

**Shiksha Mandal's**  
**BAJAJ COLLEGE OF SCIENCE,**  
**WARDHA**  
**DEPARTMENT OF BOTANY**



College with Potential for Excellence (Phase II)  
Star College Status by DBT, Govt. of India  
Affiliated to RashtraSantTukdojiMaharaj Nagpur  
University,  
Nagpur



**JAMNALAL BAJAJ MARG,**  
**CIVIL LINES, WARDHA(M.S).**  
**PIN-442001**

## Departments Profile: Botany.

### About the Department:

Department of Botany was established in 1963. The post graduate Department was established in 2003. The Botany Department was received a status of recognized research centre in affiliation with RTM Nagpur University in 2012. Prof. Damle was the founder Principal and the founder Head of Botany Department. Since its inception, the Department was recognized for teaching and research in the various areas of Botany. A well balanced curriculum having theory and practical and qualified faculty has been the hall mark of this Department since its inception. In keeping pace with the advances in various aspects of plant science, the Department introduced add-on course in herbs and herbal drugs. The Department offers an undergraduate program and postgraduate program which is in affiliation with Rashtrasant Tukadoji Maharaj Nagpur University. The Department has also implemented the Choice-based Credit System for grading M.Sc. students since the year 2015, which offers flexibility in the structuring and assessment of courses.

The Department has undertaken research projects in the areas of Plant physiology, Applied mycology and plant pathology, physiology, medicinal plant biology, paleo-botany, ethno-botany and taxonomy for which it has received funding from various National agencies. Faculty members have active collaborations with scientists from Institutes in or outside India. The overall goal of Botany Department has been to impart quality education at junior, senior, post-graduate level along with continuous efforts on basic and applied aspects of plant science research at doctoral and postdoctoral level.

### 1. Highlights of the Department:

- Qualified and experienced teaching staff.
- Well equipped laboratories with sophisticated instruments.
- Two recognized faculties as Ph. D. Supervisors.
- Recognized research centre for Ph. D. Studies.
- Well furnished museum for permanent specimens and two botanical gardens.
- Faculties of department are reviewers of various research journals as well as resource persons for workshops and training programs.
- Organization of guest lectures and seminars for UG and PG students.
- Formation of Botanical Society.
- Botanical excursion and visits to various industries and research institutes.
- Organization of workshops and hands on trainings.
- Participation of students and teachers in seminars and conferences.
- Projects sponsored by various agencies.

Students while experimentation in Laboratory



Students while Explanation in Laboratory Expt.





Departmental Museum



Departmental Presentation before Committee(Autonomy)

Visit to Dhaga Forest by M. Sc. Students with teachers

2016-17

Visit to nationalised lab. CICR Nagpur



**Botanical Excursion M. Sc students to Dhaga Forest and CICR**



**Botanical Excursion M. Sc students to Kodai kanal (T.N)**



**Study Tour to Borgaon Gondi(Wardha Dist.)**

**Study Tour to Masod**



**Visit to Sirkutani Village for Plant collection**

**Visit to Herbarium museum to Agri. College**



**Visit to Agriculture College Compost Unit, Wardha.**

**Visit to Agriculture College Nersury**



**Hands on training on Herbs and Herbal Products**



**Students taken training outside the Institution**



**Inauguration of Botanical Society(2017-2018)**



**Inauguration of Botanical Society (2018-2019)**



**Tree Plantation at the time of BOS Inauguration**



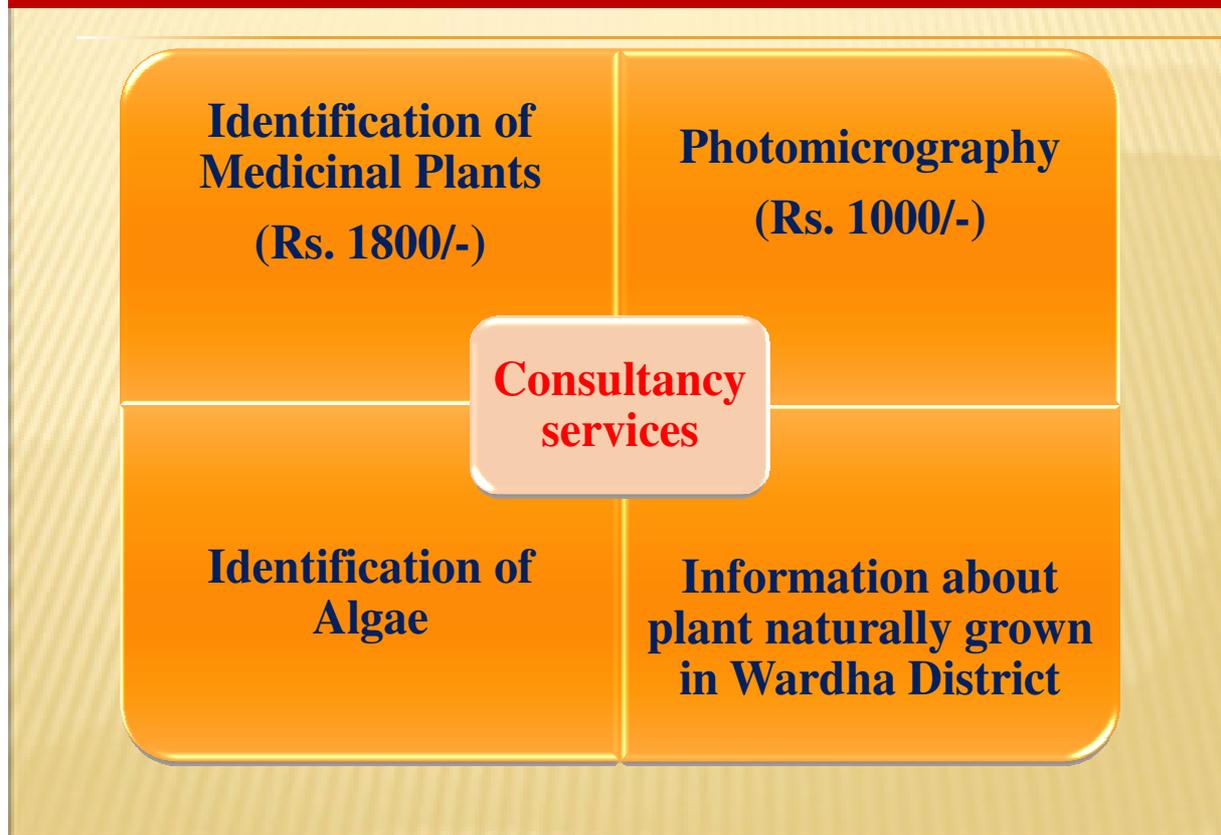
**Interaction with Centre for higher learning  
and Research Committee**



**\* Major and Minor research projects sponsored/ funded by UGC.**

S.N.	Name	Title of Project	Funding Agency	Year of Sanction and Amount
1.	Dr. L. P. Dalal	Exploration of Algal Flora from two reservoir of Gandhi District (Wardha District) M. S.	UGC New Delhi	09,06,300/-
2.	Dr. K. G. Dube	Dr. K.G. Dube. Exploration of medicinal plant resources in Wardha district and development of their digitized database for appropriate utilization.	UGC New Delhi	03,24,000/-
3.	Dr. K. G. Dube	Effect of Organic manures, bio-fertilizers & growth regulators on the productivity of <i>Stevia rebaudiana</i>	UGC (WRO)	55,000/-
4.	Dr. P. F. Dhabarde	A New Fossileferous location from the Deccan interpetian Beds of WardhaDistrict(M.S).	UGC (WRO)	50,000/-
5.	Dr. D. D. Naik.	Potential for Carbon Sequestration in Grassland and Afforested Ecosystem using Molecular and Eddy Covariance Techniques.	Department of Science and Technology (DST), New Delhi.	34,23,400.
6.	Dr. D. D. Naik.	Carbon sequestration potential of Albizzialebbeck intercropping and cocultivation system with economics crops and plant growth promoting microorganism. PI	Department of Biotechnology (DBT), New Delhi.	72,63,400

## **AREAS OF CONSULTANCY & REVENUE GENERATED**



### **2. Courses:**

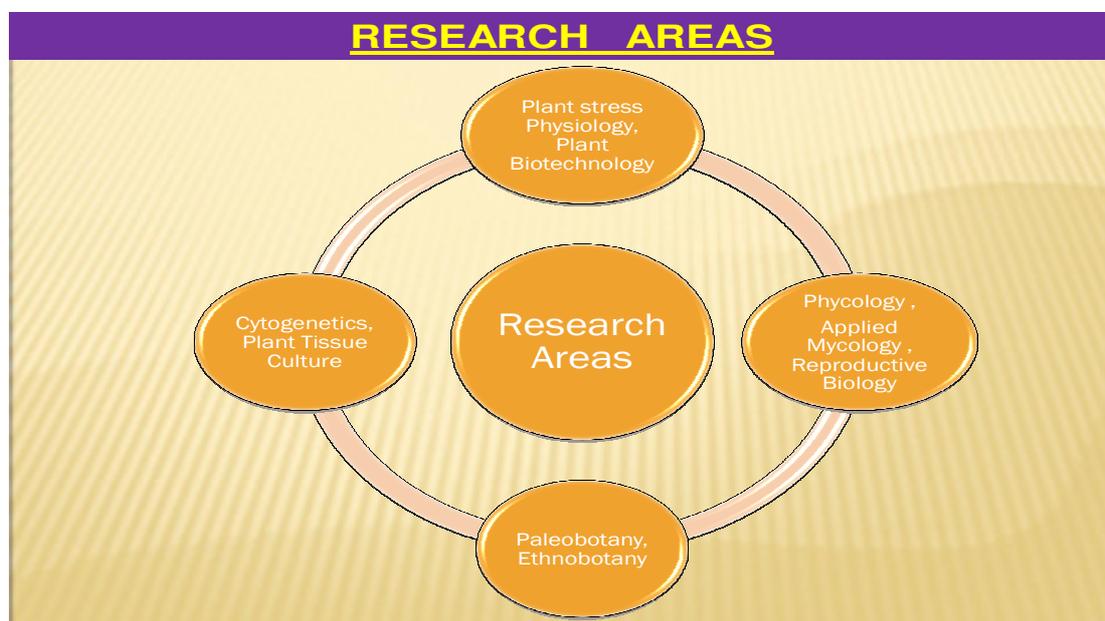
UG: Bachelor of Science. PG: Master of Science in Botany.

**Specialisations in Botany for MSc-II:** a) Applied Mycology and plant pathology

b) Molecular Biology and Plant Biotechnology

Others: Add-ons/certificates- Herbs and Herbal Drugs

**3. Research Programme:** PhD in Botany.



#### 4. **Activities:** (Last three years)

- During the session 2015-2016, Botany Department arranged two day's workshops in basic understanding of Molecular Biology and Biochemistry in collaboration with National Centre for Cell Science (NCCS), Pune in March, 2016. In this workshop, B.Sc., and M.Sc students had received hands-on experience in protein purification and polymerase chain reaction during two day's sessions.
- The Botanical excursion was arranged to Chikhaldara and Melghat forest with 30 B.Sc students and 03 faculty of Botany Department in the month of September, 2015. B.Sc students had a real world experience in observing wild plants of different forest strata in this trip. Students observed a broad view of dry, deciduous tropical forest structure. Students also participated in the model exhibition competition organised by our college in the month of August, 2015.
- During session 2016-17, excursions at Pachamarhi and Dhaga Forest were arranged for collections and identifications of various plant life forms. During the session 2017-18, excursion to Kodaikanal, Kanyakumari, Madurai, and Chennai, were arranged for collection and identification of different plants forms, starting from cryptogams to phanerogams. They studied all these forms by observing in natural conditions. Students were well acquainted with natural habitats of these forms in real sense. In the session 2018-19, the students again visited the Borgaon Gond-Borkhedi forest and other forest places for plant collection through this excursion. They had experienced forest types, habitats of different plants and also they collected some specimens of their study importance. Students also visited the Ankur seeds private Ltd, Nagpur.

#### 5. **Academic Achievement of the Students:**

Students are active through various programs and activities. The Department also recognises its stellar students through awards and achievements.

- In year 2012, our student Trupti Jagtap graduated in M.Sc in Botany. She has got **gold medal from RTM, Nagpur University, Nagpur.**



**Ms. Trupti Jagtap received Gold Medal.**



**Mr. Chetan Shriwas received Gold Medal**

- In subsequent year 2013, Chetan Shriwas achieved first merit in Botany in RTM Nagpur University and also got the gold medal.

\* Ms. Sonali Gupta University Topper (2014-15) in Subject Botany from all the PG Departments of Botany in RTM, Nagpur University, Nagpur.

- AartiPranjale received first prize in research paper presentation in National Conference on Ethnobotany held at Jagat College of Arts, Comm. And Science College, Goregaon, Dist. Gondia(M.S).

- \*Ku. Rashmi Chandankhede got the consolation prize in Interuniversity Conference, held at Shri Shivaji Science College, Akola (M.S).

#### **6. Recent Activities of the Department: (Last three years)**

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# Instrumental Facilities Available With the Department of Botany.

## List of Instruments

Name of Instruments	Utility/ Working /Requirements of Instruments.
 <p>Trinocular Microscope</p>	<p>This equipment is required for microscopic observation of various plant cells, tissues.</p>
 <p>Autoclave</p>	<p>Moist heat sterilization is the process of sterilizing objects with hot air that is heavily loaded with water vapour. It is used for materials that are dense. This method is able to kill spores due to its high temperature and pressure. The moist heat from an autoclave kills virtually all microorganisms by denaturing their proteins.</p>
 <p>Orbital shaker</p>	<p>Orbital Shaker is required for shaking bacterial cells, fungal inoculums.</p>



Binocular Microscope

This equipment is required for microscopic observations of various plant cells, tissues



Spectrophotometer

The spectrophotometer is useful for measuring the absorption spectrum of a compound, that is, the absorption of light by a solution at each wavelength.



Colorimeter

A colorimeter is a light-sensitive device used for measuring the transmittance and absorbance of light passing through a liquid sample. The device measures the intensity or concentration of the color that develops upon introducing a specific reagent into a solution.



Hot Air Oven

Hot air ovens are electrical devices which use dry heat to sterilize. They were originally developed by Pasteur. Generally, they can be operated from 50 to 300 °C, using a thermostat to control the temperature.



Microwave Oven

Microwave ovens are so quick and efficient because they channel heat energy directly to the molecules (tiny particles).

 <p style="text-align: center;">Incubator</p>	<p>Incubator (culture) In biology, an incubator is a device used to grow and maintain microbiological cultures or cell cultures. The incubator maintains optimal temperature, humidity and other conditions such as the carbon dioxide (CO<sub>2</sub>) and oxygen content of the atmosphere inside.</p>
 <p style="text-align: center;">Refrigerator</p>	<p>Refrigerator keeps cool, calm, and collected even in the blistering heat</p>
 <p style="text-align: center;">Hot Plate Stirrer</p>	<p>This laboratory hot plate with magnetic stirrer is used for preparing chemicals used in scientific research. In laboratory settings, hot plates are generally used to heat glassware or its contents. Some hot plates also contain a magnetic stirrer, allowing the heated liquid to be stirred automatically.</p>
 <p style="text-align: center;">Blue Star A.C.</p>	<p>Air conditioners often use a fan to distribute the conditioned air to an occupied space such as a building or a <a href="#">car</a> to improve <a href="#">thermal comfort</a> and <a href="#">indoor air quality</a></p>
 <p style="text-align: center;">Cooling Centrifuge</p>	<p>Refrigeration constitutes an important added feature to any laboratory centrifuge. Refrigerated laboratory centrifuges temperature ranges as wide as -20C – 40C, making them perfect for DNA, RNA, PCR or antibody analysis. A refrigerated laboratory centrifuge can obtain rotational speeds of over 30,000 rpm, and a relative centrifugal force (RCF) of over 65,000 x g.</p>

 <p>Weighing Balance</p>	<p>Balances are designed to meet the specific weighing requirement in the laboratory working environment. These balances come in precision designs and operating characteristics that allows making quick and accurate measurements.</p>
 <p>Tilak Air Sampler</p>	<p>Tilak Air Sampler runs on electric power supply (AC- 220 V)and provides a continuous sampling of air for eight days. The electric clock fitted in the instrument is synchronized with the drum. Air si sucked through the orifice of the projecting tube at the rate of 5 lit per min. and it impinges on the transparent cellotape, which is 1.5cm in breadth and stuck on the slowly rotating drum. The drum completes one circle in eight days, thus giving the trace of catches for eight days.</p>
 <p>Centrifuge</p>	<p>A laboratory centrifuge is a piece of <a href="#">laboratory equipment</a>, driven by a motor, which spins liquid samples at high speed. There are various types of centrifuges, depending on the size and the sample capacity.</p> <p>Like all other <a href="#">centrifuges</a>, laboratory centrifuges work by the <a href="#">sedimentation principle</a>, where the <a href="#">centripetal acceleration</a> is used to separate substances of greater and lesser density.</p>
 <p>Canon Camera</p>	<p>It is used to take diverse range of photos</p>
 <p>Water Analysis Kit</p>	<p>Water Analysis Kit is the most complete way to ensure your drinking water is safe and free of 13 water conditions and contaminants including bacteria, pesticides and lead, a total of 23 tests.</p>



Laminar Air Flow

In a laminar flow hood the air is passed through a HEPA (High Efficiency Particulates Air) filter which removes all airborne contamination to maintain sterile conditions. Now the sterile air flows into the working (flasking) area where you can do all your flasking work without risk of contamination.



Incubator Shaker

A temperature controlled shaker used in Biochemistry work.