

4 April 2016

Australian Securities Exchange Announcement

Monaghan Biosciences and Leaf Resources successfully complete stage 1 of the Joint Development Program under the MOU

Highlights

- The first stage gate of the joint development program under the MOU has been successfully completed.
- In combination with a Monaghan Biosciences enzyme cocktail, Glycell™ pretreatment was superior to that of dilute acid in terms of hydrolysing 25% more cellulose than dilute acid at the 24 hr time point.
- Based on the positive results, Leaf and Monaghan Biosciences have agreed to move to stage 2 that will include tonnes per day pilot scale testing.
- The completion of stage 1 is an important step towards a bankable feasibility study for a renewable chemical project.

The MOU signed last year, detailed a joint development program on spent mushroom compost leading to a bankable feasibility study for a renewable chemical project. The development work included staged testing of the spent mushroom biomass, pilot scale process evaluation and enzyme optimization.

The companies commenced the first stage of the program in October 2015 using Monaghan Biosciences' enzyme technology and Leaf Resources' Glycell™ cellulosic sugar platform on spent mushroom substrate.

Pretreatment trials were carried out at BPF (<http://www.bpf.eu>) in the Netherlands, enzymatic hydrolysis and analyses were carried out at analytical laboratories in Ireland and at Monaghan Biosciences. Results showed that Glycell™ pretreatment in combination with Monaghan Biosciences' enzyme cocktail was superior to that of dilute acid highlighted by hydrolysing 25% more cellulose than dilute acid at the 24 hr time point. Several other important observations on chemical application and material conditioning and handling were made that will contribute to the next stage. Based on the results of stage 1, Leaf and Monaghan Biosciences have agreed to move to stage 2 and planning has commenced.

The companies are continuing to explore options on processing of the cellulosic sugars produced into specific renewable chemicals. Each has opened confidential licensing/joint venture discussions with third parties about including their conversion technologies into the project. An off-take contract for the renewable chemical produced is being sought in order to deliver a complete project that is attractive for financing.

Michael Crossin, Chief Operating Officer of Monaghan Biosciences said:

"These initial un-optimized trial results gave some surprising and encouraging findings and Monaghan Biosciences looks forward to working with Leaf Resources to commercialize their pre-treatment technology with our biomass".

Leaf Resources Chief Operating Officer Alex Baker commented:

"We are very pleased with the outcome of stage 1 of the JDA as it was a critical step to understanding the benefits that both Glycell™ and the Monaghan Biosciences enzyme technology could achieve on a challenging but advantaged biomass."

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About Monaghan Biosciences

Monaghan Biosciences is part of the Monaghan Mushrooms Group. Monaghan Biosciences have a skilled team of highly qualified research and development scientists with commercial and industrial experience, working in state-of-the-art facilities, located in Tyholland, County Monaghan in Ireland to develop enzyme technology for several industry segments.

Monaghan Mushrooms produces a significant amount of spent mushroom substrate from their operations each year and both Monaghan Biosciences and Leaf Resources believe that this material could be an integral part of a viable biobased project. Most of Monaghan Mushroom production sites are in Europe so the likelihood of a renewable chemical project being located in Europe is high.

About Leaf Resources Ltd (ASX: LER)

Leaf Resources is commercialising the Glycell™ process.

The Glycell™ Process is an innovative technology that uses a low cost, recyclable, biodegradable reagent glycerol, in a simple process that breaks down plant biomass into lignin, cellulose and hemicellulose at low temperature and pressure. The cellulose is then converted to cellulosic sugars through enzymatic hydrolysis and the lignin, hemicellulose and glycerol become valuable co-products.

Cellulosic sugars are a major feedstock for green, renewable biobased chemicals, bioplastics and biofuels, products whose markets are multi \$billions and fast growing. Many biobased products can now economically replace petroleum based products.

Modeling has demonstrated that the Glycell™ process can produce cellulosic sugars at under \$50 per tonne when co-product revenue is included. This compares with \$220 per tonne for sugars produced from the conversion of corn starch, the cheapest alternative and \$280 per tonne for raw sugar.

By dramatically reducing the cost of the main feedstock for bio based chemicals, plastics and biofuels, the Glycell™ process has the potential to change the face of global renewable production.

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