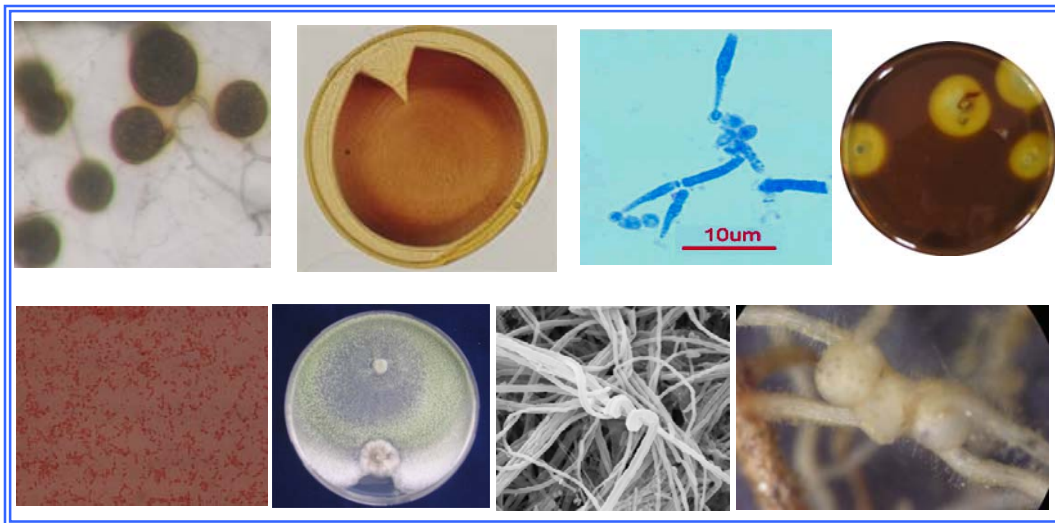


INTERNATIONAL WORKSHOP

on



Rhizosphere Biology of Agriculture, Horticulture & Forestry: Present & Future (February 25-27, 2010)



Organized by

G. B. Pant University of Agriculture & Technology

At

**G. B. Pant University of Agriculture & Technology,
Pantnagar**

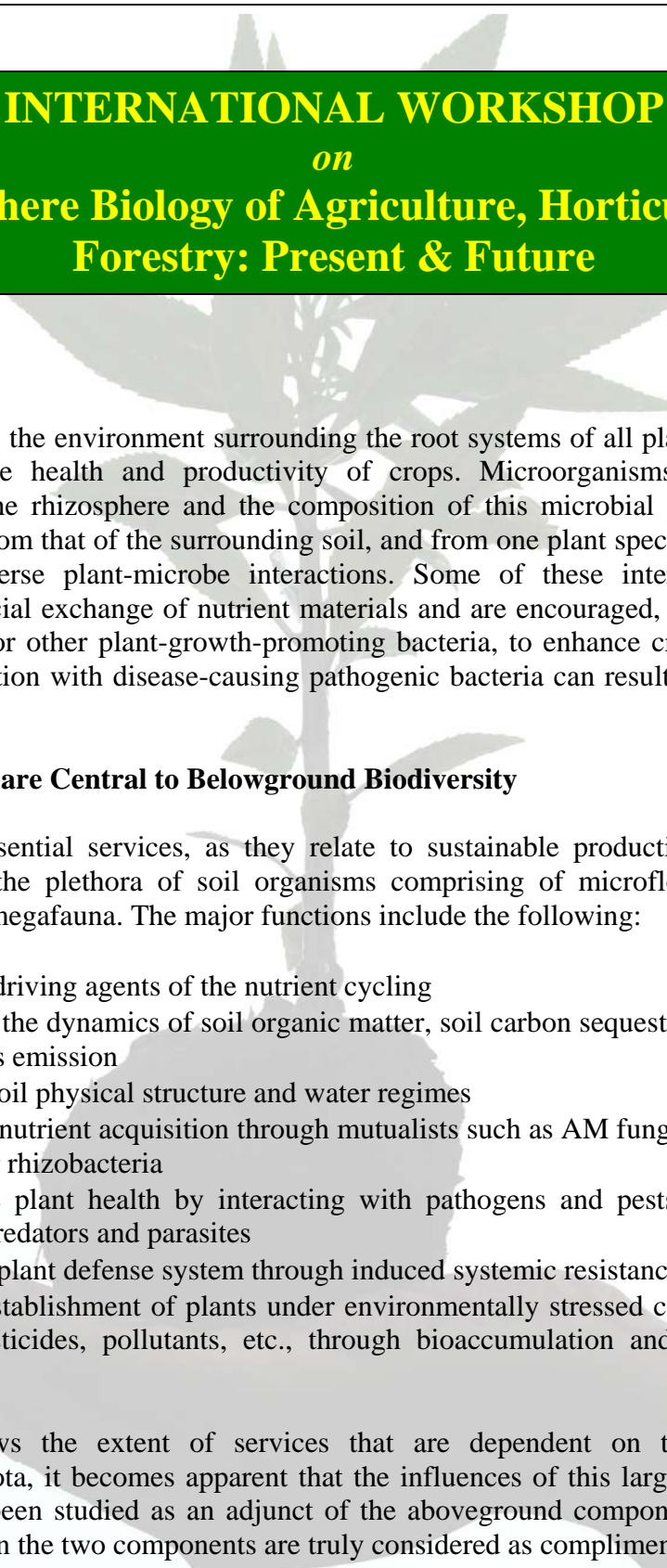


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Background

The rhizosphere, the environment surrounding the root systems of all plants, has a major influence on the health and productivity of crops. Microorganisms form a major component of the rhizosphere and the composition of this microbial population often differs greatly from that of the surrounding soil, and from one plant species to another, as a result of diverse plant-microbe interactions. Some of these interactions involve mutually beneficial exchange of nutrient materials and are encouraged, as in the case of nitrogen-fixing or other plant-growth-promoting bacteria, to enhance crop productivity. Whereas interaction with disease-causing pathogenic bacteria can result in crop damage and loss.

Soil Organisms are Central to Belowground Biodiversity

A variety of essential services, as they relate to sustainable production systems, are contributed by the plethora of soil organisms comprising of microflora, microfauna, mesofauna and megafauna. The major functions include the following:

- Primary driving agents of the nutrient cycling
- Regulate the dynamics of soil organic matter, soil carbon sequestration, and green house gas emission
- Modify soil physical structure and water regimes
- Enhance nutrient acquisition through mutualists such as AM fungi, nitrogen fixers and other rhizobacteria
- Influence plant health by interacting with pathogens and pests and with their natural predators and parasites
- Improve plant defense system through induced systemic resistance (ISR)
- Permit establishment of plants under environmentally stressed conditions arising from pesticides, pollutants, etc., through bioaccumulation and bioremediation strategies

When one views the extent of services that are dependent on the activities of belowground biota, it becomes apparent that the influences of this large and biodiverse pool has often been studied as an adjunct of the aboveground component and not as a corollary wherein the two components are truly considered as complimentary.

Rhizosphere is a 'hot spot' of belowground biodiversity

Root secretions as exudates, sloughed-off mucilage, dead cells and other metabolites carry out a series of functions on account of which the 'rhizosphere' is considered a hot spot of activity that include competitive interactions and survival of the fittest. Since major functional attributes in this zone are better expressed than the bulk soil, extensive researches of rhizosphere biodiversity per se of legumes and cereals have been undertaken to monitor changes in the population of beneficial, deleterious, and growth neutral populations of especially the culturable microbial gene pool. Modern tools of SSCP, DGGE, T-RFLP have permitted study of community level changes in the rhizosphere of crop plants grown in normal management practices as also under stressed conditions. This has permitted preparation of very accurate fingerprints of several crops particularly with reference to beneficial communities comprising of AM fungi, rhizobia, pseudomonads, bacilli and others and has resulted in search of effective microbial gene pool on a sound scientific footing. Use of species specific probes coupled to DNA sequencing and now, microarrays permits functional assessment of the rhizosphere activity under *in situ* conditions. Therefore, from being a rather descriptive science, rhizosphere biology is today at the heart of sustainable production systems.

Rhizosphere interactions wherein liberation of no less than 1000 different low mol wt metabolites and proteins from the plant root through exocytosis, diffusion, leaching, wounding, ion fluxes and exudation leads to aggregation of soil particles, allelopathic influences on neighboring roots, antimicrobials of various kinds, communities developing into tangible biofilms, and processes leading to detoxification of undesired molecules, represent the hallmark of the region.

Answers are required on the following front!

The present scenario has to change drastically to deliver the good that belowground diversity analysis can provide for sustainable production systems. In particular, the following queries being addressed.

- What determines the richness of communities?
- How can transients be distinguished from community inhabitants?
- Can differences in community function be assigned to differences in community structure?
- How important are biotic interactions vs abiotic factors in determining the resulting community?
- Is there evidence to show that an alternate agricultural systems, viz., agro-forestry, inter-cropping, green cover cropping and other similar alternatives sustain greater and higher belowground diversity compared to conventional systems?
- Are there additional benefits in integration, rather than segregation of different land-use types?

Do aboveground interventions of IPM and other similar strategies have a relationship with belowground biodiversity? If so, does it lead to improved soil structure and water regimes through the activity of soil fauna; increased efficiency of nutrient cycling through microbial processes; improved regulation of decomposition processes; increased and effective biological control of root and soil-borne pests.

The proposed workshop, being organized will offer a platform to deliberate on different aspects of rhizosphere biology for increasing their production and productivity and to exchange ideas and formulate further strategies in the interest of crop growers, researchers and industrialists involved in agriculture, horticulture and forestry sectors.

For fruitful and result oriented outcome from any venture, sincere cooperation and maximum participation of all the concerned agencies like researchers, traders, industrialists, growers, economists, bankers and different govt. and semi-govt. institution and SAU's is a must and therefore, maximum participation is being solicited.

COVERAGE

The invited lectures are being organized from the eminent scientists from different parts of world and researchers, planners, industrialists will be invited to participate in discussion and working out further strategies for shaping up the research for sustainable food production. Following thematic areas are being covered in the workshop.

Modern science in context of rhizosphere
Nutrient cycling
Important beneficial microbial groups
Cross talk between/amongst microbes
Rhizosphere and its impact on global climate
Development of Tools

REGISTRATION FEE

Category	By January 1	After January 1
Students/ Research scholars	Rs 1500.00/\$50.00	Rs 2000.00/\$60.00
Industries/Exporters	Rs 2500.00/\$60.00	Rs. 3000.00/\$70.00
Accompanying person	Rs 1000.00/\$20.00	Rs 1500.00/\$25.00

All payments should be made through Bank Draft in favour of **Comptroller, G.B. Pant University of Agriculture & technology**, payable at **Pantnagar**.

SOUVENIR

To commemorate the occasion a souvenir would be published, which would give the detailed programme as well as useful information regarding theme of the conference.

ADVERTISEMENT TARRIF

1. Back cover colored	Rs 25,000.00
2. Front Inside	Rs 20,000.00
3. Back Inside	Rs. 15,000.00
4. Full Page Colour	Rs. 10,000.00
5. Full Page B/W	Rs. 8,000.00
6. Half Page Colour	Rs. 7,500.00
7. Half Page B/W	Rs. 5,000.00

ACCOMMODATION

Accommodation will be provided in University Guest Houses, charges for which are included in the registration fee. However, hotel accommodation, if desired, can be booked on advance payment (ranging from Rs. 1000 – 2500) at the near by town (14 km. from Pantnagar) at Rudrapur.

REACHING PANTNAGAR

Pantnagar, the University town, is 250 km. away from Delhi on the Delhi-Nainital highway and 350 km from Lucknow on the Lucknow-Nainital highway. Regular buses ply from ISBT (Anand Vihar) Delhi to Rudrapur, Haldwani and Nainital. Some buses may not come directly to Pantnagar but divert at Rudrapur, which is only 14 km away from Pantnagar. From Rudrapur, there is regular taxi service to Pantnagar between 7.00 AM to 8.00 PM. If informed in time, vehicle will be arranged to pick the delegates from Rudrapur.

Haldi Road is the nearest railway station (3 km. from the campus) on the broad-gauge and Pantnagar railway station (5 km. from main campus) on the meter-gauge. Lal Kuan is the next stop after Haldi Road station and is 10 km. from the main campus.

TRAIN SCHEDULE AT PANTNAGAR

Train name/number	Arrival	Departure
Delhi-Kathgodam Ranikhet Express 5013 Up, 5014 Dn	Haldi Road 09.45 pm	Haldi Road 04.31 am
Howrah-Kathgodam Bagh Express 3019 Up, 3020 Dn	Haldi Road 08.45 pm	Haldi Road 07.05 am
Delhi-Kathgodam Sampark Kranti Express 5035 Up, 5036 Dn	Lal Kuan 9.42 am	Lal Kuan 09.15 pm
Kathgodan-Lucknow Nainital Express 5308 Up, 5307 Dn	Pantnagar 09.30 pm	Pantnagar 05.55 am

POSTER SESSION

There will be a poster session and a space of 1 x 1 m will be provided for each poster. The poster must contain title, author(s), address, email of presenting author, abstract, Introduction, material and methods, results and discussion, acknowledgment and references. The deadline for the submission of abstract is January 30, 2010.

EXCURSION

Uttarakhand is a region of outstanding natural beauty and is also called '*the Land of the Gods* (Dev Bhoomi)' because of the presence of a multitude of pilgrimage spots, notably the Badrinath, Kedarnath, Gangotri and Yamnotri. Besides, the state a centre of tourism and abounds many tourist places such as Nainital, Almora, Ranikhet, Kausani, Valley of Flowers, etc. If intimated in advance, post conference trips can be arranged.

ADDRESS FOR CORRESPONDENCE

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