



BioMed Research International

Special Issue on
**Evolutionary Biology of Aquatic Organisms and
Viruses: Current Contents and Future Impacts**

CALL FOR PAPERS

Evolutionary biology is the science field that studies the evolution of the diverse life forms that exist on Earth. It includes also the study of the evolution of viruses. Viruses and aquatic organisms that span from prokaryotic cells, such as bacteria and cyanobacteria, to aquatic plants and animals that represent the first step in any life cycle are of particular interest. In this sense, studying the natural environments where these organisms inhabit is imperative due to the growing negative impact on human and animal health mainly because of the environmental toxic compounds that can also be found. Knowledge regarding these toxins using modern molecular methods and the establishment of its phylogenetic relationships either among diverse taxa and/or across distinct geographic areas is also an important subject. Understanding mechanisms that drive the evolutionary routes in the existing prokaryotic and eukaryotic aquatic life forms such as mutations, horizontal gene transfer, selection, or even genetic drift will help to improve the understanding of the evolution of these organisms, similar to their well-studied terrestrial counterparts. Finally, other phenomena such as speciation, dispersal, or extinction will allow explaining how these organisms move through natural and man-mediated geographic barriers. We invite authors to contribute original research articles as well as review articles that will stimulate the continuous efforts to improve the knowledge of the evolutionary biology of aquatic organisms and viruses and contribute to the definition of new further impacts.

Potential topics include, but are not limited to:

- ▶ Characterization of the genetic diversity and population structure in the several described prokaryotic and eukaryotic aquatic life forms through the application of the current bioinformatics tools
- ▶ Characterization of the presence of bacterial toxins potential through the use of new and already available phylogenetic markers
- ▶ Discovery of new bacteria in the several extreme aquatic environments (hot springs and polar regions)
- ▶ Unravelling the viral diversity within the marine environments through the next generation sequencing method
- ▶ Characterization of new molecular markers in the molecular screening of the present aquatic species
- ▶ Characterization of the evolutionary mechanisms that have driven the temporal and spatial distribution of the aquatic species
- ▶ Explanation of how phenomena such as horizontal gene transfer, selection, and/or mutations within any living aquatic species may contribute to the existing phylogenetic relationships
- ▶ Determination of possible biogeographic patterns within a population structure of a given taxa in a regional, continental, or global scale

Authors can submit their manuscripts via the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/bmri/evolutionary.biology/ebao/>.

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