima.M
47. Adarsha. M

Program Schedule- 5th December 2017

Time	Topic and Objective	Resource Person	Venue
10.15- 10.30.AM	**Introduction to the program**	**Dr. M. Abdul Kareem** Associate Professor **Ms. Amrita G.** Research Fellow	Training Hall Patanjali Block
10.30 – 11.30AM	**Exploring the University through identification and morphology of plants**	**Ms. Nandini. D** Consultant	Field
11.30 – 12.30 AM	**Plant Anatomy and Herbarium**	**Dr. Noorunnisa Begum** Associate Professor	Herbarium (Vaghbhata Block)
12.30 -1.00 PM	**LUNCH**		
1.00 – 2.00PM	**Primary Health Care**	**Dr. Shilpa Naveen** Research Officer	Training Hall Patanjali Block
2.00-3.00	**Functional Unit of Life**	**Dr. Balasubramani** **Assistant Professor**	Lab (Nagarjuna Block)
3.00-3.30 PM	**Valedictory** **Ms. Anu.V** Senior Research Fellow		