Amit Kumar Kesharwani

Postdoctoral Research Associate (Full-time Faculty)
Department of Plant Pathology and
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Google Scholar: https://scholar.google.com/citations?hl=en&user=reD4KGMAAAAJ&view_op=list_works&sortby=pubdate
ResearchGate: https://www.researchgate.net/profile/Amit-Kesharwani

Research Experiences

Period	Position	Institution/University
17th July 2023 – till date	**Postdoctoral Research Associate (Faculty position)** **Research Interest:** Microbiology, Molecular Biology, Plant Pathology, Plant-microbe interactions, Identify the biocontrol agents against Fire blight.	IAREC, Washington State University, Washington, USA
22nd June 2022 – 27th Mar. 2023	**Scientist (Microbiology)** **Research Interest:** Microbiology, Molecular Biology, Plant Pathology, Plant-microbe interactions, Identify the biocontrol agents against plant diseases.	Absolute Foods (ECSO Global Pvt. Ltd.), Haryana, India
1st May 2018-20th Sept. 2021	**Senior Research Fellow** **Project Title:** Identification of resistance source against prominent races and functional characterization of avirulence genes of *Xanthomonas campestris* pv. *campestris* causing black rot disease in crucifer crops. **(SERB-DST, GOI)**	ICAR-Indian Agricultural Research Institute, New Delhi, India
1st Sept. 2017 to 15th Mar. 2018	**Junior Research Fellow** **Project Title:** Root-Specific reduction of Cytokinin for Enhanced Root Growth and Drought Tolerance in Oilseed Mustard (*Brassica Juncea* cv. *Varuna*) **(SERB-DST, GOI)**	Gautam Buddha University, Greater Noida-201308, Uttar Pradesh, India
18th Oct. 2016 to 15th Mar. 2017	**Project Assistant II** **Project Title:** Skill development and deployment of rural population through employing Science & Technology intervention of economically viable aromatic and medicinal crops for income generation and job creation in rural sector of Bundelkhand and adjoining areas. **(CSIR, GOI)**	CSIR-Central Institute of Medicinal and Aromatic Plants, Lucknow-226015, Uttar Pradesh, India
16th Nov. 2015 to 13th Oct. 2016	**Junior Research Fellow** **Project Title:** Developing a strategy for engineering resistance against Necrotrophic pathogen *Sclerotinia sclerotiorum* in *Brassica juncea.* **(DBT, GOI)**	University of Delhi South Campus, New Delhi, India
22nd July 2013 to 21st July 2015	**Project Fellow** **Project Title:** Genomics of medicinal plants and agronomically important traits. **(CSIR, GOI)**	CSIR-Institute of Himalayan Bioresource Technology, Palampur, Himachal Pradesh, India

Educations

2018-2023	**Ph.D. (Biotechnology)** **Thesis title** "Characterization and functional analysis of *avr* gene(s) of Indian isolates of *Xanthomonas campestris* pv. *campestris* causing black rot disease in cauliflower" **Mentors:** Dr. Anupama Verma Awasthi and Dr. Dinesh Singh	Amity University, Noida, U.P. and Indian Agricultural Research Institute, New Delhi, India
2008-2010	**M.Sc. (Microbiology)** **First Division** **Thesis:** Standardization of assays for *Staphylococcal* Beta-lactamase activity evaluation (from CSIR-CIMAP, Lucknow, India)	Gurukula Kangri Vishwavidyalaya, Haridwar, U.K., India

2005-2008	**B.Sc. (Chemistry, Botany and Zoology)** **First Division**	M.J.P. Rohilkhand University, Uttar Pradesh, India

Academic Roles/Responsibilities

2023-2024	The Irrigated Agriculture Research and Extension Center-Diversity, Equity, and Inclusion (IAREC-DEI) Committee member	IAREC, Washington State University, Washington, USA

Academic Achievements/Awards

2023	**Organizing Committee Member**	In 5th International Conference on Applied Microbiology and Beneficial Microbes held on 9-10 Oct. 2023 in London, UK.
2022	**Young Researcher Award 2022**	An outstanding honor is awarded for the research in the field of Plant Pathology and Biotechnology by Scholar Academic and Scientific Society, India.
2022	**InRes Research Excellence Award 2022**	An honor is awarded towards the appreciation of outstanding works in the field of Microbiology by Institute of Researchers, registered and recognized by the Ministry of MSME, Govt. of India.
2022	**Speaker**	In 2nd Edition of "World Congress on Infectious Diseases – INFECTION 2022" virtually organized by Magnus Group LLC held in Rome, Italy, during June 17-18, 2022.
2022	**Best Poster Presentation Award**	National E- Conference on Biotic Stress Management Strategies for Achieving Sustainable Crop Production and Climate Resilience organized by ICAR, NCIPM, SPPS, IARI at New Delhi, India held on 19-21 May 2022.
2021	**Best Poster Presentation Award**	National symposium on Plant Diseases: Impact on Food Security jointly organized by Indian Phytopathological Society, New Delhi and Division of Plant Pathology, ICAR-IARI, New Delhi, India on 17-18 December 2021.
2021	**Best Oral Presentation Award**	International conference on 3rd International Conference on "Global Initiative in Agricultural, Forestry and Applied Sciences for Food Security, Environmental Safety and Sustainable Development (GIAFAS-2021)" organized by Agricultural & Environmental Technology Development Society (AETDS), U.S. Nagar during October 17-18, 2021
2021	**Best Research Scholar Award**	National Webinar on "Transformation of Farmers, Agriculture & Allied Sector" Organized by Samagra Vikas Welfare Society (SVWS) during July 27, 2021
2021	**Young Scientist Award**	International Conference on Environmental, Agricultural, Chemical and Biological Sciences (ICEACBS) 2021" organized by Voice of Indian Concern for the Environment (VOICE), in association with CAFRE Univ. of Pisa, Italy; Murray State Univ. Murray, Kentucky, USA, Dept. of Biotechnology, GLA Univ., Mathura, U.P., Mercy College, Palakkad, Kerala & others during January 24-26, 2021.
2020	**Junior Scientist Award**	National Webinar on "Prospective, Priorities and Preparedness of Sustainable Agriculture Development in India" organized by Dr. Ram Avatar Shiksha Samiti (DRASS), Pilibhit, U.P., during December 28-29, 2020.
2020	**Best Poster presentation**	7th International conference on Phytopathology in Achieving UN Sustainable Development Goals organized by Indian Phytopathological Society at ICAR-IARI, New Delhi during Jan. 16-20, 2020
2019	**Best Poster presentation**	National symposium on Recent challenges and opportunities in sustainable Plant Health Management organized by Indian Phytopathological Society at BHU Varanasi during Feb. 26-28, 2019
2018	Selected for the PhD student type in " Multiyear Program Pea – PhD student fellowship" in the **Department of Genomics at Institute of Plant Genetics of the Polish Academy of Sciences (IPG PAS), Poland (Grant Not availed).**	
2017	Graduate Aptitude Test (GATE-XL) **(All India Rank 1311; 87.64%)**	Indian Institute of Technology, Roorkee, India

International and National Grants

1. The **International Travel Support (ITS)** grant no. **ITS/2022/000594 -Young Scientist** has been awarded by Science and Engineering Research Board, Government of India for participating in **"7th Xanthomonas Genomics Conference Florida 2022"** organized by University of Florida at Sheraton Sand Key Resort, Clearwater, Florida, USA held on 13-17th June 2022.
2. The **Local hospitality support** has been provided by organization committee of conference to participate in **"7th Xanthomonas Genomics Conference Florida 2022"** organized by University of Florida at Sheraton Sand Key Resort, Clearwater, Florida, USA held on 13-17th June 2022.

Publications- Research Articles (Total publication *SCIE* IF: 50.885)

Year	Title	Citations (73)
2023	Synergistic Antimicrobial Effects of Cotton Extracted Cellulose with Green Synthesized TiO2 for Potential Application in Agriculture Sharma, C., Rana, A., **Kesharwani, A.K.,** Singh, D., Sharma, S.N., Srivastava, R. ***International Journal of Biological Macromolecules,*** **In review (Impact Factor: 8.025)**	-
2023	Green synthesis of magnetite nanoparticles using hydrothermal method for its potential antimicrobial application in disease management of agricultural crops Sharma, C., Rani, E., **Kesharwani, A.K.,** Singh, D., Srivastava, R., Sharma, S.N. ***Materials Chemistry and Physics,*** **In review (Impact Factor: 4.778)**	-
2023	First report of *Alternanthera yellow vein virus* and Cotton leaf curl Multan betasatellite infecting *Rumex nepalensis* in India Kulshreshtha, A., Sharma, D., Roshan, P., **Kesharwani, A.K.,** Hallan, V. ***Plant Disease,*** **Accepted (Impact Factor: 4.614)**	-
2023	First report of association of *Euphorbia Geniculata* as an alternative host for *Colletotrichum truncatum* in soybean fields in India Kumar, S., Rajput, L.S., Nataraj, V., Shivakumar, M., Maheshwari, H.S., Nargund, R., Kumawat, G., Singh, J.K., **Kesharwani, A.K.,** Yadav, M.K. ***Plant Disease,*** **Accepted (Impact Factor: 4.614)**	-
2023	The type-III effector gene-based multiplex - PCR for detection of *Xanthomonas campestris* pv. *campestris* causing black rot disease in crucifer crops Singh, D.†, **Kesharwani, A.K.†**, Avasthi, A.S. **(†Equally contributed)** ***3Biotech,*** **In review (Impact Factor: 2.893)**	-
2023	First report of *Tobacco rattle virus* infecting *Brassica oleracea* var. *botrytis* (cauliflower) in India **Kesharwani, A.K.,** Kulshreshtha, A., Singh, R.P., Srivastava, A., Avasthi, A.S. ***Plant Disease,*** 107(4):1252 **(Impact Factor: 4.614)**	1
2023	Essential oils composition of *Cymbopogon martinii* grown in semi-arid region of Uttar Pradesh, India **Kesharwani, A.K.**, Mahaver, A., Kulshreshtha, A., Singh, R.P., Krishna, A., Avasthi, A.S. ***Scientist,*** 3(3):479-482 **(Impact Factor: 1.717)**	-
2023	Elucidation of physio-biochemical changes in Citrus spp. incited by *Xanthomonas citri* pv. *citri* Mahawer, A.K., Dubey A.K., Awasthi, O.P., Singh, D., **Kesharwani, A.K.**, Kashyap, A.S., Kulshreshtha, A., Singh, R.P. Sharma, R.M. ***Horticulturae,*** 324(9):1-27 **(Impact Factor: 3.1)**	1
2023	Evaluating the impact of Bakanae disease on leaf gas exchange physiology of rice in resistant and susceptible genotypes Yadav, J., Mahawer, A.K., **Kesharwani, A.K.,** Singh, O.W. ***Biological Forum – An International Journal,*** 15(2):823-829 **(NAAS Score: 5.11)**	-
2023	Evaluating the effect of combined application of Hydrogen cyanamide (HCN) and Abscisic acid (ABA) for improving the berry color of 'Flame Seedless' grapevine (*Vitis vinifera* L.) Mahawer, A., **Kesharwani, A.K.,** Arora, N.K. ***Scientist,*** 3(3):254-264 **(Impact Factor: 1.717)**	-
2023	Black rot disease incited by Indian race 1 of *Xanthomonas campestris* pv. *campestris* in *Brassica juncea* L. cv. Pusa Bold in India **Kesharwani, A.K.,** Singh, D., Kulshreshtha, A., Kashyap, A., Avasthi, A.S., Geat, N. ***Plant Disease,*** **107(1):212 (Impact Factor: 4.614)**	3
2022	Synergistic Antibacterial Effects of Cellulose: TiO_2 Nanocomposite against phytopathogens Sharma, C, **Kesharwani, A.K.,** Rehani D., Kesarwani, R., Singh, D., Sharma, S.N., Srivastava, R. **IEEE 12th International Conference Nanomaterials: Applications & Properties (NAP), Krakow, Poland, 2022, pp. 1-5.**	-
2022	Whole genome sequence resource of Indian race 4 of *Xanthomonas campestris* pv. *campestris*, the causal agent of black rot disease of *Brassica oleracea* var. *capitata* L. Singh, D. †, **Kesharwani, A.K. †**, Singh, K., Jaiswal, S., Iquebal, M.A., Geat, N., Avasthi, A.S. **(†Equally contributed)** ***Plant Disease,*** **106(5):1502-1505 (Impact Factor: 4.614)**	4
2022	Unravelling microbial volatile elicitors using a transparent methodology for induction of systemic resistance and regulation of antioxidant genes at expression levels in chilli against bacterial wilt disease Kashyap, A.S., Manzar, N., Nebapure, S.M., Rajawat, M.V.S., Deo, M, Singh, J.P., **Kesharwani, A.K.,** Singh, R.P., Dubey, S.C., Singh, D.	20

Antioxidants MDPI, 11(2):404 **(Impact Factor: 7.675)**

2022 Endophytic Ability of Indigenous *Bacillus thuringiensis* Strain VKK-BB2: New Horizons for the Development of Novel Insect Pest-Resistant Crops **2**

Pola, S., **Kesharwani, A.K.,** Singh, J., Singh, D., Kalia, V.K.

Egyptian Journal of Biological Pest Control, 32(8):1-12. **(Impact Factor: 2.055)**

2022 Distributions of bacterial stalk rot disease of maize in India and identification of causal agent using biochemical and *fliC* gene-based marker and its sensitivity against chemicals and bacterial antagonist **-**

Jatoth, R., Singh, D., Geat, N., Babu, L., **Kesharwani, A.K.**

Indian Phytopathology, 75:517–525 **(NAAS Score: 5.95)**

2021 Screening and biocontrol potential of rhizobacteria native to Gangetic plains and hilly regions to induce systemic resistance in chilli against bacterial wilt disease and promote plant growth **21**

Kashyap, A.S., Manzar, N., Rajawat, M.V.S., **Kesharwani, A.K.,** Singh, R.P., Dubey, S.C., Pattanayak, D., Dhar, S., Lal, S.K., Singh, D

Plants MDPI, 10(10):1-39. **(Impact Factor: 4.658)**

2021 Biological control of bacterial wilt of solanaceous vegetable crops – A Review **2**

Singh, D., **Kesharwani, A.K.**

Agriculture Research Journal, 58(1):1-17. **(NAAS Score: 5.44)**

2020 New record of a monopartite begomovirus and papaya leaf curl betasatellite infecting *Mirabilis jalapa* in Himachal Pradesh, India **2**

Kulshreshtha, A., Roshan, P., **Kesharwani, A.K.,** Hallan, V.

Indian Phytopathology, 73 (4), 821-823. **(NAAS Score: 5.95)**

2020 Characterization of plant growth-promoting rhizobacteria isolated from Chilli rhizosphere of Southern Plateau and Hills Region **5**

Kashyap, A.S., Singh, D., **Kesharwani, A.K.** and Singh, R.P.

International Journal of Current Microbiology and Applied Sciences, 9(8):3473-3483. **(NAAS Score: 5.38)**

2019 Detection of β-lactamase and antibiotic susceptibility of Clinical Isolates of *Staphylococcus aureus* **9**

Kesharwani, A.K. and Mishra, J.

Biocatalysis and Agricultural Biotechnology, 17:720-725. **(Impact Factor: 4.0)**

Book chapters

2022 Pre and postharvest handling and disease management of Kinnow to reduce postharvest losses and retain the quality of the fruits **-**

Singh, D., Thakur, A.K., Jain, R.K., **Kesharwani, A.K.,** Hussain, T.

Management of postharvest diseases and value addition of horticultural crops, **Pg. 187-212** *Today & Tomorrow's Printers and Publishers*

2021 Postharvest losses of horticultural produces in Postharvest Handling and Diseases of Horticultural Produce **-**

Singh, D., Sharma, R.R., **Kesharwani, A.K.**

Postharvest Handling and Diseases of Horticultural Produce Pg. 1-23; 1st Ed. CRC Press, Taylor and Francis Group

2021 Management of Bacterial Diseases in Vegetable Crops **-**

Singh, D., **Kesharwani, A.K.**

Current Horticulture: Improvement, Production, Plant Health Management and Value-addition Vol. 2, Pg. 409-527. 1st Ed. Brillion Publishing

2019 Molecular and physiological characterization of plant growth promoting rhizobacteria: Methods and Protocols **-**

Kashyap, A.S., Tetoraya, M., **Kesharwani, A.K.,** Singh, D et al.

Pharmacognosy & Nutrition. Vol. 1, Pg. 79-104. *Virgin Sahityapeeth*

2018 Biointensive management of soil borne diseases in cucurbitaceous crops in Bio intensive Approaches: Application and Effectiveness in Plant Disease Management. **2**

Singh, D., Kashyap, A.S., **Kesharwani, A.K.**

Plant Disease Management, Pg. 369-392. *Today & Tomorrow's Printers and Publishers*

Book

2022 *Xanthomonas campestris* pv. *campestris*: A vascular pathogen causing black rot disease in crucifer crops. **1**

Kesharwani, A.K, Singh, D., Singh, R.P., Kashyap, A.S.

Eliva Press SRL, Europe, Pg. 1-43. **ISBN: 978-9994981267**

Training Manual

2022 Published Practical 5: Molecular characterization of bacteria & Practical 6: Detection of Bacterial Pathogen from symptomatic leaves of cauliflower through Bio-PCR assay, in training manual on **"Identification and management of insects, pests and plant pathogens infecting nutritional crops"**. **TB-ICN:269/2022, Pg. 12-15** published by ICAR-Indian Agricultural Research Institute, New Delhi, India to be held on Dec. 14, 2021 to Jan. 08, 2022.

Publications in International/National conference proceedings

2023 **Identification and characterization of virulent strain of *Xanthomonas campestris* pv. *campestris* causing black rot disease in *Brassica juncea* L. cv. Pusa Bold in India**

A.K. Kesharwani, D. Singh, A. Kulshreshtha, A.S. Avasthi

In e-symposium on "Pathogen Profile and Pathogenesis in Relation to Crop Disease Management" organized by Indian Phytopathological Society (IPS), IARI, New Delhi, India, during January 13th Jan., 2023.

2022 **Development of natural resistance in *Xanthomonas campestris* pv. *campestris* against *Brassica juncea* L. cv. Pusa Bold in India**

A.K. Kesharwani, D. Singh, A.S. Avasthi

In 2nd Global Conference on Plant Science and Agricultural Research **(GPAR-2022)** "Recent Trends and Latest Innovations in Plant and Agricultural Science" organized by IRIS Scientific Group in Rome, Italy, during September 22-24, 2022.

2022 **Antibacterial property of nanocrystalline cellulose enhanced by titanium dioxide fibres synthesized using hydrothermal method**

Sharma, C, **Kesharwani, A.K.,** Rehani D., Kesarwani, R., Singh, D., Sharma, S.N., Srivastava, R.

2022 IEEE 12th International Conference on "Nanomaterials: Applications & Properties, Poland" organized by IEEE Xplore in Krakow, Poland during September 11-16, 2022.

2022 **Whole-genome sequencing and comparative analysis of Indian race 4 of *Xanthomonas campestris* pv. *campestris* causing black rot disease in *Brassica oleracea* var. *capitata***

A.K. Kesharwani, D. Singh, A.S. Avasthi

In 2nd Edition (Virtual) of "World Congress on Infectious Diseases – INFECTION 2022" organized by Magnus Group LLC held in Rome, Italy, during June 17-18, 2022.

2022 **Identification and molecular characterization of *avr* genes of *Xanthomonas campestris* pv. *campestris* inciting black rot disease in crucifer crops in India**

A.K. Kesharwani, D. Singh, A. Kulshreshtha, A.S. Avasthi

In "7th Xanthomonas Genomics Conference Florida 2022" (in present) organized by University of Florida at Sheraton Sand Key Resort, Clearwater, Florida, USA held on 13-17th June 2022.

2022 **Identification and molecular characterization of the T3SS effectors in Indian race of *Xanthomonas campestris* pv. *campestris*, the causal agent of black rot disease in cauliflower**

A.K. Kesharwani, D. Singh, A.S. Avasthi

In National e-conference on Biotic Stress Management Strategies for Achieving Sustainable Crop Production and Climate Resilience jointly organized by ICAR, NCIPM, SPPS and IARI, India held on May 19-21, 2022.

2022 **Visualizing the infection process of *Xanthomonas campestris* pv. *campestris* in susceptible and resistant host of brassica species causing black rot disease**

A.K. Kesharwani, D. Singh, S. Agarwal, A.S. Avasthi

In 5th International Webinar on "Plant Science & Molecular Biology" with the theme 'Rising Demands in Plant Science and Molecular Biology' organized by University of Split, Croatia and Coalesce Research Group, Greenville, SC 29607, USA held on April 11-12, 2022.

2021 **Identification and characterization of *AvrBs1* in *Xanthomonas campestris* pv. *campestris* causing black rot disease in *Brassica oleracea* var. *botrytis***

A.K. Kesharwani, D. Singh, A.S. Avasthi

In National Symposium (virtual) on "Plant Diseases: Impact on Food Security" organized by Division of Plant Pathology, ICAR-IARI New Delhi and Indian Phytopathological Society (Delhi Zone) India, during December 17-18, 2021. Souvenir Vol. 1, Pg. 434-35.

2021 **Characterization of races of *Xanthomonas campestris* pv. *campestris* causing black rot disease of crucifer crops and its management**

D. Singh, **A.K. Kesharwani,** R. Jatoth, N. Geat

In National Symposium on Strategic plant disease management for food security held on 6-7 Dec. 2021 at ICAR- CPRI, Shimla, Pg. 5.

2021 **Development of avirulence genes-based multiplex PCR to identify black rot disease in cauliflower**

A.K. Kesharwani, D. Singh, A.S. Avasthi

In 3rd International Conference on "Global Initiative in Agricultural, Forestry and Applied Sciences for Food Security, Environmental Safety and Sustainable Development (GIAFAS-2021)" at Shri Guru Ram Rai University, Dehradun, Uttarakhand, India, during October 17-18, 2021. Souvenir Vol. 1, Pg. 434-35.

2021 **Improving the quality of cauliflower by managing black rot and soft rot disease**

A.K. Kesharwani, D. Singh, A.S. Avasthi

In: International e-Conference on Postharvest Disease Management and Value Addition of Horticultural Crops at Division of Plant Pathology, ICAR- Indian Agricultural Research Institute, New Delhi, India during August 18-20, 2021. Souvenir, Pp 191.

2021 **Functional characterization of an avirulence (*AvrBs1*) gene of *Xanthomonas campestris* pv. *campestris* causing black rot disease in *Brassica oleracea* (cauliflower)**

A.K. Kesharwani, D. Singh, A.S. Avasthi

In National e-Conference on 'Plant Health and Food Security: Challenges and Opportunities' at Division of Plant Pathology, ICAR-Indian Agricultural Research Institute, New Delhi, India during March 25-27, 2021. Souvenir, Pp. 113

2020 ***In-silico* based molecular characterization of *avr* genes of Indian races of *Xanthomonas campestris* pv. *campestris* causing black rot in cauliflower (Oral presentation)**

A.K. Kesharwani, D. Singh, S. Kumar

In National e-Webinar on Prospective, Priorities and Preparedness of Sustainable Agriculture Development in India at Pilibhit, Uttar Pradesh during on Dec. 28-29, 2020.

2020 **Identification of source of resistance in cauliflower against *Xanthomonas campestris* pv. *campestris***

A.K. Kesharwani, D. Singh, S. Singh, S. Kumar

In 7th International Conference on "Phytopathology in Achieving UN Sustainable Development Goals" at ICAR-Indian Agricultural Research Institute (IARI), New Delhi, India, during January 16-20, 2020. Souvenir, Pp 127.

2020 **Identification and molecular characterization of *Xanthomonas citri* subsp. *citri* causing citrus canker in Citrus species**

A.K. Mahawer, R.M. Sharma, D. Singh, **A.K. Kesharwani**

In 7th International Conference on "Phytopathology in Achieving UN Sustainable Development Goals" at ICAR-Indian Agricultural Research Institute (IARI), New Delhi, India, during January 16-20, 2020. Souvenir, Pp 69.

2020 **Identification and characterization of *Dickeya zeae* a causal agent of bacterial stalk rot disease in maize**

J. Rajender, D. Singh, **A.K. Kesharwani**

In 7th International Conference on "Phytopathology in Achieving UN Sustainable Development Goals" at ICAR-Indian Agricultural Research Institute (IARI), New Delhi, India, during January 16-20, 2020. Souvenir, Pp 71.

2019 **Identification of *avr* gene of *Xanthomonas campestris* pv. *campestris* for pathogenicity and specificity to cause black rot disease in crucifer crops**

A.K. Kesharwani and D. Singh

In National symposium on Recent challenges and opportunities in sustainable Plant Health Management at Dept. of Mycology and Plant Pathology, BHU, Varanasi during 26-28 Feb. 2019. Souvenir, Pp 69.

2019 **Viruses influence the secondary metabolite production in plants**

A.K. Kesharwani and J. Mishra

In XIV Agricultural Science Congress, at NASC Complex, Pusa, New Delhi, India during February 20-23, 2019. Souvenir, Pp 269-270.

2018 **Pathogenicity of *Xanthomonas campestris* pv. *campestris* in *Brassica oleracea* (cabbage) and identification of avirulence gene**

A.K. Kesharwani, D. Singh, S. Kumar, A.S. Kashyap

In 2nd International Conference on Advances in agricultural, biological and applied sciences for sustainable future at Swami Vivekanand Subharti University, Meerut during October 20-22, 2018. Souvenir Pg. 15-16.

2018 **Detection of β-lactamase and antibiotic susceptibility of clinical isolates of *Staphylococcus aureus***

A.K. Kesharwani, M.P., Darokar, G.P. Gupta

In International Conference on Bioengineering on Health and Environment at Sathyabama University, Chennai, India during January 8-10, 2018. Souvenir Pg. 30.

2017 **Studies on growth pattern and yield parameters of *Mucuna pruriens*: Introduction and domestication in semi-arid region of Bundelkhand, Uttar Pradesh**

A.K. Kesharwani, S.K. Singh, S.S. Dhawan, A.K. Krishna

In Northeastern Regional Conference and Exhibition on 'Promotion and Protection of Traditional Health Care Remedy at Guwahati during March 24-26, 2017.

2017 **Farmers' success story of income generation and employment creation through Medi-culture under rainfed condition in Bundelkhand region of Uttar Pradesh**

A. Agarwal, **A.K. Kesharwani**, P. Singh, A. Krishna

In 4th Lucknow Science Congress on Science Technology and Innovations for Sustainable Development at Babasaheb Bhimrao Ambedkar University, Lucknow, Uttar Pradesh during March 3-4, 2017.

Workshops/Trainings/Webinars

2022 Participating in webinar on **"Tissue Culture of Tree/Woody Plants (Bamboo & Teak): Significance, Best Practices, and Way Forward"** organized by APAARI, BCIL & APCoAB for popularizing Plant Tissue Culture in Asia Pacific Region and African Countries towards realizing its potential held on July 29, 2022.

2021 Participating in Hands-on training on "**CRISPR/Cas9 mediated Gene-editing in plants**" organized by Department of Plant Sciences, University of Hyderabad held on October 03-10, 2021.

2021 Ten Days Virtual Workshop entitled "**Applications of Bioinformatics Tools in Agricultural Research**" held during 20 to 30 September, 2021 under Niche Area of Excellence Programe, Uttar Banga Krishi Viswavidyalaya, Pundibari, Cooch Behar in collaboration with ICAR-Indian Agricultural Statistics Research Institute (ICAR-IASRI), New Delhi.

2020 INYAS-CUPB lecture workshop on "**Tangled bank**" organized by Indian National Young Academy of Sciences and Department of Botany, Central University of Punjab, Bhatinda, India in connection with World Environment Day during 31 May to 5th June, 2020.

2018 ICAR- Center of Advanced Faculty Training (CAFT) on **"Advances in Biological Control of Plant Diseases"** organized in the Division of Plant Pathology, ICAR-Indian Agricultural Research Institute, New Delhi during 24 May to 13th June, 2018.

2018 "**Environmental Restoration by applying Metagenomics in Bioremediation**" during Jan. 19-20, 2018 at Gautam Buddha University, Greater Noida, U.P., India.

2014 "**Application of Computational Biology, System Biology and RNAi technology in Agriculture and Health care**" during July 22-24, 2014 at Bioinformatics Centre, Biotech Park, Lucknow, Uttar Pradesh, India.

E-webinars/Symposiums/conferences

2022 Participated in **AWSAR** (Augmenting Writing Skills for Articulating Research) Webinar on Popular Science Writing organized by Department of Science and Technology (DST), Government of India and Vigyan Prasar (VP) held on 19 May 2022.

2022 Participated in 8th International conference on "**Plant Pathology: Retrospect and Prospects**" organized Indian Phytopathological Society, New Delhi at Sri Karan Narendra Agricultural University, Jobner-Jaipur, Rajasthan held on March 23-26, 2022.

2022 Participated in "**Biotechnology: The Road Ahead: International Symposium and Bio-Enterpreneurship Competition**" jointly organized Department of Biological Science and Engineering, Netaji Subhas University of Technology and Department of Biotechnology, Delhi Technological University in collaboration with Biofootprints held on Jan. 5-7, 2022.

2021 Participated in **AWSAR** (Augmenting Writing Skills for Articulating Research) Webinar on Popular Science Writing organized by Department of Science and Technology (DST), Government of India and Vigyan Prasar (VP) held on 16 September 2021.

2021 Participated in 4th National Post Doc Symposium - **Scholars to Pathfinders** jointly organized by PDFA, NCBS, INSTEM and IISER-KOLKATA, India held on April 3-4 & 10-11, 2021.

2021 Participated in online webinar on **"Next Generation Sequencing for Deciphering Host-Pathogen Interaction"** organized by Indian Phytopathological Society and Bionivid Technology Pvt. Ltd. India held on 04-05 February, 2021.

2020 Participated in International webinar on **"COVID-19 and Beyond: Future prospects in Biotechnology"** organized by SHUATS, Prayagraj, UP, India held on 08-09 July, 2020.

2020 Participated in webinar on **"Combating with the millennium pandemic COVID-19"** organized by American Society for Microbiology organized by SHUATS, Prayagraj, UP, India held on 02-04 July, 2020.

2020 Participated in International webinar on "**Trends in Sustainability: Regenerative Agriculture"** organized by Maharana Pratap PG College, Jungledhusar, Gorakhpur University, UP, India held on 26 to 27 June, 2020.

2020 Participated in webinar series of Next Generation Genomics and Integrated Breeding for Crop Improvement (VII-NGGIBCI) on **"Genomics for food, health and nutrition"** organized by Center of Excellence in Genomics & Systems Biology (CEGSB), ICRISAT, Hyderabad held on 14 May, 2020.

2020 Participated in International webinar on **"Recent advances in biotechnology"** organized by Department of Biotechnology, Panjab University (PU), Chandigarh, India held on 27 April, 2020.

Association with Professional Scientific Bodies

- Member of **International Society for Molecular Plant-Microbe Interactions (IS-MPMI), USA** (2023-Present)
- Member of **Microbiology Society (C043901), London, UK** (2022-Present)
- Life Member of **InRes – Institute of Researchers (LM102221)**, India (2022-Present)
- Member of **European Biotechnology Network (EBN),** Europe
- Fellow of **Scholars Academic and Scientific Society (SAS Society)**, India.
- Member of **American Phytopathological Society (APS, 237384)**, USA (2020-Present).
- Member, **Tropical Agriculture Association (TAA)**, UK (2022-Present).
- Life Member of **Indian Phytopathological Society (IPS)**, Division of Plant Pathology, IARI, New Delhi, India.
- Life Member of **Society for Environment and Sustainable Development (SESD)**, India.
- Member, National Service Scheme (NSS), India (2003-2005).

Position in Scientific Journals

- 2023-Present: Reviewer, Scientific Reports.
- 2022-Present: Reviewer, BMC Microbiology.
- 2022-Present: Review Editor, Frontiers in Virology- Emerging and Reemerging Viruses.
- 2021-Present: Reviewer, Open Journal of Plant Science (OJPS).

Technical skills

Microbial techniques: Isolation of plant pathogenic bacteria and fungus (*Xanthomonas, Bacillus, Sclerotinia and Phytophthora*), Gram-staining, IMViC test, antimicrobial resistance against human pathogenic bacteria – Disk Diffusion Assay, Agar Well Diffusion Assay, Microbroth dilution method; Bacterial localization in host plant by *gfp* (green fluorescent protein) expressing cells.

Nano-particle: Antimicrobial activity of Nano-particles (Zinc oxide-ZnO; Iron oxide-IO) against bioagents, plant pathogenic bacteria and fungus.

Molecular techniques: Nucleic acid (DNA, RNA and plasmid) isolation, cDNA preparation, molecular cloning and DNA sequencing, Identification and molecular characterization of genes by PCR and DNA sequencing, RT-PCR for cDNA synthesis,

DNA transformation in Bacterial system (*E. coli*, *A. tumefaciens, X. campestris* pv. *campestris* -Xcc) and plant system via Agrobacterium (Monocots and Dicots), RNA silencing in model plants, Design siRNA and RNAi primers of fungi (*Sclerotinia sclerotiorum*), quantitative real-time PCR, development of bacterial mutants in suicide vector, bi-parental conjugation, GFP tagging of gram positive (*Bacillus thuringensis*) and gram negative (Xcc) bacteria, localization of Xcc in plants, Biochemical and physiological analysis in plants.

Protein based techniques: Enzyme isolation from leaves and bacteria, Protein-protein interaction by yeast two hybrid (Y2H).

Plant tissue culture and transgenics: Agrobacterium mediated plant transformation, micropropagation, screening of transgenic lines.

Microscopic Techniques: Handling of Light microscope, fluorescent microscope and confocal scanning laser microscope

Bioinformatics Tools: Primer designing, ORF finder, sequence demarcation tool (SDT), phylogenetic analysis, DNA recombination analysis in viral genome, conserved motif analysis, RNA-seq data analysis

Experience on model plants: *Nicotiana benthamiana*, *N. tabacum*, *Arabidopsis thaliana*, *Solanum lycopersicum*, *Brassica juncea* species, *B. oleracea* var. *capitata* (cabbage) and *B. oleracea* var. *botrytis* (cauliflower).

Instruments: PCR, qPCR (real-time PCR), Spectrophotometer, Centrifuge (Mini & Macro), Ultra centrifuge, deep refrigerator (-20°C, -80°C), Incubator, Plant Growth chamber, Ice-matics, Dry bath, Water bath, Electroporator (Biorad and Eppecndorf), Sonicator, Hybridization chamber, Electrophoresis, Gel-Doc system, UV-transilluminator, Nano-drop, Haemocytometer, Light, Fluorescence and Confocal Microscope, IRGA-Infra Red Gas Analyzer (Photosynthesis System) etc.

Computer and Bioinformatics tools: Bioinformatics tools - Chromas, Sequencer, Snap Gene, DNA plotter, Clontech In-fusion PCR cloning tool, oligocalculator, Primer 3, Primer Quest tool – IDT (for qPCR primers designing), In-silico PCR, MEGA6, NCBI, EMBL tools, Expasy server tools, Sequence demarcation tool (SDT), String, I-TESSER, siRNA oligonucleotide prediction server, *Sclerotinia sclerotiorum* v1.0 – JGI genome portal, DNA plotter and MS-Office.

Whole genome and DNA Sequences submitted in GenBank (Accession numbers)

Xanthomonas campestris pv. *campestris* strain **Xcc-C7 whole genome sequence** (CP077958), (2) *AvrAc* (XopAC) of Xcc (MZ032218), (3) 16S rRNA gene, *Dickeya zeae* strain HPMDZ-16 (MZ962369), (4) 16S rRNA gene, *D. zeae* strain TSMDZ-11 (MZ962368), (5) 16S rRNA gene, *D. zeae* strain PBMDZ-7 (MZ962367), (6) 16S rRNA gene, *D. zeae* strain UTMDZ-3 (MZ962366), (7) Unknown bacterial strain GOLA1 (MW079918), (8) *AvrGf1* (*XopAG*) of Xcc (MT191356), (9) *AvrXccC* of Xcc (MT191355), (10) 16S rRNA gene, *Pseudomonas fluorescens* (PsflD1) (MN395039), (11) 16S rRNA gene, *Bacillus subtilis* (BSD1) (MN395039), (12) 16S rRNA gene, Xcc-C7 strain (MN108237), (13) *AvrBs1* of Xcc (MN117727), (14) *S. sclerotiorum* mitogen activated protein kinase smk1 (LT626217), (15) Pac1 in *S. sclerotiorum* (LT626216), (16) Chitin synthase 2, in *S. sclerotiorum* (LT626215), (17) *Ascorbate oxidase* (LN811439), (18) *Lily symptomless virus* coat protein (LN606599), (19) *Cucumber mosaic virus* coat protein (LN649264), (20) *Ageratum enation virus* infecting *Synedrella* sp. (LN558518), (21) 16S rRNA gene, Xcc-AK1 strain from *Brassica juncea* (OM839780), (22) *AvrBs1* gene, Xcc-AK1 strain from *Brassica juncea* (OM994397), (23) *AvrGf1* gene Xcc-AK1 strain from *Brassica juncea* (OM994398), (24) Xcc-b100_4389, Race 1 marker of Xcc-AK1 strain from *Brassica juncea* (OM994399).

Deposited bacterial cultures in ITCC, ICAR-IARI, India (Accession numbers)

Xanthomonas campestris pv. *campestris* race 1 strains isolated from *Brassica juncea* cv. Pusa Bold are assigned as XccAK1 (ITCCBH_014); XccAK2 (ITCCBH_015); XccAK3 (ITCCBH_016) submitted in Indian Type Culture Collection, ICAR-Indian Agricultural Research Institute, New Delhi, India.