



## **Yissum to Collaborate with Makhteshim Agan on the Development and Commercialization of Two Environmentally-Friendly Crop Protection Technologies**

Jerusalem, Israel, February 3, 2010 –Yissum Research Development Company of the Hebrew University of Jerusalem Ltd., the technology transfer arm of the University, today announced that it has signed two research and development agreements with Makhteshim-Agan, the world leader in crop protection solutions, for the development and commercialization of environmentally-friendly crop protection technologies.

The first collaboration is for the development and commercialization of a novel methodology for producing slow and controlled release of herbicides. The innovative technique will minimize herbicide contamination of soil and water. It was invented by Prof. Shlomo Nir and Dr. Yael Mishael from the Department of Soil and Water Sciences, and by Prof. Baruch Rubin, from the Robert H. Institute of Plant Science and Genetics in Agriculture, all from the Hebrew University's Robert H. Smith Faculty of Agriculture, Food and Environment.

The novel approach incorporates herbicides into micelles or vesicles, which are then adsorbed onto negatively-charged clay minerals. The special formulation enables a slow and controlled release of the herbicides, reducing leaching to deeper soil layers and contamination of soil and water. In addition, the herbicide is delivered close to its site of uptake, enhancing efficiency and reducing the required doses. The total worldwide agricultural and non-crop herbicide market is valued at more than \$15 billion, of which approximately a quarter is dedicated to soil-applied herbicides and other pesticides.

The second collaboration involves a novel insecticidal preparation combining a proprietary Chitin Synthesis Inhibitor (CSI) and a pathogenic fungus that kills caterpillars of night-flying moths, which are major pests of agriculture worldwide. Unlike common commercial preparations, the CSI, a mild insecticide, has minimal or no effect on non-target organisms and the fungus has no effect on beneficial insects. This approach therefore emphasizes a commitment to environmental responsibility, without compromising pest control. The novel insecticide relies on a strong synergism between the chemical and biological components involved, thereby greatly enhancing their effects. The CSI disrupts the production of cuticle, the insects' external shield, which normally envelops and protects the insect body, after which the pathogenic fungus can easily attack the weakened caterpillars. Very high levels of control can therefore be achieved with much less CSI and fungus, minimizing environmental

impact by reducing the insecticide component many-fold. Proof of concept was established in the Laboratory for Insect Physiology, the Robert H. Smith Faculty of Agriculture, Food and Environment at the Hebrew University, by Professor Shalom Applebaum and Ms. Dana Ichelczik.

"The Hebrew University's Faculty of Agriculture is developing groundbreaking bio-control and environmentally-friendly crop protection technologies. We welcome this partnership with Makhteshim-Agan, a global giant in the field of crop protection, which will advance the implementation of some of the University's technologies," said Mr. Yaacov Michlin, CEO of Yisum. "While increasing crop yields, herbicides and pesticides have a host of unwanted effects on human health and on the ecology. Therefore, minimizing their use is an important step towards a healthier environment for humans and animals alike."

### **About Yisum**

Yisum 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 Yisum currently generate \$1.2 Billion in annual sales. Ranked among the top technology transfer companies in the world, Yisum has registered over 6,100 patents covering 1,750 inventions; has licensed out 480 technologies and has spun-off 65 companies. Yisum's business partners span the globe and include companies such as Novartis, Johnson & Johnson, Merck, Teva, Intel, IBM, Phillips, Syngenta, Vilmorin, Monsanto and many more. For further information please visit [www.yisum.co.il](http://www.yisum.co.il).

### **Contact for Yisum:**

Tsipi Haitovsky  
Media Liaison, Yisum Ltd.  
Tel: +972-52-598-9892  
E-mail: [tsipih@yisum.co.il](mailto:tsipih@yisum.co.il)