9<sup>th</sup> International Conference On Current Approaches in Agricultural, Biological & Applied Sciences for Sustainable Development (CAABASSD-2024)

01-03 March, 2024

Venue: Auditorium, Kumaun University, Nainital, Uttarakhand, India

# **Organized by**



Faculty of Agriculture & Agroforestry, Kumaun University, Nainital, Uttarakhand, India (www.kunainital.ac.in)



Agro Environmental Development Society (AEDS) Majhra Ghat, Rampur, U.P., India (Registered under the Society Registration Act XXI, 1860) (www.aedsi.org)

#### **For Further Details Contact**

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# **Our Publications**



International Journal of Agricultural Sciences (ISSN: 0973-130X) (http://researchjournal.co.in/IJAS.htm) (Scientific Indexing Service, Google Scholar, Advanced Science Index, NAAS Rating: 4.73)



International Journal of Plant Sciences (ISSN: 0973-1547) (http://researchjournal.co.in/IJPS.htm) (Scientific Indexing Service, Google Scholar, Advanced Science Index, NAAS Rating: 4.15)

## Weather of Nainital

Weather of Nainital during the conference (March-April) will be very pleasant and enjoyable due to average day and night temperature range from 10-20°Cand 05-15°C, respectively.

#### **About The Nainital**

Nainital, the charming Himalayan lake town, is a picture-postcard perfect hill-station and one of the most popular in Northern India. Commonly known as the 'Lake District', Nainital is nestled high up in the Kumaon Himalayas at an altitude of around 2,000 m above sea level. This beautiful town in surrounded by seven hills, popularly known as 'Sapta-Shring'-Ayarpata, Deopata, Handi-Bandi, Naina, Alma, Lariya-Kanta and Sher-Ka-Danda. The majestic mountains and the sparkling waters of the lake add an immense lot to the beauty of the town. The town is centred around the emerald mountain lake Naini, which on most days is dotted with colourful sailboats. According to mythology, the lake is believed to have been formed when the eyes of goddess "Sati" fell at this spot while her body was being carried by Lord Shiva after her death.

## About The Kumaun University, Nainital, Uttarakhand, India

Kumaun University, A residential-cum-affiliating university, came into existence in the year 1973 by notification no. (10)/8651/15/75(85)/64 dated 23 November, 1973 under the act no. 10 of state legislature (U.P. State Universities Act, 1973 now adopted by Uttarakhand State) with the merger of Two Government Colleges, D.S.B. Government P.G. College, Nainital and Almora Government P.G. College, Almora. These constituent colleges were later elevated to the status of university campuses by government order no. e-1861/GS dated 14/15 march, 1994. The academic wing of the University is spread over in three campuses (D.S.B. Campus, Nainital, SSJ Campus, Almora and newly constructed Campus at Bhimtal) with an area of 5,31,373 sq.mt. (160 acres), featuring state-of-the-art facilities to the affiliations of 20 government colleges, 61 private institutions, and a government-aided college, the university supports around 1,50,000 students, making it Uttarakhand's largest. A key feature that sets Kumaun University apart is its unwavering commitment to delivering an inclusive educational environment, irrespective of background, race, or faith. The institution diligently fosters a spirit of innovation, civic responsibility, and personal integrity. Its endeavours to bridge the gap between academia, government, and industry are commendable. Over the past three years, the university has focused on establishing recognized departments for both scientific and social research. This initiative has garnered attention from faculty members and students countrywide. Pre-Uttarakhand state formation, Kumaun University set benchmarks for state universities in terms of academic rigor, student discipline, resource generation, and maintaining a conducive learning environment. Such standards earned the university an 'A' Grade accreditation from the National Assessment and Accreditation Council (NAAC) in 2015. Offering a rich tapestry of courses, Kumaun University boasts eight faculties encompassing diverse fields from Arts, Sciences, Commerce, Management, Education, Law, Technology, to Visual Arts. Furthermore, the university pioneers several selffinance courses, ensuring flexibility and inclusivity.

## About the Agro Environment Development Society (AEDS)

The Agro Environmental Development Society (AEDS) is an agricultural research organization, registered under the society registration act 21, 1960 and the NITI Aayog Gov. of India, dedicated to promoting sustainable agricultural practices and fostering environmental conservation. AEDS has since become a leading force in rural development, working tirelessly to uplift the lives of farmers and rural communities while safeguarding the

delicate balance of the environment. One of the primary objectives of AEDS is to empower farmers by providing them with the necessary knowledge and resources to adopt sustainable agricultural practices. Through workshops, training sessions, and field demonstrations, AEDS educates farmers about the latest advancements in agricultural techniques, such as organic farming, integrated pest management, and water-efficient irrigation methods. By encouraging the use of eco-friendly alternatives to conventional farming practices, the organization aims to improve crop yields, reduce production costs, and enhance the overall livelihoods of farmers. The AEDS is also committed to explore the scientific development across the world and has taken initiative to provide a platform to the scientists, researcher, policy makers and scholars to solve and discuss various issues relating to agricultural and environmental development. AEDS had organized first international conference at Sam Higginbottom University of Agriculture, Technology and Sciences, Allahabad, Uttar Pradesh, India in association with Pondicherry Institute of Agricultural Sciences (PIAS), Pondicherry and Centre for Environment & Agricultural Development (CEAD), Pondicherry on November 27-29, 2018 and became a great success with an impressive turnout of around 600 participants from all around the country along with the foreign delegates. The 2nd International Conference was held at Dr. Y.S. Parmar University of Horticulture and Forestry, Solan, Himachal Pradesh on September 27-29, 2019. On this occasion, nearly 800 participants (Scientists, Academicians, Industries Person and Students) were participated globally. The AEDS also conducted various International Conference via virtual mode in collaboration with National and International universities during the global pandemic of COVID-19. In the previous years, the society organized various 21 days National Training Course in collaboration with Central Sericultural Research & Training Institute (CSRTI), Mysore, National Bank for Agriculture and Rural Development (NABARD), Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior (Madhya Pradesh), College of Horticulture and Forestry, Central Agricultural University Pasighat-Arunachal Pradesh and Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu. The most commendable International Conference has been organized recently by the AEDS in joint collaboration with Department & Directorate of Extension Education Uttar Banga Krishi Vishwavidyalaya, Pundibari, West Bengal, ICAR- National Agricultural Higher Education Project (NAHEP) at Kalimpong Science Centre, Deolo, Darjeeling, W.B. Furthermore, the Society continuously working for the welfare of rural and land less community of the country and also making people aware for sustainable and profitable agriculture.

## About the 9<sup>th</sup> International Conference (CAABASSD-2024)

The Impact of climate change affect farmers' ability to grow the food we all need. Increasingly volatile weather and more extreme events-like floods and droughts-change growing seasons, limit the availability of water, allow weeds, pests and fungi to thrive, and can reduce crop productivity. Sustainable development is a fundamental principle for meeting human development goals while at the same time sustaining the ability of natural systems to provide the natural resources and ecosystem services upon which the economy and society depend. The challenges associated with environmental sustainability make it essential tobring together the disciplines of the agricultural, and biological sciences to address the today's environmental challenges for sustainable development. This conference will also bring out the significance of the biological science and forests for sustainable development and food security as forests support sustainable agriculture by stabilizing soils and climate, regulating water flow, providing shade and shelter and providing ahabitat for pollinators and natural predators of agricultural pests and when integrated judiciously into agricultural and scapes, trees can increase agricultural productivity. The broad scope of sustainable development suggests that virtually any social, economic or environmental process or challenge amenable to scientific understanding maypotentially be relevant. Emergence, meanwhile, could signify the novelty or intensification of some of those issues, fresh understanding of their causes or consequences, the development of new management options, or the identification of issues that have gone previously unrecognized. Therefore, the present international conference "Current Approaches in Agricultural, Biological & Applied Sciences for Sustainable Development(CAABASSD)" provides a forum to discuss such emerging issues and advances in the areas of agriculture, biological & applied science to promote the sustainable development of our society. The international conference will be a best amalgamation of eminent scientists, researchers, scholars, and students who will share the latest research & technology in the relevant fields to promote the sustainable development.

#### Themes and Subthemes of the Conference :

#### 1. Recent Advances in Agriculture and Allied Sciences

- Agriculture Resource Management: Frontier aspects in agricultural waste management for environmental sustainability
- Livelihood security in agriculture and allied sectors
- Sustainable development through sericulture
- > Opportunities of entrepreneurship in horticulture and allied fields
- Advances in animal husbandry and allied fields
- Livelihood security with dairy farming
- Emerging employment in fisheries sector for sustainable development
- Current approaches in animal husbandry for increasing livelihood security
- Climate smart agriculture systems: Transforming food systems under a changing climate'
- Sustainable rural livelihood systems and doubling farmers income through the innovative strategies
- > Horticulture as growth engine of farming sector and recent advances in horticulture and allied sciences
- Crop production technology and precision agriculture
- Soil health management and conservation of natural resources
- > Integrated management of nutrient with special emphasis to micronutrient
- Eco-friendly management of conventional and newly emerging plant disease and insect pests
- > Applied aspects of soil and agricultural microbiology
- Recent advances in dairy, food Science and technology
- Business and marketing in the agricultural sector for increasing livelihood
- Agriculture engineering, soil and water conservation, and food processing
- Recent advances in fisheries and allied sciences
- Emerging and applied aspect of plant and animal sciences in developmental biology
- Application of biotechnology, bioinformatics, enzymology, gene mapping, genetic engineering, molecular and cellular biology, for the development of science and technology
- > Importance of medicinal and aromatic plants in the pharmaceutical sector
- Bioresources and technologies used for biofuel production
- Applied aspects of microbiology in food, medical, industrial, agricultural and environmental development

- Microbial ecology and diversity in different habitats
- Cultivation of useful microbes for agro-environmental sustainability

#### 2. Natural Resource Management and Sustainable Hill farming for Livelihood Security

- Sustainable hill farming for livelihood security
- Management of land, water and human resources for sustainable agriculture, horticulture and forestry
- Climate change adaptation and mitigation strategies for hilly areas
- > Diversification and integrated farming system for sustainability and their socio-economic implications
- Bio industrial waste and contaminated soils management and community participation Indigenous traditional knowledge
- Forest protection and management
- > Finding synergies between forestry, agriculture, water and energy
- > The role of urban forests in fuelling and feeding cities and providing environmental and social services
- Integrating forests and other land uses
- Forest landscape management
- Aquatic bio-diversity conservation and its management
- Livelihood opportunities and security in fish farming and allied sector
- Climate change adaptation and mitigation strategies for hilly areas
- > Diversification and integrated farming system for sustainability and their socio-economic implications
- Bio industrial waste and contaminated soils management and community participation
- Indigenous traditional knowledge

#### 3. Emerging Issues in Environmental Management

- > Frontier aspects in biotic and abiotic stress management
- > Aquatic pollution due to industrial waste, problems and mitigation strategies
- > Environmental development and biodiversity conservation
- Earth science, land use change, and management
- Advances in environmental microbiology and environmental engineering
- > Climate change and its effect on environmental ecology and mitigation strategies
- > Environmental chemistry, toxicology, health hazards and solution
- Environmental pollution and management
- Bioremediation of contaminated sites through innovative approaches
- > Nanotechnology in water and wastewater treatment

#### 4. Recent Advances in Biological and Applied Sciences

- Emerging and applied aspect of plant and animal sciences in developmental biology
- Application of biotechnology, bioinformatics, enzymology, gene mapping, genetic engineering, molecular and cellular biology, for the development of science and technology
- > Importance of medicinal and aromatic plants in the pharmaceutical sector
- Bioresources and technologies used for biofuel production

- Applied aspects of microbiology in food, medical, industrial, agricultural and environmental development
- Microbial ecology and diversity in different habitats
- > Cultivation of useful microbes for agro-environmental sustainability
- > Applied aspects medical and pharmaceutical science in public healthcare
- > Application of multidisciplinary knowledge in field of biomedical sciences
- Synthesis and biological screening of synthetic compounds and natural products for discovery of new drug
- > Application of intellectual property rights (IPR) in science and technology
- > Frontier aspects in computational biology for metagenomics analysis
- Advances in materials science, engineering, and technology
- > Applied aspects in pharmacy, chemistry, physics, statistics and nano-science and nano-technology
- > Innovative approaches in computer science, mechanical, and electrical engineering
- Role of the computer in the development of bioinformatics and biotechnology

#### 5. Climate Resilient Agriculture

- Ecosystem based approaches for climate change adaptation, ecosystem services, integrated farming system models and Land degradation neutrality
- Emerging approaches for biotic and abiotic stress management through big data analytics, precision farming, remote sensing, drone technology, AI, ML, Nanotechnology, modeling
- Sustainable soil management, conservation agriculture, organic farming, INM, soilmicroorganisms-plant interactions
- Resilience through land and water management interventions, water management and governance

#### Award and Honors

Interested candidates are requested to submit their details and updated CV or duly filed award application (download from society website at www.aedsi.org) to claim the respective awards (listed below) through email to **aedsi2020@gmail.com** on or before **February 15, 2024.** Society contribution for life members INR-4000/- & lifetime membership fee for Non-Members INR-5000/- can be paid by NEFT/Net Banking/ Mobile banking/Online/banking app, Phone pay, Google pay etc. in favor of "Agro Environmental Development Society" payable at Saifni (State Bank of India, Account No. 37836254237, IFSC Code: SBIN0018205). Key contact for award confirmation: **aedsi2020@gmail.com** Mob: +91-6394082801.

# Prestigious Awards

Life Time Achievement Award	Eminent Scientist award	Distinguished Scientist Award	
Outstanding Achievement Award	Excellence in Extension Scientist Award	Excellence in Teaching Award	
Outstanding/Best M.Sc./MVSc/ MHSc/M.Tech./ Ph.D. Thesis Award	Best Research Scholar Award	Best Academician Award	
Young Scientist Award	Young KVK Scientist Award	Best KVK Scientist Award	
Scientist of the Year Award	Young Agriculture Engineer Award	Young Biotechnologist Award	
Young Woman Scientist Award	Scientist Associate Award	Excellence of Research Award	
Best Fisheries Scientist Award	Best Teacher Award	Young Woman Fisheries Scientist Award	
Young Plant Pathologist Award	Young Microbiologist Award	Young Agriculturist Award	
Young Horticulturist Award	Young Scientist Award in Forestry	Young Scientist Award in Biological Science	
Young Professional Award	Young Scientist Award in Agrometeorology	Young Entomologist Award	
Young Scientist Award in Plant Pathology	Young Scientist Award in Agriculture Science	Young Scientist Award in Animal Husbandry	
Young Scientist Award in Fisheries Sciences	Young Scientist Award in Plant Science	Young Scientist Award in Animal Science	
Young Scientist Award in Agriculture Extension	Young Scientist Award in Agriculture Research	Best Farmer Award	
Young Scientist Award in Food Science	Young Scientist Award Floriculture	Young Scientist Award in Soil Science and Agricultura Chemistry	
Young Scientist Award in Vegetable Science	Young Scientist Award in Fruit Science	Young Scientist Award in Home Science	
Young Scientist Award in Biotechnology	Young Scientist Award in Floriculture	Young Scientist Award in Agronomy	
Young Scientist Award in Extension Education	Young Scientist Award in Animal Husbandry	Young Scientist Award in Veterinary Research	
Best Scientist Award	Best Scientist Award in Plant Pathology	Young Environmental Scientist Award	
YoungScientist Award in Chemistry	Best Scientist Award in Veterinary Research	Young Scientist Award in Life Science	
Best Scientist Award in Agricultural Statistics	Best Scientist Award in Agronomy	Best Scientist Award in Agricultural Science	
Best Scientist Award in Horticulture	Best Scientist Award in Pomology	Best Scientist Award in Forestry	
Best Scientist Award in Soil Science	Best Scientist Award in Plant Breeding and Genetics	Best Scientist Award in Seed Science	
Best Scientist Award in CropPhysiology	Best Scientist Award in Plant Protection	Best Scientist Award in Entomology	
Best Scientist Award in Agriculture Economics	Best Scientist Award in Food Science and Technology Mehta Memorial Award (In the field of Plan	Best Scientist Award in Land and Water Management	

# **Award Nomination Form**

••	or the Award			
	pplicant (Mr./Ms./Mrs./Dr./Prof.) .			
	me (Capitalize each word) Photo			
-		Discipline		••
Name of Dep				
Name of Coll	lege/Institute/University and Comp	leteAddress		
Corresponder	nce/Postal Address with Pin Code			
	Whatsapp No			-
Date of Birth	Sex (M/F)			
Academic Pro	ofile (Education Qualification) Gra	duation Onwa	ards	
Degree	College/University/Institute	Year of Passing	Subject	% /Division/ CGPA
Title of thesis (Only for thesis award)				
Experience in	n Teaching/Research (yrs.)	Outstand	ling Achievement	
No. of Resea	rch PapersBook Chapters	Books	Book ReviewsMagaz	ine Articles
Total Impact Factor/NAAS RatingResearch Project Undertaken: PICo -PI				-PI
No. of Patents/Technology Transfer/Variety Released /Any Other (If any)				
No. of Poster/Oral PresentationsNo. of Invited LectureNo. of Training Programme Attended				
No. Seminars/Conferences/Workshops Organized				
Any Previous Award ReceivedN o. of M.Sc/Ph.D Students Supervised				
Administrative Responsibilities (HOD/Dean/Principle/In-Charge/Registrar/Member of Any Board/Other )				
Any Fellow N	Member of Scientific Society			
Any Other Relevant Information				
Declaration: The information given in this form is true and correct to the best of my knowledge and belief. In case				
any information proves to be false or incorrect. I shall be responsible for the consequences.				
Date	Place		Signature of Applicant	

Note: Applicants are requested to send a MS Word file of duly filled and signed application form at <u>aedsi2020@gmail.com</u> (MS Word file of award application form may download from the website: www.aedsi.org)

## **Call for Abstracts/Full-Length Papers**

Participants are invited to submit abstracts on their original and unpublished research work (maximum 300 words & 06 keywords) that should be written in Times New Roman font, double line spacing with 12 font size using Microsoft word. Corresponding authors must be highlighted by asterisk (\*) with complete mailing address. Authors are also requested to submit their own research work in the form of research and review papers on the diverse field of agricultural, environmental and biological sciences, not exceeding 4500 words for publishing in the International Journal. Papers/abstract to be submitted online along with registration form and fee details at **aedsi2020@gmail.com** 

#### International Journal of Agricultural Sciences (ISSN: 0973-130X)

(Indexed in Scientific Indexing Service, Google Scholar, Advanced Science Index, NAAS Rating: 4.73)

#### International Journal of Plant Sciences (ISSN: 0973-1547)

(Indexed in Scientific Indexing Service, Google Scholar, Advanced Science Index, NAAS Rating: 4.15)

Name of Journal/ Publisher	NAAS Rating	Full length Paper Publishing Charges (INR)
International Journal of Agricultural Sciences (ISSN: 0973- 130X) (Indexed in Scientific Indexing Service, Google Scholar, Advanced Science Index, NAAS Rating: 4.73) *Paper should be sent in a proper format (Download sample paper via: http://researchjournal.co.in/IJAS.htm	4.73	3500
International Journal of Plant Sciences (ISSN: 0973-1547) (Indexed in Scientific Indexing Service, Google Scholar, Advanced Science Index, NAAS Rating: 4.15) *Paper should be sent in a proper format (Download sample paper via: http://researchjournal.co.in/IJAS.htm	4.15	3000

# Publication Fee Details

**Note:** TA & DA facilities will not be borne by the University or AEDS Society and no Abstract/Full length paper will be published without registration in the conference souvenir, Journal and edited book.

#### **Conference Session**

The conference session covering all the themes and subthemes will be supported by the Invited Talk, Lead Talk, Oral and Poster Presentation by eminent and leading scientists, Teaching Faculties, Research Scholars and students from India and abroad on the relevant topics of the International Conference through physical/virtual mode.

## **Poster Presentation**

All the participants are requested to prepare their posters that should not exceed the dimension  $1.6 \times 1.0$  m (length  $\times$  width) and furnished with the title, Authors Name, Affiliation, Introduction, Material and Methods, Results and Discussion and Conclusion. Clear pictures, diagrams, graphs and short tables are highly encouraged to use in posters to win the Best Poster prize in each thematic area.

Categories	Indian Participants/SAARC Othe Countries (INR)			rs Participants (USD)	
Categories	Before the Due Date	On Spot Registration	Before the Due Date	On Spot Registration	
Students (Diploma, UG & PG)	2500	3000	200	230	
Ph.D. Scholar, JRF& SRF	3000	3500	240	250	
Delegates/Scientist/ Faculties/ Teachers Professionals, RA PDF& Others	4500	5000	300	350	
Accompanying Person (Spouses/Guests)	3000	3500	200	240	

# **Conference Registration Fee**

Note: All the Lifetime member of AEDS will be given a discount of 500/-in the registration fee.

**Note:** Conference Registration/Accommodation/Publication/Society Membership/Contribution Fee is Non-Refundable/Non-Transferable and registration fee covers only hospitality and conference kit; it does not include accommodation charges. Conference fee will be paid by NEFT/Net Banking/ Mobile banking/Online/banking app, Phone pay, Google pay etc.For further queries and assistance, please contact to Organizing Secretary, Dr. Chhatarpal Singh, E-mail: aedsi2020@gmail.com, Mob: +91-6394082801.

#### Accommodation

Accommodation for all the participants will be arranged near the conference venue on prior request and prepayment basis or participants may arrange theirown accomodation themselves. No spot accommodation facility will be provided by the accommodation/conference committee at the time of conference. Kindly confirm your accommodation on or before **February 15, 2024**.

<b>Accommodation Categories</b>	Pay/Day (Individuals	Pay/Day (Double
_	Non-Sharing) (INR)	Sharing) (INR)
Normal Guest House	2500	2000
Deluxe Guest House	3000	2500
Dormitory	800 (Per Person)	800 (Per Person)

\*Note: Accommodation will be done only after receipt of advance payment through NEFT/Net Banking/ Mobile banking/Online/banking app, Phone pay, Google pay etc.

# Mode of Payment & Account Details

Name of Account	Agro Environmental Development Society
Name of the Bank	State Bank of India
Bank Address	SBI, Saifni Shahabad, Bilari Road, Saifni,
	Rampur-244922, UP
Type of Account	Current
Account Number	37836254237
IFSC Code	SBIN0018205
MICR Code	244002161
Swift Code	SBININBB782

# **Important Dates**

Last Date of Registration & Fee Submission	15 February, 2024
Last Date of Award Application	15 February, 2024
Last Date of Abstract Submission	15 February, 2024
Last Date of Full-Length Paper Submission	15 February, 2024
Last Date of Accommodation Confirmation	15 February, 2024

**Conference Committee** 

#### Chief Patron

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## **Sample of Abstract**

# The effect of rice husk biochar on soil nutrient status, microbial biomass and paddy productivity of nutrient poor agriculture soils

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#### Abstract

The study related to the effects of rice husk biochar (RHB) application on soil microbial aspects and paddyproductivity in field condition is scare. Therefore, present study provides fresh insight into the effects of RHB onrice production in field conditions, with some updated information on soil microbial aspects. To study the impactof RHB and CSR-BIO (commercialized bio-formulation), on soil physico-chemical properties, soil microbial biomass (SMB) quantity and paddy productivity, four treatments were set up: control, RHB, CSR-BIO and RHB+CSR-BIO. The RHB with CSR-BIO both the amendments were applied at a rate of 10 t ha-1. Acrosstreatments, the water holding capacity, total -C, -N, -P concentrations and soil moisture content were statistically higher in RHB and CSR-BIO treated soils over the control. The highest SMB-C, -N and -P (408.66  $\pm 0.57,83.33 \pm 2.08$  and  $25.66 \pm 1.52 \mu g$  g-1 dry soil, respectively) was recorded in RHB+CSR-BIO treated soil.Across the sampling dates, SMB-C, -N, -P and inorganic-N (ammonium- and nitrate-N) concentrations wereminimum on 35 day after transplantation (DAT) (tillering stage-active growth period), and maximum on 105DAT (maturity stage). The paddy plant growth variables (panicle length, tiller number, rice grain and paddystraw yields) were found higher in treated plots compared to untreated (control) plots, and varied significantly ( $P \le 0.001$ ) due to treatments. Among the various selected paddy agronomic variables, the application of RHBand CSR-BIO treatment was more pronounced to the yield of rice grains. Results indicate that an increase in thequantity of SMB due to RHB+CSR-BIO addition, improves the soil nutrient status and hence, paddy productivity in nutrient poor agriculture soils. It is suggested that RHB generation from rice husk biochar could be asustainable crop residues waste management option to enhance the nutrient status, microbial biomass and paddyproductivity of disturbed agriculture soils.

Keywords: Ammonium-N, Soil microbial biomass, Nutrient poor soil, Paddy, Rice husk biochar

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