



For immediate release

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

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

Jerusalem, Israel, November 15, 2011 – Water is essential for all forms of life. The adequate supply of safe drinking water for people, regardless of socio-economic conditions is therefore one of the primary goals of the WHO, and an ongoing challenge. Fresh water as well as sea water reservoirs are continuously contaminated by runoff from the industry, sewer system, agriculture and more.

Now, 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 contaminated water. The technology will be introduced at the [WATEC Conference](#), to be held in Tel Aviv, Israel on November 15-17, 2011. Yissum is currently searching for business partners for further development of this promising invention.

The invention uses bacteria as novel biofilters to reduce nitrate levels in water sources. It was developed by Professor Amos Nussinovitch, Department of Biochemistry, Food Science, and Nutrition and Professor Jaap van Rijn, Department of Animal Science, Robert H. Smith Faculty of Agriculture, Food and Environment, at the Hebrew University and Dr. Yosef Tal, from GFA Advanced Systems Limited, Ra'anana.

The scientists developed novel polymer carrier beads that are loaded with denitrifying bacteria to create bio-filters for the removal of nitrates from water. The permeable polymer beads can contain either denitrifying bacteria alone or a combination of fermentative and denitrifying bacteria plus a carbon source, to reduce nitrate to nitrogen gas, which evaporates into the atmosphere. The dry bio-filters can be stably stored for years.

The novel nitrate bio-filter can reduce high nitrate levels in both fresh-water and sea-water, and is easily applicable to water-purification systems for aquariums and nitrate-contaminated bodies of water. 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 aquariums of up to 200 liters, where nitrate accumulation was successfully controlled. Currently, the technology is tested for

treating large amounts of water and in purifying wells of groundwater by removing nitrate.

"The invention developed by the Hebrew University researchers highlights the commitment of the university for researching clean, environmentally-friendly and efficient solutions for global needs. Water quality is of utmost important for every aspect of life on our planet, on land and in the sea," said Yaacov Michlin, CEO of Yissum. "This novel technology, for decontaminating water from nitrates and boron, is a cost-effective and efficient technique for decontaminating water from various substances without producing other contaminants, and can therefore be integrated in a multitude of water purifying systems, for agricultural or consumption purposes, as well as for maintaining sea water quality."

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. In babies, nitrate contamination can lead to methaemoglobinaemia, or blue baby syndrome, where normal Hb is oxidized to metHb, which is unable to transport oxygen to the tissues. Other groups especially susceptible to metHb formation include pregnant women and people deficient in glucose-6-phosphate dehydrogenase or metHb reductase. In addition, 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 waters. Biological nitrate removal through use of biopolymer beads allows treatment of large quantities of water at relative low cost.

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 \$1.2 Billion in annual sales. Ranked among the top technology transfer companies in the world, Yissum has registered 6100 patents covering 1750 inventions; has licensed out 480 technologies and has spun out 65 companies. Yissum's business partners span the globe and include companies such as Novartis, Microsoft, Johnson & Johnson, Merck, Intel, Teva and many more. For further information please visit www.yissum.co.il.

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