

Кумар Адарш
Researcher

Research Laboratory "Biotechnology of Components Maintenance and Restoration of Natural and Transformed Biosystems"



Research interests

English language proficiency: Native speaker

Area of research: Environmental biotechnology for restoration of natural and technogenic disturbed environment

Research interests

Plant-Soil-Microbe interaction,

Solid and Hazardous Waste Management,

Sustainable Waste Management, Ecotoxicology,

Carbon Dynamics,

Health Hazard assessment

A graduate can perform the works in fully instrument-equipped laboratories of Microbiology, Molecular Genetics, Plant Physiology and Biochemistry. Possibility to visit for short-term research work with the Colorado State University USA, Jagiellonian University, Poland, IIT-ISM- India. Bhartiya University, India, Inner Mongolia University, China.

Supervisor's specific requirements to prospective PhD students:

Field of study: 06.06.01 Biological sciences

Communicative English

Skills in using academic literature databases

Knowledge of biotechnological and environmental equipment

Working experience with MS-EXCEL/statistical software

Basic knowledge of plant, soil and water contamination

Basic knowledge of preparing a draft of the manuscript for publication

Qualifications

Unknown, PhD, Indian Institute of Technology (Indian School of Mines)
15 Jan 2015 → ...

Research outputs

A comparative study of *Epipactis atrorubens* in two different forest communities of the Middle Urals, Russia

Filimonova, E., Lukina, N., Glazyrina, M., Borisova, G., Tripti, Kumar, A. & Maleva, M., 1 Dec 2020, In: Journal of Forestry Research. 31, 6, p. 2111-2120 10 p.

Toxic metal(loid)s contamination and potential human health risk assessment in the vicinity of century-old copper smelter, Karabash, Russia

Kumar, A., Tripti, T., Maleva, M., Kiseleva, I., Maiti, S. K. & Morozova, M., Dec 2020, In: Environmental Geochemistry and Health. 42, 12, p. 4113-4124 12 p.

Effect of fast-growing trees on soil properties and carbon storage in an afforested coal mine land (India)

Ahirwal, J., Kumar, A. & Maiti, S. K., Oct 2020, In: Minerals. 10, 10, p. 1-15 15 p., 840.

Brassica juncea (L.) Czern. (Indian mustard): a putative plant species to facilitate the phytoremediation of mercury contaminated soils

Raj, D., Kumar, A. & Maiti, S. K., 6 Jun 2020, In: International Journal of Phytoremediation. 22, 7, p. 733-744 12 p.

Mercury remediation potential of Brassica juncea (L.) Czern. for clean-up of flyash contaminated sites

Raj, D., Kumar, A. & Maiti, S. K., Jun 2020, In: Chemosphere. 248, 9 p., 125857.

Phytoremediation of chromite-asbestos mine waste using aromatic grasses and organic manures

Kumar, A. & Maiti, S. K., 15 Nov 2019, In: Journal of Biotechnology. 305, p. S67-S67 1 p.

Plant growth promoting attributes of Burkholderia sp. sustained under multiple pesticide stress

Tripti, Kumar, A., Kumar, V. & Singh, A., 15 Nov 2019, In: Journal of Biotechnology. 305, p. S49-S50 2 p.

Evaluation of toxic metal(loid)s concentration in soils around an open-cast coal mine (Eastern India)

Raj, D., Kumar, A. & Maiti, S. K., Nov 2019, In: Environmental Earth Sciences. 78, 22, 19 p., 645.

Adaptive potential of Typha latifolia L. under extreme technogenic pollution

Maleva, M. G., Borisova, G. G., Shiryayev, G. I., Kumar, A. & Morozova, M. V., 11 Jan 2019, *Modern Synthetic Methodologies for Creating Drugs and Functional Materials, MOSM 2018: Proceedings of the II International*. Santra, S., Zyryanov, G. V. & Sadieva, L. K. (eds.). American Institute of Physics Inc., Vol. 2063. 5 p. 030013. (AIP Conference Proceedings; vol. 2063).

Chromium tolerant plant growth promoting rhizobacteria from the rhizosphere of Trifolium pratense and Melilotus albus

Kumar, A., Maleva, M., Kiseleva, I. & Tripti, T., 11 Jan 2019, *Modern Synthetic Methodologies for Creating Drugs and Functional Materials, MOSM 2018: Proceedings of the II International*. Santra, S., Zyryanov, G. V. & Sadieva, L. K. (eds.). American Institute of Physics Inc., Vol. 2063. 5 p. 040061. (AIP Conference Proceedings; vol. 2063).

Phytomanagement of Chromium Contaminated Brown Fields

Kumar, A., Usmani, Z., Ahirwal, J., Tripti, T. & Rani, P., 2019, *PHYTOMANAGEMENT OF POLLUTED SITES: MARKET OPPORTUNITIES IN SUSTAINABLE PHYTOREMEDIATION*. Pandey, VC. & Baudhdh, K. (eds.). Elsevier, p. 447-469 23 p.

Scope for Applying Transgenic Plant Technology for Remediation and Fortification of Selenium

Usmani, Z., Kumar, A., Tripti, Ahirwal, J. & Prasad, M. N. V., 26 Nov 2018, *Transgenic Plant Technology for Remediation of Toxic Metals and Metalloids*. Elsevier BV, p. 429-461 33 p.

High ACC deaminase producing copper and nickel tolerant rhizobacteria enhances metal tolerance and seedling growth of Indian mustard plant

Kumar, A. & Tripti, T., 10 Oct 2018, In: New Biotechnology. 44, p. S90-S90 1 p.

Reclamation of coal mine spoil and its effect on Technosol quality and carbon sequestration: a case study from India

Ahirwal, J., Kumar, A., Pietrzykowski, M. & Maiti, S. K., 1 Oct 2018, In: Environmental Science and Pollution Research. 25, 28, p. 27992-28003 12 p.

Urea increased nickel and copper accumulation in the leaves of Egeria densa (Planch.) Casp. and Ceratophyllum demersum L. during short-term exposure

Maleva, M., Borisova, G., Chukina, N. & Kumar, A., 1 Feb 2018, In: Ecotoxicology and Environmental Safety. 148, p. 152-159 8 p.

Mycoremediation for Mine Site Rehabilitation

Kumar, A., Tripti, Prasad, M. N. V., Maiti, S. K. & Favas, P. J. C., 4 Jan 2018, *Bio-Geotechnologies for Mine Site Rehabilitation*. Elsevier BV, p. 233-260 28 p.

Ricinus communis and Calotropis procera As Putative Plant Species for the Phytostabilization of Tannery Contaminated Soil: A Dynamic Approach

Rani, P., Kumar, A., Arya, R. C. & Tripti, T., 2018, *FOURTH INTERNATIONAL SCIENTIFIC CONFERENCE ECOLOGY AND GEOGRAPHY OF PLANTS AND PLANT COMMUNITIES*. Tretyakova, AS. & Veselkin, DV. (eds.). Knowledge E, p. 10-18 9 p. (KnE Life Sciences).

Biodiversity variability and metal accumulation strategies in plants spontaneously inhibiting fly ash lagoon, India

Mukhopadhyay, S., Rana, V., Kumar, A. & Maiti, S. K., 1 Oct 2017, In: Environmental Science and Pollution Research. 24, 29, p. 22990-23005 16 p.

Grasses and legumes facilitate phytoremediation of metalliferous soils in the vicinity of an abandoned chromite-asbestos mine

Kumar, A., Maiti, S. K., Prasad, M. N. V., Singh, R. S. & Tripti, T., May 2017, In: Journal of Soils and Sediments. 17, 5, p. 1358-1368 11 p.

Stabilization of tannery sludge amended soil using *Ricinus communis*, *Brassica juncea* and *Nerium oleander*

Rani, P., Kumar, A. & Arya, R. C., May 2017, In: Journal of Soils and Sediments. 17, 5, p. 1449-1458 10 p.

Biochar and flyash inoculated with plant growth promoting rhizobacteria act as potential biofertilizer for luxuriant growth and yield of tomato plant

Kumar, A., Usmani, Z., Kumar, V., Anshumali & Tripti, 1 Apr 2017, In: Journal of Environmental Management. 190, p. 20-27 8 p.

Thiols as biomarkers of heavy metal tolerance in the aquatic macrophytes of Middle Urals, Russia

Borisova, G., Chukina, N., Maleva, M., Kumar, A. & Prasad, M. N. V., 2 Oct 2016, In: International Journal of Phytoremediation. 18, 10, p. 1037-1045 9 p.

High dose of urea enhances the nickel and copper toxicity in Brazilian elodea (*Egeria densa* Planch. Casp.)

Maleva, M., Borisova, G., Chukina, N., Adarsh, K. & Prasad, M. N. V., 1 Sep 2016, In: Revista Brasileira de Botanica. 39, 3, p. 965-972 8 p.

Development of biochar and flyash based bioformulations using pesticide tolerant PGPRs and its effects on *Lycopersicon esculentum* Mill.

Tripti, T. & Kumar, A., 25 Jul 2016, In: New Biotechnology. 33, p. S196-S196 1 p.

The Fe-57 hyperfine interactions in the life sciences: application of Mossbauer spectroscopy with a high velocity resolution in the study of iron-containing biomolecules and pharmaceutical compounds

Oshtrakh, M. I., Alenkina, I. V., Vinogradov, A. V., Kumar, A., Berkovsky, A. L., Zakharova, A. P., Konstantinova, T. S., Novikov, E. G. & Semionkin, V. A., Jul 2016, In: Journal of Radioanalytical and Nuclear Chemistry. 309, 1, p. 317-332 16 p.

Asbestos: Resource Recovery and Its Waste Management

Kumar, A., Prasad, M. N. V., Maiti, S. K. & Tripti, T., 1 Jun 2016, *Environmental Materials and Waste: Resource Recovery and Pollution Prevention*. Elsevier Inc., p. 285-305 21 p.

Bioaccumulation of metals in timber and edible fruit trees growing on reclaimed coal mine overburden dumps

Maiti, S. K., Kumar, A. & Ahirwal, J., 7 May 2016, In: International Journal of Mining, Reclamation and Environment. 30, 3, p. 231-244 14 p.

Seasonal variation in heavy metal contaminations in water and sediments of Jamshedpur stretch of Subarnarekha river, India

Banerjee, S., Adarsh, K., Maiti, S. K. & Chowdhury, A., 1 Feb 2016, In: Environmental Earth Sciences. 75, 3, p. 1-12 12 p., 265.

Asbestos: Resource Recovery and Its Waste Management: chapter in book

Kumar, A., Prasad, M. N. V., Tripti & Maiti, S. K., 2016, *ENVIRONMENTAL MATERIALS AND WASTE: RESOURCE RECOVERY AND POLLUTION PREVENTION: monograph*. Elsevier Inc., p. 285-305

Comparative study on bioaccumulation and translocation of metals in Bermuda grass (*Cynodon Dactylon*) naturally growing on fly ash lagoon and topsoil

Maiti, S. K., Kumar, A., Ahirwal, J. & Das, R., 2016, In: Applied ecology and environmental research. 14, 1, p. 1-12 12 p.

Effect of commercial pesticides on plant growth-promoting activities of Burkholderia sp strain L2 isolated from rhizosphere of Lycopersicon esculentum cultivated in agricultural soil

Tripti, T., Adarsh, K., Kumar, V. & Anshumali, 21 Oct 2015, In: Toxicological and Environmental Chemistry. 97, 9, p. 1180-1189 10 p.

An analysis of the features of the Mössbauer spectra of soybean leghemoglobin in oxy and deoxy-forms in relation to protein structure

Kumar, A., Zakharova, A. P., Alenkina, I. V., Oshtrakh, M. I. & Semionkin, V. A., 10 Aug 2015, In: Bulletin of the Russian Academy of Sciences: Physics. 79, 8, p. 1041-1045 5 p.

Mossbauer spectroscopy of some tetrameric and monomeric hemoglobins

Kumar, A., Alenkina, I. V., Oshtrakh, M. I., Zakharova, A. P. & Semionkin, V. A., Jul 2015, In: European biophysics journal with biophysics letters. 44, p. S58-S58 1 p.

Hyperfine interactions in soybean and lupin oxy-leghemoglobins studied using Mossbauer spectroscopy with a high velocity resolution

Kumar, A., Alenkina, I. V., Zakharova, A. P., Oshtrakh, M. I. & Semionkin, V. A., Apr 2015, In: Hyperfine Interactions. 230, 1-3, p. 131-139 9 p.

АНАЛИЗ ОСОБЕННОСТЕЙ МЁССБАУЭРОВСКИХ СПЕКТРОВ СОЕВОГО ЛЕГГЕМОГЛОБИНА А В ОКСИ- И ДЕЗОКСИФОРМАХ ВО ВЗАИМОСВЯЗИ СО СТРУКТУРОЙ БЕЛКА

Адарш, К., Захарова, А. П., Аленкина, И. В., Оштрах, М. И. & Семенкин, В. А., 2015, In: Известия Российской академии наук. Серия физическая. 79, 8, p. 1170 1 p.

Projects

Биотехнологии поддержания и восстановления компонентов природных и трансформированных биосистем

Киселева, И. С., Дарказанли, К., Чукина, Н. В., Жуйкова, Е. В., Зимницкая, С. А., Кутлунина, Н. А., Малева, М. Г., Пауков, А. Г., Синенко, О. С., Тептина, А. Ю., Фирсов, Н. Н., Борисова, Г. Г., Ермошин, А. А., Адарш, К., Трипти, Т., Маджети, Н. В., Борзенкова, Р. А., Соколова, Е. И., Минин, А. А., Улитко, М. В., Дарказанли, М., Комотина, Е. С., Галишев, Б. А. & Лавренчук, Л. С.

09/12/2013 → ...

Использование гидролизированных лигноцеллюлозных остатков для получения биочара и его применение с целью уменьшения содержания металлов в сырье для получения биоэтанола и для бактериальной фитостабилизации загрязненных тяжелыми металлами территорий

Адарш, К.

29/07/2021 → 30/06/2023

Создание и развитие Центра фундаментальной биотехнологии и биоинженерии

Киселева, И. С., Шур, В. Я., Нсенгиумва, Д. С., Москович, Е. А., Галишев, Б. А., Колесникова, Т. О., Забегалов, К. С., Хацко, С. Л., Япаров, Б. Я., Юманова, И. Ф., Чумарная, Т. В., Хенди, А. С. А., Ушенин, К. С., Таширова, Е. Е., Солодушкин, С. И., Рывкин, А. М., Правдин, С. Ф., Балакина-Викулова, Н. А., Улитко, М. В., Адарш, К., Трипти, Т., Тептина, А. Ю., Пауков, А. Г., Малева, М. Г., Ермошин, А. А., Дарказанли, М., Борисова, Г. Г., Мухачева, Т. А., Кошелев, А. А., Кацнельсон, Л. Б., Курсанов, А. Г., Зверев, В. С., Хохлова, А. Д., Незлобинский, Т. В., Бажутина, А. Е., Корабельникова, С. В., Воропаева, О. В., Тугбаева, А. С., Ковалев, С. Ю., Соловьева, О. Э., Турыгин, А. П., Макаев, А. В., Чувакова, М. А., Кособоков, М. С., Карпов, В. Р., Зубарев, И. В., Есин, А. А., Ахматханов, А. Р., Шишкина, Е. В., Кузнецов, Д. К., Мингалиев, Е. А., Бессонова, Т. А., Лукин, О. Н., Волжанинов, Д. А., Слаутина, А. С., Линкер, Э. А., Лисьих, Б. И., Волчецкая, К. В., Мячина, Т. А., Бутова, К. А., Синенко, О. С., Вершинин, В. Л., Сеница, М. В. & Погодина, Н. В.

12/11/2016 → ...

Фундаментальные подходы к разработке биопрепарата на основе биочара и ризобактерий и его влияние на рост и продуктивность сельскохозяйственных культур в загрязненных тяжелыми металлами аридных/полуаридных регионах Индии и России

Трипти, Т., Синенко, О. С., Малева, М. Г., Воропаева, О. В., Борисова, Г. Г., Адарш, К., Паниковская, К. А. & Дарказанли, М.

08/10/2019 → 10/09/2021

Press/Media

16 проектов под руководством молодых ученых получили гранты РФФ

Алексей Сергеевич Волегов, Данил Александрович Прищенко, Андрей Ришатovich Ахматханов, Дмитрий Дарисович Салимгареев, Александр Сергеевич Палкин, Любовь Валерьевна Торопова, Кирилл Михайлович Зейде, Екатерина Александровна Титова, Виктория Игоревна Пряхина, Валерий Олегович Филимонов, Юлия Сергеевна Петрова, Рамиль Фаатович Фатыхов, Кирилл Валентинович Гржегоржевский, Кумар Адарш, Татьяна Анатольевна Косых, Кирилл Евгеньевич Болотин & Федор Валерьевич Водолазский

06/07/2021

1 Media contribution

Ural Federal University Scientists - 'Bacteria Can Help Plants Remove Copper From Soil'

Adarsh Kumar, Tripti Tripti, Oiga Voropaeva, Maria Maleva, Ксения Александровна Паниковская & Galina Borisova

14/12/2020

1 Media contribution

UrFU Biologists Developed a Biofertilizer That Enhances Plant Durability

Irina Kiseleva & Adarsh Kumar

10/02/2020

1 Media contribution

Бактерии способны помочь растениям в очистке почв от меди

Трипти Трипти, Кумар Адарш, Ольга Викторовна Воропаева, Мария Георгиевна Малева, Ксения Александровна Паниковская & Галина Григорьевна Борисова

14/12/2020

1 Media contribution

Бактерии, найденные в клеверах рядом с медным комбинатом на Урале, помогут очистить почву

Кумар Адарш

13/08/2020

1 Media contribution

Биологи создали биоудобрение, улучшающее рост и стойкость растений

Ирина Сергеевна Киселева & Кумар Адарш

10/02/2020

1 Media contribution