

以原生性特殊酵素應用於 纖維廢棄物再資源化之產業開發計畫(2/2)

執行單位

大同大學

計畫主持人

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- 本計畫應用場域含環保、新農業與循環經濟，且有助於根絕農業廢棄物燃燒所造成之霧霾及PM 2.5問題。計畫產出之產品為纖維水解酵素，後續將可應用於木材加工業、造紙業、飼料業、特用化學品與紡織業等。



- 計畫之上游為改良基因轉殖酵母菌，提高台灣原生高效能β-葡萄糖苷酵素(β-glucosidase)的表現量。中游則結合固態醱酵工業化量產纖維素水解酵素(endo-cellulose與exo-cellulose)，與改良後之基因轉殖β-葡萄糖苷酵素的量產技術。下游部分配合多家廠商共同研發多種纖維素廢棄物之再利用技術，經由複合纖維酵素的最適化配方來開發高質化產業之應用技術。
- 纖維水解酵素之產業規劃已獲大同公司支持，2018年大同公司將投入200萬元進行纖維水解酵素之產業發展與商品推廣。
- 已於大同大學校內成立校級研發中心 - 創新生技中心。本計畫之博士後研究員後續將轉任創新生技中心經理，後續將會持續推動纖維水解酵素之產業化及相關所有技轉事宜，此中心將進一步積極育成新創公司或事業體。

Natively special enzyme applied to the resourcing of cellulosic wastes and the industrial development

Execution Unit

Tatung University

Project Director

C. will Chen

- The project's application area includes environmental protection, new agriculture and circular economy. It will also help eradicate smog and PM 2.5 caused by the burning of agricultural waste. The output of the project is a cellulose hydrolytic enzyme, which will be applied to the wood processing industry, papermaking industry, feed industry, specialty chemicals and textile industry.



- Upstream of the project is to improve the gene transfer yeast and the performance of Taiwan's native β -glucosidase. The middle reaches are combined with solid state fermentation of industrial production of cellulase and the improved gene transfer β -glucosidase production technology. The downstream part cooperates with a number of manufacturers to develop a variety of reuse technologies for cellulosic waste.
- The industrial plan of cellulase enzyme has been supported by Tatung Company. In 2018, Tatung Company will invest 2 million dollars to carry out the industrial development and product promotion of cellulase enzyme.
- Tatung University has set up school-level R & D center—Biotechnology Innovative Center. The center will further develop new startups or business entities.