Environmentally friendly synthetic palm oil production from agricultural waste

Stanford researchers have developed a process for synthetic palm oil production that is environmentally friendly and can be implemented locally by farmers.

Palm oil is an essential commodity used in everything from processed foods to personal care items like toothpaste and soap. However, current methods for palm oil production are responsible for deforestation, greenhouse gas production, and the exploitation of farmers and their communities.

Stanford researchers therefore developed a method for producing palm oil from agricultural waste that can be locally implemented by farmers themselves. Palm fronds are first pre-treated using microwave energy, an inexpensive and energyefficient process that eliminates the need for chemical additives and extracts sugars from the palm fronds. Then, a yeast species specialized for fat production digests the sugars into fats that can serve as a drop-in replacement for palm oil in personal care products or as feedstock for biofuel production.

Stage of Development

Proof of concept: demonstrated microwave pre-treatment process that extracts fermentable sugars and yeast fermentation process that can produce a drop-in replacement for palm oil.

Applications

- Drop-in replacement for pam oil in personal care/beauty products
- Environmentally friendly and socially conscious personal care and beauty products
- Feedstock for second generation biofuel production

Advantages

- Use of waste material is inexpensive and environmentally friendly
- Highly efficient pre-treatment process
- Lack of harsh chemicals in pre-treatment process allows waste to be used as fertilizer, compost, etc.
- Optimized for use on farms in producing countries (not US-based labs)
- Decentralized approach is readily scalable

Innovators

- Gabriella Dweck
- Kelly Redmond

Licensing Contact

Irit Gal

Senior Licensing Manager

<u>Email</u>