



## News release

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29 November 2006

### **Every drop counts – New technology utilises industrial wastewater for irrigation**

A new technology that allows the control of nutrient concentrations in industrial wastewater has been developed by Environmental Biotechnology Cooperative Research Centre (EBCRC) scientists together with Meat and Livestock Australia (MLA) and the Australian Meat Processor Corporation.

EBCRC researchers located at the Advanced Wastewater Management Centre at the Queensland University have discovered a way to control phosphorus, nitrogen and carbon concentrations in industrial wastewater. The ability to control nutrient levels was discovered as researchers were looking into the optimal conditions for the phosphorus-removing bacteria within the microbial community.

“The benefits of this technology are tremendous for the agricultural industry suffering from drought. The ability to control the levels of nutrients allows the full use of effluent from food processing plants for irrigation purposes,” said Prof Linda Blackall, Research Director of EBCRC.

“When the optimal balance of nitrogen, phosphorus and carbon in the effluent is achieved, a natural, highly effective and environmentally friendly nutrient enriched irrigation water is produced,” Prof Blackall continued.

“Wastewater from agricultural sources can have a concentration of nutrients up to 10 times higher than domestic wastewater. The biological removal of nutrients will allow the reuse of effluent in agricultural industries without adding to the chemical burden placed on the environment.”

Reliable biological phosphorus removal from high concentration wastewater has been the recent focus of EBCRC research. The new technology can remove up to 98% of environmentally harmful phosphorus, nitrogen and carbon from high strength wastewater.

“The technology is based on years of accumulated research and expertise in microbiology. Environmental biotechnology has enabled the understanding of natural bacterial processes to increase the efficiency and effectiveness of nutrient removal.” Prof Blackall continued.

Currently EBCRC researchers are conducting a pilot-scale demonstration project with the financial backing of industry participants. When the process has been optimised, MLA plans to make the technology available for its members.

“EBCRC is looking to develop the technology further. A provisional patent for treating high strength wastewater has been lodged since the technology is applicable to all food processing industries. There has also been a lot of overseas interest in the technology,” Prof Blackall concluded.

- End of release-

**For more information or to arrange interviews, please contact:**

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## **EBCRC FACT SHEET**

- The Environmental Biotechnology Cooperative Research Centre's (EBCRC) vision is to establish environmental biotechnology as a mainstream sector in the biotechnology industry using natural bioprocesses to benefit industry and the environment.
- EBCRC objectives are to transform waste to valuable products, rapidly detect bacteria and other micro organisms, control and manage biological processes, restore the environment, create new natural products, harness fast low energy processes and promote sustainability.
- EBCRC research participants are: Macquarie University, Murdoch University, University of New South Wales, University of Queensland and South Australian Research and Development Institute (SARDI) as a research and demonstration participant. .
- EBCRC industry participants are: City West Water, Ecowise Environmental, Meat and Livestock Australia/Australian Meat Processor Corporation, Organic Resource Technologies. Orica and Veolia Environmental Services.
- EBCRC research and commercial activities are aligned across three broad areas of core competence: biofilms, microbial detection and control and bioprocesses.
- The research projects are in the areas of novel biofilm control strategies, living paints, novel microbial identification methods, improved wastewater and solid waste remediation and bioremediation.
- Funding for EBCRC was announced on 10 December 2002 and EBCRC was officially opened on 30 October 2003.
- Only 4.5% of Australia's biotech research is in environmental work. EBCRC will more than double this in the next four years by spending over \$60 million. Potential outcomes could be worth billions of dollars.
- Through its strong industry focus, EBCRC will harness these skills for the benefit of the economy and the environment.
- Industries that benefit include:
  - The chemical industry: producing novel compounds, reducing waste by-products and improving chemical purity
  - The plastics industry: decreasing the use of petroleum for plastic production by making "green plastics"
  - The food industry: fermentation-derived preservatives and analysis techniques for food safety
  - The livestock industry: adding enzymes to increase nutrient uptake and decrease phosphate by-products
  - The energy industry: manufacturing cleaner biofuels from agricultural wastes
  - The textiles industry: making fabric detergents more effective with enzymes