



CRC SIIB
technology
transfer
initiatives are
about ensuring
profitable
business
outcomes for
our centre's
research

PROGRAM 4

Technology Transfer (Commercialisation and Utilisation)

PROGRAM 4 RESEARCH COLLABORATIONS

The Cooperative Research Centre for Sugar Industry Innovation through Biotechnology (CRC SIIB) has entered into or maintained collaborations with a number of entities during the year.



Dow AgroSciences LLC. Dow AgroSciences LLC, has joined the CRC as a supporting participant in the research and development of IP in the area of pests in sugarcane. Having Dow AgroSciences as a participant provides further opportunities for other industry sources to engage with the CRC and leverage this international alliance.



Metabolix Inc. The CRC has a significant and ongoing commitment with Metabolix Inc, as a supporting participant in the research and development of intellectual property in biodegradable plastics. This partnership enhances the potential for other sources of industry engagement in new and value-added products.

KAIST The CRC and the University of Queensland have partnered with Korea Advanced Institute of Science and Technology (KAIST) to develop technologies to convert sugar into fuels and other high-value products. This is the third international research collaboration the CRC has entered into during the 2008>2009 financial year.



PROGRAM 4

CONTINUED

During the Financial Year ended 30 June, 2009, the CRC SIIB has actively pursued programs to secure protectable research outcomes, commercialise its intellectual property (IP) and fulfil its obligations under existing IP licensing agreements.

Specifically:

ENZYMES AND METHODS FOR DEGRADING CHLORINATED S-TRIAZINES

The leaching of toxic herbicides, such as S-triazines (for example Atrazine), is known to affect plants and the environment. It is considered to be responsible for reducing fish populations and growth of aquatic non-vascular plants, as well as other serious, long-term effects according to the US Environmental Protection Agency.

The CRC holds provisional patent application for: ***Enzymes and Methods of Degrading Chlorinated S-triazines filed on 19 December 2007.***

The patent application describes practical solutions for agriculture, which when implemented will help to protect marine ecosystems.

A METHOD FOR COATING A PAPER PRODUCT

Paper and paper products are the most widely used packaging products in the world. Paper is also the most highly recycled of all packaging products. It suffers one serious in-service shortcoming – a lack of waterproofing and/or water repellence.

Conventional methods of waterproofing papers involve the application of wax coatings or lamination with polyethylene or aluminium foils. All these processes render the paper unrecyclable, adding to landfill.

The CRC holds the patent for: ***A Method for Coating a Paper Product.***

This patent protects a CRC invention which describes methodology for producing a product that, when applied to paper, renders it waterproof on/and maintains 100% recyclability filed on 13 July 2007.

The CRC is developing and registering the Brand Name BARRECOTE™.

BARRECOTE™ contains lignin, which is extracted from bagasse. Post-extraction the bagasse is still available to the mill for green electricity co-generation.

The product has generated global interest, and the CRC is involved in negotiations with key-industry players internationally to commercialise the technology. The technology has the potential to reduce landfill and provide the sugarcane industry with another revenue stream.

PRODUCTION OF HYALURONIC ACID

High molecular-weight Hyaluronic Acid (HA) is naturally found in many body tissues, and is highly-suitable for biomedical applications.

HA is valued according to its molecular weight and is used for eye surgery, osteoarthritis treatment, promotion of healing after surgery and for general wound-healing applications.

CRC and UQ have developed a fermentation process for producing HA.

The CRC holds the patent for: ***Production of Hyaluronic Acid filed on 31 August 2007 and 14 May 2008*** and subsequently merged into a single application on 29 August 2008.

The CRC is currently in negotiations with a third party to commercialise this technology.

PROGRAM 4 CONTINUED

PHA PRODUCTION IN PLANTS

The CRC's Polyhydroxyalkanoate (PHA) technology can potentially turn a sugarcane plant into a plastic bio-factory, without compromising the plant's ability to produce sucrose.

The CRC holds a complementary provisional patent to the Metabolix Inc IP portfolio: ***Polyhydroxyalkanoate Production in Plants filed on 21 November 2008.***

Consumers' growing concern for environmental issues means that this low-cost, high-production method of producing environmentally friendly and biodegradable plastics represents an exceptional value opportunity.

SEPARATION PROCESS AND SYSTEMS

The Separation Process and Systems technology sought to add an additional revenue stream to sugarcane mills. Detailed investigation indicated the cost of implementation makes the technology unviable, after considering the significant capital costs required and the likely revenue stream.

The CRC SIIB has decided not to pursue this technology.

VACUOLE TARGETING PEPTIDE AND NUCLEIC ACID

The CRC SIIB has developed the world's first sugarcane sequence for tissue targeted protein expression. The sequence is native to sugarcane.

The CRC holds the patent for: ***Vacuole Targeting Peptide and Nucleic Acid filed on 24 December 2004.***

The licensing partners for the Vacuole Targeting Peptide and Nucleic Acid patent are testing the application of this sequence in different crops for a range of purposes. We expect results from these investigations within the next year, and if successful, commercial licenses will be negotiated.

COMPOUNDS AFFECTING GLYCAEMIC INDEX

Diabetes is now being described in the literature as an epidemic. Epidemiological studies indicate that Asia will be the location of the next significant occurrence of this condition.

The current leading Diabetes medication was introduced in 1995 and the FDA advises that there is no known replacement.

The CRC has just patented a family of compounds that occur naturally in sugarcane that are significantly more effective in controlling blood sugar levels than the current medication.

The CRC holds the patent for: ***Compounds Affecting Glycaemic Index filed on 17 April 2009.***

The CRC is developing and registering the Brand Name and Trademark: GI-Wise™.

GI-Wise™ can be extracted from bagasse and the treated bagasse is still available to the mill for green electricity co-generation activities.

This technology has the potential to be commercialised in the food, beverage, nutraceutical, pharmaceutical and complementary medicine areas.

The CRC has engaged with several organisations, both in Australia and overseas to commercialise this product.

