



Fourth Semester
B.Sc Programme

UNIVERSITY OF CALICUT

Core Course Botany

Methodology and Perspectives in Plant Science

32

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Dr. Bindhu K.B. • Dr. Manju Madhavan • Dr. Vimal Mohan

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Our Publications for B.Sc. Botany

Core Course

- I Semester : Angiosperm Anatomy, Reproductive Botany and Palynology
- II Semester : Microbiology, Mycology, Lichenology and Plant Pathology
- III Semester : Phycology, Bryology and Pteridology
- IV Semester : Methodology and Perspectives in Plant Science
- V Semester : Gymnosperms, Palaeobotany, Phytogeography and Evolution
 - : Angiosperm Morphology and Systematics
 - : Tissue Culture, Horticulture, Economic Botany and Ethnobotany
 - : Cell Biology and Biochemistry
- VI Semester : Genetics and Plant Breeding
 - : Biotechnology, Molecular Biology and Bioinformatics
 - : Plant Physiology and Metabolism
 - : Environmental Science

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BBT

METHODOLOGY AND PERSPECTIVES IN PLANT SCIENCE

FOURTH SEMESTER – CORE COURSE 4
UNIVERSITY OF CALICUT

B Sc PROGRAMME IN BOTANY

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CHAPTER 1

STEPS IN SCIENTIFIC METHODS

Scientific method is a process of finding an answer to a question by observation and experimentation. Proper scientific methods are required for the successful completion of a research. It is a step by step process and the steps may vary based on the area of research, but generally follow a basic pattern.

Steps in scientific methods include:

1. Asking a question based on an observation: Questions like how, what, where, when, who, etc. based on an actual observation are necessary for the beginning of a research.
2. Back ground research: This is a very important step where we will get a clear idea of what all works have already been done in this area, and what are the conclusions of those works. We can use the resources like internet, libraries etc. for background research. We can also consult scientists, researchers and experts for clearing our doubts and for getting suggestions.
3. Formulation of a hypothesis: A hypothesis is a predicted answer for the question asked. It is continuously tested and experimented. The hypothesis has to be made based on an information from a reliable reference material. At least one testable predication could be made based on the hypothesis. The hypothesis should have a modifiable independent variable and a measurable dependent variable.
4. Experimentation: Testing the hypothesis and drawing out results. This may include laboratory experiments or field study or a survey based on the area of research. Assessing many factors in a single experiment maybe confusing. Testing of hypothesis has to be done carefully and scientifically with clear planning. The experiment may have to be duplicated or triplicated so that the results will be more accurate.
5. Analysis of results to get a conclusion: The results obtained have to be tested for its reliability. Statistical analysis of the data is necessary to find out the significance level of results obtained. The results obtained may be in favour of or against the hypothesis. If the results are in favour of the hypothesis we formulated, then our hypothesis is correct. If the results obtained is against our hypothesis, we may have