

# NATIONAL INSTITUTE OF PLANT SCIENCE TECHNOLOGY (NIPST)

*(An Institute established for Excellence in Teaching and Research in Plant Science based Eco-technologies)*

**MAHATMA GANDHI UNIVERSITY**

**Kottayam, Kerala – 686 560**

Website: [www.nipst.mgu.ac.in](http://www.nipst.mgu.ac.in)

## **Value Added course on “Phytochemistry”**

### **Syllabus and course content**

**Course Code: NIPST-VAC-01- Phytochemistry**



## **NIPST-VAC-01- Phytochemistry**

### **Convenor**

**Prof. (Dr.) Jisha M.S.**

### **Course Co-ordinator**

**Dr. Vysakh A**

### **Co-ordinators and Course Advisory Committee**

**Dr. ValsalaKumar N**

**Dr. Sharrel Rebello**

**Mrs. Anubha S**

**Dr. Karthika S**

**Dr. Jayanath G**

**Mrs. Helseena E.H**

## Course Structure

<b>Course Code: NIPST-VAC-01- Phytochemistry</b>		
<b>SL.No</b>	<b>Content</b>	<b>Time (Hours)</b>
<b>1</b>	<b>Theory</b>	<b>15 hours</b>
<b>2</b>	<b>Practical</b>	<b>8 hours</b>
<b>3</b>	<b>Industry Visit and Learning</b>	<b>7 hours</b>
<b>Total time duration</b>		<b>30 hours</b>

## Syllabus

### **NIPST-VAC-01- Phytochemistry**

#### **Theory:- 15 hours**

**Unit:1:** - Introduction to Phytochemistry, extraction, different types of extraction methods, Solvent selection, qualitative and quantitative phytochemical analysis, Fractionation and purification, Identification and Characterization of phytochemicals (TLC, HPLC, LC-MS, GC-MS, NMR etc).

**Unit:2:** - Bioassay-guided extraction and fractionation, Introduction and study design: anti-microbial Studies, anti-inflammatory studies (Both *In vitro* and *in vivo*), anti-cancer studies (Both *In vitro* and *in vivo*), anti-hyperuricemic studies (*In vivo*) and toxicity studies (Both *In vitro* and *in vivo*) of phytochemicals, Introduction to *In silico* studies.

#### **Practicals:- 8 hours**

1. Isolation and identification of different phytocompounds
2. Introduction to TLC, HPLC, LC-MS, GC-MS

#### **Industry Visit and Learning:- 7 hours**

Industry visit and learn the industrial process of phytochemical isolation and drug manufacturing.