

# WELLNESS INNOVATION TECHNOLOGY (WIT)

- Dr. Azila Abdul Aziz, Associate Professor, Head of iKohza
- Dr. Siti Hamidah Mohd Setapar, Associate Professor
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## NUMBER OF STUDENTS

- Ph.D : 5 students
- Master: 2 students
- Bachelor: 2 students

## RESEARCH KEYWORDS

Plant extract, nanocarriers, cosmetic, wellness, formulation

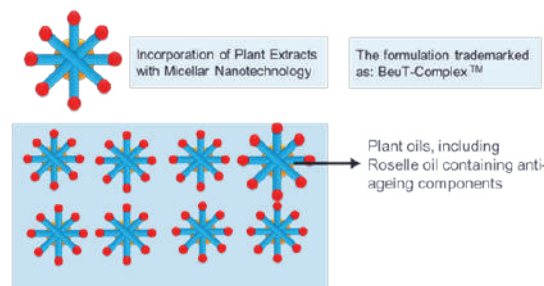
## OUTLINE OF IKOHZA

Wellness Innovation Technology (WIT) iKOHZA has been established to further strengthen research in the field of wellness product development, which conducted in UTM for almost 20 years. With the establishment of this iKohza, R&D will inculcate high values in the innovation and commercialization of Japanese technological concept of research. Several collaborations with several Japanese companies and institutions will be involved related to the field of wellness. Through this iKohza, various activities will be focusing on strengthening the fundamental aspects of new research, enhance the production of innovations and new inventions, empowering commercialization and consultation with development of short courses, mentoring and collaboration with various partied communities.

## CURRENT RESEARCH

- **RESEARCH 1:** Novel Micellar Nanotechnology for Cosmetic Formulation (Funded by MyLAB MoHE Grant; RM 638,000).

Project on cosmetic-based formulation from incorporation of extracted Roselle oil with micellar nanoparticle technology for advance anti-ageing effects of products.



- **RESEARCH 2:** Unravelling the Effect of Gold Nanoparticles with Chitosan Nanobubbles through Double Emulsion Technique as Anti-cancer Drug Delivery System. (Funded by FRGS MoHE Grant; RM 116, 098)  
Project on fundamental research of gold nanoparticles incorporation with chitosan nanobubbles in double emulsion system as novel drug delivery for anti-cancer therapeutic performance.
- **RESEARCH 3:** Targeting of curcumin loaded hyaluronan-modified flexible liposomes to inflamed keratinocytes for the management of psoriasis: mechanism of binding and kinetic studies. (Funded by FRGS MoHE Grant; RM 151,536)  
Project on binding mechanism and kinetic studies of curcumin extract



incorporated hyaluronan-modified liposomal nano-delivery system for innovative approach of psoriasis management

- **RESEARCH 4:** Extraction of Roselle-Based Omega-3 Fatty Acid (Funded by UTM Research Fellow Grant; RM 33,300)  
Project on Roselle plant extraction, focusing on Omega-3 essential fatty acid as innovative source of health supplement
- **RESEARCH 5:** Extensive Study on Roselle Plants Extract as Sustainable Natural-Based High Quality Nutrition Sources (Funded by UTM CRG Grant; RM 100,000)  
Project on application of Roselle plant extract for health and wellness product that involved characterization studies, product formulation and market study survey.
- **RESEARCH 6:** Sustainable Source Of Dietary Supplement From Roselle Seeds Extract (Funded by Industrial Grant; RM 51,000)  
Project focusing on Roselle seeds extract as sustainable material for dietary supplement product
- **RESEARCH 7:** Pain Reliever Gel from Eucalyptus Globulus Essential Oil Using Micellar Technology (Funded by Industrial Grant; RM 51,000)  
Project on application of Eucalyptus globulus essential oil as pain reliever gel that being formulated advanced via incorporation with micellar nanoparticle technology



### MERIT OF THE TECHNOLOGY

Green extraction techniques and nanotechnology implementations are the focusing technology through the iKOHZA research, which involved fundamental studies, application, product formulation and development and final concept for commercialization or market penetration approach. The merit of technology involved for each current research in Wellness Innovation Technology iKOHZA are listed as below.

- 1) Enhance therapeutic efficacy of cosmetic formulation via nano-technological approach. (Nanotechnology system implemented: Micellar nanoparticle technology)
- 2) Advance anti-cancer compound via nano-drug delivery system. (Nanotechnology system implemented: Gold nanoparticles with chitosan nanobubbles)
- 3) Empowering curcumin extract application in psoriasis management via active component loaded nanocarrier. (Nanotechnology system implemented: Hyaluronate-modified liposomes)
- 4) Promote safer alternative of pain killer substance from Eucalyptus globulus essential oil by incorporating with nanocarrier. (Nanotechnology system implemented: Micellar nanoparticle technology)
- 5) Green extraction technique used (supercritical fluid extraction) for high nutritional values of plant extracts

### POSSIBLE INDUSTRY APPLICATION

The possible industrial collaboration is depending on different aspects involve through the iKOHZA development:

- 1) Clinical Testing for Cosmetic and Health Products: Collaboration with agencies (eg; SIRIM BERHAD and Healthmedic Research Sdn. Bhd)
- 2) Marketing for Product Commercialization and Distribution: Collaboration with marketing partner
- 3) Product International Penetration: Collaboration with government agencies; MATRADE and international companies (eg: Japan wellness companies)
- 4) CSR Program for Communities: Collaboration with school organizations, institutions, government and non-government agencies for knowledge transfer, brand awareness and funding with communities.

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