


Name	Dr. Dhiraj Naik			
Designation	Assistant Professor			
Department	Botany			
Teaching Experience	Total= 4.5 years (1.5 years at JBCS, Wardha; 3 years at IIAR, Gandhinagar)			
Area of Specialization	Plant Biotechnology, Plant Ecology			
Academic Qualification	Degree	Stream	College/University	Year of Passing
	M.Sc, Ph.D	Botany	Savitribai Phule Pune University (Formerly University of Pune)	MSc: 1999 Ph.D: 2005
Research Experience	<p><u>Group leader, IIAR, Gujarat</u> June 2012- June 2015 Change in annual carbon sequestration and soil respiration in semi-arid grassland and forest ecosystem; Impact of legume based intercropping in soil carbon sequestration</p> <p><u>Postdoctoral Associate, Brookhaven National Laboratory, NY, USA</u> August 2010-May 2012 Developing robot based platform for high-throughput enzyme profiling and metabolites analysis; Carbohydrate partitioning of transgenic <i>Brassica</i> embryos using enzyme analysis and metabolic flux analysis.</p> <p><u>Postdoctoral Research Associate, West Virginia University, WV, USA</u> August 2006-July 2010 Physiological and molecular response of Poplar-mycorrhiza (ecto and endo-mycorrhizal) interaction using functional genomics and proteomics approaches; Physiological and molecular response of <i>Populus</i> against Aluminum stress</p> <p><u>Research Associate, Savitribai Phule Pune University, Pune</u> September, 2005-July 2006 Physiological and molecular response of β-amino butyric acid and their derivatives-mediated induced response for increased resistance against <i>Alternaria</i> in <i>Brassica juncea</i></p>			
Research Interest	<p>1. Change in annual carbon sequestration and soil respiration in semi-arid grassland and forest ecosystem Our lab investigating how net ecosystem exchange (NEE) is affected by changes in regional climate and vegetation types in semi-arid grasslands in India. Our lab is involved in measuring fluxes of CO₂, water and energy above mixed grass plantation ecosystem. This data allows for the calculation of the CO₂ fluxes in real-time and is used to understand ecosystem responses to climatic variability as well as to how abiotic stresses such as extended drought and rewatering event scale to changes in ecosystem fluxes.</p> <p>2. Impact of legume based intercropping in soil carbon sequestration</p>			

	<p>Intercropping, the agricultural practice of cultivating two or more crops is an old and commonly used cropping practice in India which aims to match efficiently crop demands to the available growth resources. In our lab, we are studying soil and root respiration in situ in legume based intercropping using novel root chamber system.</p> <p>3. Physiological and molecular mechanism of enhanced growth in grasses and forest trees during mycorrhizal and endophyte colonization During my postdoctoral research with Dr. Cumming, we investigated that how ectomycorrhizal colonization increases the ecological breadth of mycorrhizal plants by quantitatively and qualitatively increasing the capacity of the plant for nutrient acquisition using model tree system poplar and model ectomycorrhiza Laccaria. In my lab, we are currently working on functional trait analysis of grasses during arbuscular mycorrhizal and endophyte colonization.</p> <p>4. Physiological and molecular mechanism of plant aluminum stress response Soil acidity and related aluminum (Al) toxicity are significant factors limiting plant growth worldwide. Hybrid poplar exhibits a wide range of resistance to Al in the root zone (Naik et al. 2008, Naik et al., 2011). However, as is the case for most tree species, little is known of the physiological and molecular factors responsible for resistance to Al in the environment. In my lab, we are working with forest tree Al hyperaccumulator to understand Al tolerance response in tropical tree species.</p>
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Membership	Indian Society of Plant Physiology, Indian Society of Genetics and Plant Breeding, Indian Society of Mycology and Plant Pathology, Indian Botanical Society
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