

Research Topics for Fast Track and Regular Program
Master Program on Estate Crop Product Technology
Faculty of Agricultural Technology Universitas Gadjah Mada

BACKGROUND

The Challenge for Future New Product Development is a product that can overcome health problems in Indonesia: (i) Stunting in children under five years, (ii) Non-communicable diseases, and (iii) the health of older adults (seniors). Therefore, developing nutraceutical products and functional foods based on plantation commodities is significant. Apart from that, millennials want the preparation and serving of food at home to be fast and can be done by everyone. Therefore, it is essential to develop natural spice-based cooking seasoning (flavoring) products.

1. PALM

Palm oil has a high phytonutrient content that is beneficial for health, including carotenoids (500-700 ppm), vitamin E in the form of tocopherols and tocotrienols (600-1000 ppm), sterols, and ubiquinone. Vitamin A deficiency (VAD) often occurs in (i) pregnant and breastfeeding mothers and (ii) children under five years of age. The prevention of VAD in Indonesia is achieved by providing high doses of synthetic vitamin A capsule supplementation and food fortification. But unfortunately, synthetic vitamin A ingredients have to be imported from abroad.

RESEARCH TOPICS:

- a. Phytonutrient separation techniques and their application in nutraceutical products and functional foods
- b. CPO processing technology into red palm oil
- c. Fortification of red palm oil and phytonutrients in functional foods.

2. COCOA

Cocoa contains bioactive flavanol components (epicatechin, epicatechin glucoside, catechin glucoside, catechin, procyanidins), flavonols (quercetin, quercetin-3-arabinoside, quercetin 3-o-glucuronide) and methylxanthines (caffeic acid, theobromine, theophylline). However, there is little use of cocoa beans in premium food products because most cocoa beans are not fermented.

RESEARCH TOPICS:

- a. Technology for developing aroma and flavor precursors in non-fermented cocoa beans
- b. Development of new products based on cocoa commodities, including red chocolate.

3. COFFEE

Coffee drinks are very popular with the public and contain active components, including caffeine, chlorogenic acid, and diterpenoid alcohol, which have potential health benefits.

RESEARCH TOPICS:

- a. The development of "ready to drink" coffee includes cold brew
- b. Utilization of coffee bean dregs.

4. COCONUT

Coconut has been widely developed as a food ingredient. However, many coconut by-products remain to be developed.

RESEARCH TOPICS:

- a. Development of coconut by-products as natural seasoning ingredients
- b. Development of environmentally friendly downstream coconut products.

5. SPICES

Spices contain varied flavor and aroma compounds that have long been used as natural cooking spices. However, preparing food using these spices takes a relatively long time. Extracting flavor and aroma compounds in spices will make it easier to use them in food.

RESEARCH TOPICS:

- a. Development of essential oil extraction technology and the resulting products.
- b. Development of ready-to-eat seasonings.

Prospective students interested can contact the Head of the Study Program in the lecturer's room on the 3rd floor of the hall.

Yogyakarta, May 21st, 2024

Head of the Master Program on Estate Crop Product Technology

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