Second Laureate
Fundamental Research

- **Research Work Title:** **Studying the biological resources of halophilic microorganisms from Iransensors, immunosensors and aptasensor**
- **Researcher:** **Mohammad Ali Amoozegar (Ph.D.)**
- **Collaborating Organizations:** **IBRC Iranian Biological Resource Centre, Tehran University**
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Abstract:

Aran-Bidgol salt lake is a hypersalin and easonal playa with a unique structure. Owing to the importance of this ecosystem and the fact that microorganisms account for more than half of the live biomass on earth the prokaryotic diversity of the Aran-Bidgol hypersaline lake has been studied.

Studies of this environment are the pioneer studies of the domain Archaea in the country. Culture independent method has also been used to study the microbial ecology and community structure of the Aran-Bidgol Lake. Because of the extreme environment of the lake the microorganisms have a key role in keeping the equilibrium of the environment and the fingerprint of microbial community of the Aran-Bidgol Lake has been determined.

The ability of pure isolate has been studied for hydrolytic enzyme production and screening for enzymes including amylase, protease, lipase, pullulanase, xylanase, cellulase, chitinase, inulinase, and nuclease resulted in total number of ,128 ,17 ,142 64 ,3 ,8 ,2 ,38, and 144 positive strains for each enzyme respectively. These enzymes have a important role in biotechnology and introducing native enzyme producing isolates could have the potential biotechnological importance.

According to the results of this study the prokaryotic diversity of the Aran-Bidgol Lake is higher than other hypersaline lakes around the world. Bacteria are a abundant, diverse and metabolically active group in this environment. Culture dependent and culture independent methods are showing a different view of the prokaryotic diversity in this lake and it is recommended to use both methods in order to get a better view of the prokaryotic diversity of the lake.