



Research Summary Sheet

Succinic acid from fruit and vegetable wastes

Context and Challenges

Disposal of the fruit and vegetable wastes improperly pollutes soil and water, with loss of resources as they are rich in moisture and carbohydrates, some even containing considerable quantities of proteins and fats which can be converted to value-added products. Currently, fruit and vegetable-based products including bio-fuels, enzymes, food flavoring and organic acids have been successfully developed.

Results and Applications

Fruit and vegetable wastes can be used for succinic acid production. Succinic acid, as a versatile building block which holds a wide variety of applications in detergent/surfactant, food, and pharmaceutical industries, has drawn great attention over the past decade. Nevertheless, current method of producing succinic acid is still dominated by petrochemical process.

*It was demonstrated that succinic acid can be produced from fruit & vegetable waste hydrolysate by using an engineered yeast *Yarrowia lipolytica*. Optimized succinic acid production was obtained via in-situ fibrous bed bioreactor and fed batch fermentation.*

First investigation of mixed fruit and vegetable waste for succinic acid production. Succinic acid is a platform chemical with numerous industrial applications, such as building block for polymers. It is very important to develop a low-cost production process. Using fruit and vegetable waste as feedstock is one of the sustainable options to produce succinic acid, as they are rich in nutrients and carbohydrates.

Breakthroughs, benefits and added value

Increasing demand for biodegradable poly(butylene succinate) (PBS), which has comparable mechanical properties to polyethylene, will open up a new market for succinic acid.

Further information on NoAW project: <http://noaw2020.eu>

City University of Hong Kong: Dr. Carol S.K. Lin, e-mail: carollin@cityu.edu.hk

INRAE (Coordinator): Prof. Nathalie Gontard, e-mail: nathalie.gontard@inrae.fr

