

# Microbiomes of Arthropods and Their Environments

## Guest Editors:

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## Special Issue Introduction:

The Phylum Arthropoda includes insects, myriapods and arachnids, invertebrate animals represented by millions of species that collectively account for more than 80% of the total animal species on Earth. Arthropods contribute a great deal to the environments in which they live, as food sources for larger animals as well as through capacities that include waste recycling, bioremediation, pest control, soil aeration, and pollination. Notably, emerging paradigms suggest that niche-adapted microbial communities found in association with arthropods likely play a crucial role in supporting these processes. However, in comparison to well-described mammalian microbiomes, we know surprisingly little about the composition, function and distribution of arthropod microbiomes, nor how they interact with their hosts and environments. This is especially important given the alarming decreases in abundance of arthropods, for example flying insect biomass has been found to have decreased by 76% over just 27 years, heralding what some have called an apocalypse for these species.

The aim of this special issue is to highlight emerging and innovative research on arthropod microbiomes, from discovery and description of as-yet unexplored ecosystems, to mechanistic studies of arthropod microbiome function. Specific focus will be on the description of interventions and insights for manipulation of these ecosystems to improve arthropod and/or habitat health, as well as to create novel strategies for augmentation of anthropogenic activities such as crop farming, management of disease, and habitat rehabilitation.

We welcome manuscripts describing original research, as well as reviews, perspectives, opinions and commentaries on all aspects of arthropod microbiomes, including but not limited to:

- Characterization and comparisons of as-yet unstudied arthropod microbiomes and associated microbial species
- Microbiome interplay in the decline of arthropod abundance around the globe
- Potentiation of arthropod response to agrochemicals through microbiome factors
- Habitat and arthropod microbiome intersections
- Development of arthropod models for studying host-microbiome interactions
- Translational use of arthropod microbiomes in industry (e.g., natural product discovery, bioremediation strategies)
- Microbiome contributions to insect behaviour (particularly of social insects)
- Microbiome contributions to insect development (particularly metamorphosis stages during larval-to-adult transition)
- Physiological characterization of axenic or microbiome-depleted arthropods
- Microbiome effects on arthropod nutritional status and dietary preference
- Vertical and horizontal transmission dynamics of arthropod-adapted symbionts/pathobionts
- Accelerated evolution theories that consider both host and microbial genome factors
- Microbiome impacts on arthropod epigenetics
- Novel descriptions of microbial "farming" or "hunting" behaviours
- Cross-domain interactions between bacteria, fungi, archaea, and protozoa associated with arthropod gut microbiomes
- Effect of arthropod microbiomes in cases of pesticide resistant crop pests

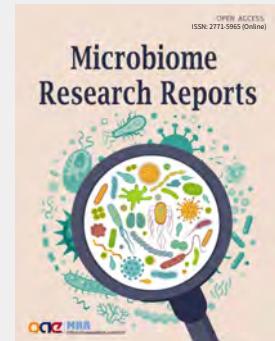
**Submission Deadline: 31 Dec 2023**

## Benefits to Authors:

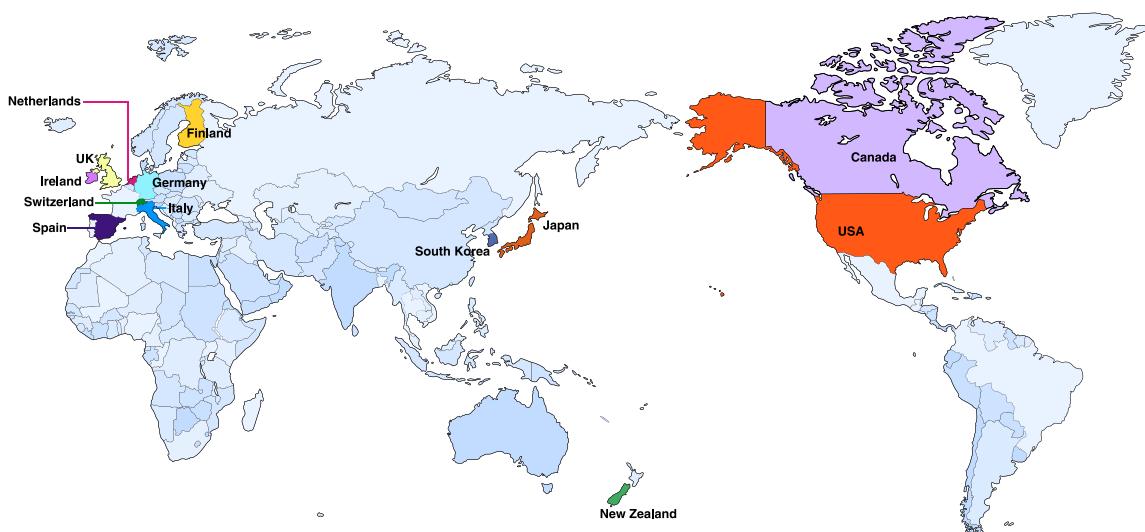
- The APCs (\$600) will be WAIVED;
- Enjoy faster publication than regular submissions;
- Authors will be invited as Guest Speakers to our journal webinars. The webinar will be held via Zoom and it will also be broadcast live on Youtube and the Chinese WeChat Official Account, Video Account, Bilibili;
- A special interview will be provided to authors and will be promoted on the journal homepage and all media promotion platforms of both via the journal and publisher.

## Journal Introduction:

*Microbiome Research Reports (MRR)* is an international peer-reviewed, open access journal. The overall aim of *MRR* is to publish high quality researches from scientists with a common interest in microbiome/microbiota research in all its multidisciplinary aspects. The journal is founded by OAE Publishing Inc., under the guidance of our Editor-in-Chief Professor Marco Ventura (University of Parma, Italy). *MRR* was officially launched on July 26 2021. Looking forward to your attention and cooperation! Welcome to contact the editorial office for details, [editorialoffice@mrrjournal.net](mailto:editorialoffice@mrrjournal.net).



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