

### Staff Details

Title	<b>DR.</b>	FirstName	<b>PRANATI</b>	Last Name	<b>NAYAK</b>	
Designation	Assistant Professor (OES-1)					
Department	Botany					
Phone Number (Office)	09178686412					
Email	Pranati.nayak@gmail.com					
<b>Educational Qualifications</b>						
Subject	Institution		Year	Details		
<b>Ph.D.</b>	Utkal University, Odisha		2013	Thesis entitled " <i>In vitro</i> propagation and plumbagin production from <i>Agrobacterium</i> - transformed hairy root cultures of <i>Plumbago zeylanica</i> L. - an important medicinal plant species." under the guidance of Dr. Pradeep Kumar Chand, Professor, Department of Botany, Utkal University and Dr. M. Thirunavoukkarasu, Principal Scientist, Bioresources Engineering Department, Institute of Minerals and Materials Technology (C. S. I. R), Bhubaneswar, India.		
<b>M. Phil</b>	Utkal University, Odisha		2004	Carried out dissertation on "In vitro regeneration of plantlets from cotyledon and embryonic axis explants of <i>Vigna mungo</i> L. Hepper" under the guidance of Dr. U.B. Mohapatra, Professor, P.G. Department of Botany, Utkal University, Orissa.		
<b>PG</b>	Utkal University, Odisha		2003	Specialization in Cytogenetics		
<b>UG</b>	Utkal University, Odisha		2001	Maharishi College of Natural Law, Bhubaneswar, Odisha		

Professional Experiences			
Organisation/Institution	Designation	Duration	Role
Institute of Minerals and Materials Technology (formerly Regional Research Laboratory), Bhubaneswar	Project Assistant	July 2005 - March 2008	To produce quality planting material for five selected medicinal plants namely <i>Aegle marmelos</i> , <i>Gymnema sylvestre</i> , <i>Saraca asoka</i> , <i>Embllica officinalis</i> and <i>Gmelina arborea</i> either through micropropagation or vegetative propagation.
Institute of Minerals and Materials Technology (formerly Regional Research Laboratory), Bhubaneswar	Senior Research Fellow (CSIR)	April 2008 – January 2011	<ul style="list-style-type: none"> <li>• Development of <i>in vitro</i> regeneration protocol for <i>Plumbago zeylanica</i>.</li> <li>• Establishment of transformed root (Hairy root) cultures of <i>P. zeylanica</i> using different strains of <i>Agrobacterium rhizogenes</i>.</li> <li>• Molecular and elemental characterization of the transformed roots and compare them with non-transformed cultured roots and <i>in natura</i> roots.</li> <li>• Quantification of plumbagin in established transformed and non-transformed root cultures.</li> </ul>
Indian Institute of Technology, Kanpur	Project Scientist	March 2011 – June 2011	To monitor the particulate and gaseous pollutant levels at three sampling sites established by State Pollution Control Board, Uttar Pradesh and one site established by Central Pollution Control Board, India at Kanpur on a daily basis.
Indian Institute of Technology, Kanpur	Project Associate	July 2011 – March 2012	To monitor the particulate and gaseous pollutant levels at three sampling sites established by State Pollution Control Board, Uttar Pradesh and one site established by Central Pollution Control Board, India at Kanpur on a daily basis.
Regional Plant Resource Centre, Bhubaneswar	Junior Research Fellow	May 2015 – March 2016	<ul style="list-style-type: none"> <li>• Conduct <i>in vitro</i> mass propagation studies on <i>Blepharispermum subsessile</i>.</li> <li>• Conduct vegetative propagation studies on <i>Cordia</i></li> </ul>

			<i>macleodii</i> using stem cuttings.
Regional Plant Resource Centre, Bhubaneswar	Senior Research Fellow	May 2016 – May 2017	<ul style="list-style-type: none"> <li>• Conduct <i>in vitro</i> mass propagation studies on <i>Blepharispermum subsessile</i>.</li> <li>• Conduct vegetative propagation studies on <i>Cordia macleodii</i> using stem cuttings.</li> </ul>
Teaching Experience (Subjects/Courses Taught)			
<ul style="list-style-type: none"> <li>• Worked as a lecturer in Botany at Jupiter Degree College, Gangapada from May 2017 to October 2019.</li> <li>• Worked as an SSB lecturer in Botany at Nayagarh Autonomous College, Nayagarh from November 2019 to January 2024</li> <li>• During this period taught Botany Honours students and Environmental Science (AECC -1) to Arts and Science students of UG level.</li> </ul>			
Honors & Awards			
NA			
Publications			
<ul style="list-style-type: none"> <li>• <b>In Journals</b></li> <li>• <b>Original research articles</b> <ul style="list-style-type: none"> <li>• <b>Nayak, P.</b>, Behera, P.R. and Thirunavoukkarasu. M. (2007). High frequency plantlet regeneration from cotyledonary node cultures of <i>Aegle marmelos</i> (L.) Corr. In vitro Cell and Developmental Biology – Plant 43(3):231-236.</li> <li>• Behera, P.R., <b>Nayak, P.</b>, Thirunavoukkarasu. M. and Sahoo, S. (2008). Micropropagation of <i>Gmelina arborea</i> Roxb. from cotyledonary node cultures. Indian Journal of plant Physiology 13(3): 258-265.(Now Plant Physiology Reports)</li> <li>• <b>Nayak, P.</b>, Behera, P.R., Thirunavoukkarasu, M. and Chand, P.K. (2010) High frequency plant regeneration through adventitious multiple shoot organogenesis in epicotyls explants of Indian gooseberry (<i>Embllica officinalis</i> Gaertn.). Scientia Horticulturae 123(4): 473-478.</li> <li>• Behera, P.R., <b>Nayak, P.</b>, Barik, D.P., Rautray, T.R., Thirunavoukkarasu, M. and Chand, P.K. (2010) ED-XRF spectrometric analysis of comparative elemental composition of <i>in vivo</i> and <i>in vitro</i> roots of <i>Andrographis paniculata</i> (Burm.f.) Wall. ex Nees – a multimrdicinal herb. Applied Radiation and Isotopes 68(12): 2229-2236.</li> <li>• <b>Nayak, P.</b>, Behera, P.R., Thirunavoukkarasu, M. and Chand, P.K. (2010) ED-XRF spectrometry-based comparative inorganic profile of leaf-derived <i>in vitro</i> calli and <i>in vivo</i> leaf samples of <i>Phyllanthus amarus</i> Schum. &amp; Thonn. - a hepatoprotective herb. Applied Radiation and Isotopes 69(3): 567-573.</li> <li>• Thirunavoukkarasu, M., Panda, P.K., <b>Nayak, P.</b>, Behera, P.R. and Satpathy, G.B. (2010)</li> </ul> </li> </ul>			

Micropropagation of *Dalbergia sissoo* Roxb. an important fast growing tree with multiple utilities: response of juvenile and mature tissues. International Research Journal of Plant Science 1(6): 155-162.

- **Nayak, P.**, Thirunavoukkarasu, M. and Chand, P.K. (2011) An optimized protocol for efficient in vitro propagation of white leadwort (*Plumbago zeylanica* L.) - an important medicinal shrub. Plant Science Research 33(1&2): 44-51.
- Behera, S.N., Sharma, M., **Nayak, P.**, Shukla, S.P. and Gargava, P. (2014) An approach for evaluation of proposed air pollution control strategy to reduce levels of nitrogen oxides in an urban environment. Journal of Environmental Planning and Management 57(4): 464-494.
- **Nayak, P.**, Sharma, M., Behera, S.N., Thirunavoukkarasu, M. and Chand, P.K. (2014) High-performance liquid chromatographic quantification of plumbagin from transformed rhizocloned of *plumbago zeylanica* L.: Interclonal variation in biomass growth and plumbagin production. Applied Biochemistry and Biotechnology. 175(3): 1745-1770.
- Behera, S.N., Sharma, M., Mishra, P.K., **Nayak, P.**, Damez-Fontaine, B. and Tahon, R. (2015) Passive measurement of NO<sub>2</sub> and application of GIS to generate spatially-distributed air monitoring network in urban environment. Urban climate 14(3): 396-413.
- **Nayak, P.** and Kalidass, C. (2016) *In vitro* regeneration of *Blepharispermum subsessile* DC: An endangered medicinal plant of Odisha, India using cotyledon explants. Plant Tissue Culture & Biotechnology 26(2): 255-266.
- Kalidass, C., **Nayak, P.** and Nayak, S. (2016) Effect of plant growth regulators and explants types on micropropagation of an endangered medicinal plant *Blepharispermum subsessile* DC. Plant Science Research 38(1&2): 36-44.
- **Nayak, P.**, Ram S.S. and Kalidass, C. (2017) PIXE based detection of elemental accumulation during direct organogenesis in *Blepharispermum subsessile* DC: An endangered medicinal plant of Odisha, India. X-Ray Spectrometry 46(6): 529-536.

• **Review Articles**

- **Nayak, P.** and Thirunavoukkarasu, M. (2016) A review of the plant *Boerhaavia diffusa*: its chemistry, pharmacology and therapeutical potential. The Journal of Phytopharmacology 5(2): 83-92.
- **Nayak, P.** and Kalidass, C. (2016) Ethnobotany, Phytochemistry, Pharmacognostic and Pharmacological Aspects of *Cordia macleodii* Hook.f. & Thomson - A review. Journal of Non-Timber Forest Products 23(2): 67-71.
- **Nayak, P.** and Kalidass, C. (2016) A review of the endangered medicinal plant *Blepharispermum subsessile* DC: its chemistry, pharmacology and therapeutical potential. Journal of Non-Timber Forest Products 23(4): 191-194.

PublicService/UniversityService/CollegeService/ConsultingActivity/CollegeCommitt  
ee members

- Worked in Criteria 1 during NAAC accreditation of Nayagarh Autonomous College.

Professional Societies Memberships

NA

Projects (Major Grants/Collaborations)
NA
OtherDetails if any

