



Welcome to Microsphere

Prof. Rup Lal

I'm excited to be the Editor-in-Chief of *Microsphere*. *Microsphere* begins with a series of reviews on microbiology and biotechnology. These articles look at exploring microbial potential for sustainable agriculture, remediation of environmental pollutants, environmental impact of the COVID-19 pandemic and the global crisis of antibiotic resistance amongst others.

As is already known that the microsphere is made up of all living species on the planet, as well as the dead organic materials they produce. This is a burgeoning research area that covers the biological component of earth systems, which includes the atmosphere, lithosphere, hydrosphere, and additional spheres such as cryosphere and anthrosphere. The essential components of the microsphere, such as water, air, soil, plants, animals, and solar radiation, supply resources for man and the entire human society.

Human health is linked to soil health all around the planet. But toxic compounds in soil have long been a source of concern; in high enough concentrations, they constitute a threat to human health and the environment. Fortunately, there is a growing realisation that "healthy food" grown in soils using sustainable agricultural practises that reduce the use of synthetic fertilisers and pesticides provide the best quality of human health. The perceived link between soil quality and food quality has sparked interest in soil health, as crops cultivated on biologically rich soils produce nutrient-dense, nutritious food (Tahat 2020). In a reversal of this life cycle, we stay alive by extracting nutrients from plant life that rely on soil. Hence, the journal *Microsphere* is intended to represent the work of academicians, researchers, and students dedicated to protecting the soil ecosystem from the adverse impacts of undesirable chemicals and insecticides that are harmful to human and environmental health.

It has also been hypothesised that adequate exposure to natural environments, particularly soil and its bacteria, can guard against allergies (Ottman 2019). The soil microbiome most likely evolved alongside the human microbiome, which contains an estimated 39 trillion microorganisms in our noses and mouths, armpits and palms of our hands, and, most importantly, our guts, particularly our large intestines

(Abbott 2016). Our health is dependent not just on the activity of the microorganisms in our stomachs, but also on the bacteria we ingest from the soil, both directly (via geophagy or accidental dirt consumption) and indirectly (through plant crops) (Blum 2019). Since the gut and soil microbiota share bacterium phyla, and microorganisms from salads, fruits, and vegetables contribute to the human gut microbiome, the microbiome of plants influences the gut microbiome, and thus human health. The last decade or so has seen a tremendous increase in our understanding of the role of these human-associated microorganisms in our health and diseases. Further, the omics-based methods in recent years have uncovered new information about microbial diversity, function, and therein, intricate ecological interactions. As a result, *Microsphere's* aim is to create a strong network of students, scientists, researchers, academics, and the general public. Everyone can work together to protect our natural resources for future generations while also addressing key microbiological issues.

This journal will provide a forum to publish hypothesis-driven *Microspheres* studies such as soil pollution, its main causes and repercussions; low-cost decontamination solutions for previously contaminated environments; and the role of microbes in sustaining soil fertility through nutrient recycling and impacting their availability to plants and in supporting healthy plant growth. Understanding the diversity of microorganisms and their activities in their natural environments will be a major focus for the journal, and utilizing meta-omics techniques or novel bioinformatics tools to study community/host interactions or new and emerging diseases can also provide valuable insights. New methodologies, biomedicine and genomics, computational proteomics and systems biology, and metabolic pathway engineering are also welcome due to their importance in moving the field ahead.

The journal's Editorial Board is diversified, reflecting the wide range of study areas that will be covered in this journal. The same high standards of inclusiveness will be applied as a journal under the auspices of the Indian Network for Soil Contamination Research.

All articles published in Microsphere will be publicly available through the journal's web portal and hopefully on major research publication databases to support open access science. Also, because authors, not the publisher will hold the copyright to their work, they will be free to distribute published articles.

The editorial staff at Microsphere hope that you will assist our endeavor by submitting your research works and expanding our understanding of Microsphere.

Authors' contributions

All authors read and approved the final manuscript.

Author's information

Rup Lal is the Editor-in-Chief of Microsphere and a Senior Editor of Indian Journal of Microbiology.

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