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Yissum Introduces a Novel, Environmentally-Friendly Biological Solution for Purifying Aquarium Water

- Technology to be presented at WATEC, the Water Technologies, Renewable Energy and Environmental Control Exhibition and Conference -

Jerusalem, Israel, October XX, 2013– Yissum Research Development Company of the Hebrew University of Jerusalem Ltd., the technology transfer arm of the University, introduces an environmentally-friendly, biological solution for purifying water in aquariums. The technology will be presented and demonstrated at the [WATEC Conference](#), to be held in Tel Aviv, Israel on October 22-24, 2013. Yissum is currently searching for business partners for the manufacturing and marketing of this promising invention.

The technology uses certain bacteria as novel bio-filters to reduce nitrate levels in both fresh-water and sea-water aquariums. It was developed by Professor Amos Nussinovitch from the Department of Biochemistry, Food Science, and Nutrition, Professor Jaap van Rijn from the Department of Animal Science, both from the Robert H. Smith Faculty of Agriculture, Food and Environment, at the Hebrew University and Dr. Yosef Tal, who was part of their research team at the time.

The invention can improve water quality for a wide range of aquarium fish, thereby extending their life expectancy. The efficiency of the novel technology was demonstrated in commercial size aquariums of up to 200 liters, where nitrate accumulation was successfully controlled. Currently, the technology is being tested also for treating large amounts of water and for purifying groundwater wells by removing nitrate.

The scientists developed novel polymer carrier beads that are loaded with denitrifying bacteria to create bio-filters for the removal of nitrates from aquarium water. The permeable polymer beads reduce nitrate to nitrogen gas, which evaporates into the atmosphere. The denitrifying activity is sustained over an extended period of at least several months. In addition, the bacteria are not harmful to fish and the dry bio-filters can be stably stored for years.

"There is an increasing demand for aquariums as a hobby and for exotic ornamental fish species that are unable to grow or propagate in water containing high levels of nitrate," **stated Yaacov Michlin, CEO of Yissum.** "This novel technology, for decontaminating water from nitrates, is cost-effective, highly efficient and is easily applicable to water-purification systems in both freshwater and marine aquariums.

Furthermore, the denitrifying activity of the beads is sustained for months, and the beads themselves can be adapted according to custom requirements. We believe that this novel solution for purifying aquarium water, that exceeds performance of current solutions, will be warmly accepted by the market."

About Nitrate Contamination

One of the major contaminants of fresh water are nitrates, which can reach both surface water and groundwater as a consequence of agricultural activity, from wastewater treatment and from oxidation of human and animal excretions. Elevated nitrate levels are highly toxic to fish, and also lead to undesirable algae growth, resulting in the formation of algal blooms, which can be deadly to aquatic life.

The few methods that exist for nitrate removal are generally expensive and not suitable for treating large quantities of contaminated water. Biological nitrate removal through use of biopolymer beads allows treatment of large quantities of water at a relatively low cost.

About the Aquarium Market

Aquarium keeping is a most popular hobby with millions of enthusiasts worldwide. The European Union countries are the largest market for ornamental fish, while the U.S. is the single largest importer of ornamental fish in the world. According to a recent survey, there are approximately 16 millions households in the US that own a freshwater or a sea water fish aquarium. The value of ornamental fish and invertebrates imported into different countries worldwide is estimated at \$278 million, and the aquarium industry is estimated at over \$1 billion. Although most fish kept in aquariums are from freshwater, the acquisition of marine ornamental fish has greatly increased, popularized by children's movies starring charismatic colorful fishes and other creatures. Recent advances in fish husbandry and aquarium equipment technology have further facilitated the hobby.

About Yissum

Yissum Research Development Company of the Hebrew University of Jerusalem Ltd. was founded in 1964 to protect and commercialize the Hebrew University's intellectual property. Products based on Hebrew University technologies that have been commercialized by Yissum currently generate \$2 Billion in annual sales. Ranked among the top technology transfer companies in the world, Yissum has registered over 8,100 patents covering 2,300 inventions; has licensed out 700 technologies and has spun out 80 companies. Yissum's business partners span the globe and include companies such as Syngenta, Monsanto, Roche, Novartis, Microsoft, Johnson & Johnson, Merck, Intel, Teva and many more. For further information please visit www.yissum.co.il

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