

5 マレーシア政府研究助成 (IRPA) による研究プロジェクトリスト
 政府研究助成 (IRPA) による研究プロジェクト (UPM食品科学、バイオテクノロジー部分)

BIL.	TAJUK PROGRAM/PROJEK (HO, RUUKAN PROGRAM)	KETUA PROGRAM	PERUNTUKAN RM6	KETERANGAN MENGENAI PROGRAM/PROJEK (Brief description of program/projects)	KEDUDUKAN SEMASA (STATUS) (ON-GOING/COMPLETED)	JANGKAAN PENGHASILAN (Expected Output)
(1)	PLANT BIOTECHNOLOGY (1-07-05-028)	DR. ZALIMA CHRISTINE ABDULLAH	1,100,078			
J09	Pembinaan in vitro tanaman buah-buahan tropika dan pokok palma yang kurang diguna (underutilized)	En. Azmi Abd. Rashid		Clonal propagation of mangosteen and starfruit	on-going	Clonally-propagated planting materials.
J09	Crop improvement using in vitro technique	Dr. Lim Eng Siang		Pollen culture and in vitro fertilization and pollination	on-going	Hybrid crop plants
J10	Use of suspension cultures to propagate and to produce stress-tolerant plants	Dr. Marziah Mahmood		Mass-propagation / field trials of stress-tolerant plants	on-going	Stress-tolerant plants
J11	Cryopreservation of vegetative buds for conservation of genetics resources for clonal materials	Dr. Hor Yue Luan		Optimization of cryopreservation of sweet potato clonal materials	on-going	Cryopreservation Technology
J12	Protoplast culture and direct DNA uptake	Dr. Maheran Abd. Aziz / Dr. Norhan Mohd Saleh		Regeneration of protoplasts from musk-melon leaf.	on-going	Regenerated plants from protoplasts
J13	Crop genetic transformation using Agrobacterium as vector	Dr. Zailha Christine Wang		Agrobacterium-mediated transformation of musk-melon explants	on-going	Transgenic plants
J14	Restriction mapping and enzymes electroporation on under-utilized plants	Dr. Suhaimi Haps		Genome fingerprinting of sweet potato cultivars	on-going	Technology for genome analysis
J15	Development of mass propagation systems for selection crop plants using bioreactor technology	En. Ali Mohd Hassan		Mass propagation of crop plants using bioreactor	on-going	Bioreactor-propagated planting materials
J16	In vitro biosynthetic capacity of cultured plant material in bioreactor systems	Dr. Hasanah Mohd Ghazali		Secondary metabolite production of Clitoria ternata	on-going	Enzyme Peroxide

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(2)	UTILIZATION OF LOCAL CARBOHYDRATE RESOURCES THROUGH CHEMICAL ANNASIR AZUDIN BIOCONVERSION (1-07-05-031)	DR. MOHD. NASIR AZUDIN	232,639			
J01	Chemical modification of starch	Dr. Sharifah Kharidah		Production and characterization of: a. sago starch phosphate b. hydroxypropylated sago starch	on-going on-going	Sago starch phosphate Hydroxypropylated sago starch
J02	a.) Production of malto-dextrin and cyclodextrin from sago starch b.) Modified starches - Hydroxypropylated Starches	Arbakariyah Khalif Dr. Sharifah Kharidah				
(3)	FOOD SAFETY AND TOXICOLOGY (1-07-05-033)	DR. GULAM RUSUL RAHMAT ALI	828,665			
J01	Foodborne pathogens in Malaysia	Dr. Gulam Rusul Rahmat Ali		Ecology and characterization of foodborne pathogens.	on-going	Information is very useful to food industries.
J02	Interaction of food additives with food components	Dr. Sharifah Kharidah S. Muhammad		Effectiveness of antimicrobials and processing heat treatment on the shelf-life of chilli boh.	un-going	a. Code of practices for production of chilli boh b. Standards for chilli boh.
J03	Penghasilan antibodi monoklon terhadap staphylococcus aureus (A, B, C2, D Dan E) dan pembentukan Elisa	Dr. Abdul Manaf Ali		Development of ELISA Kit for detection of Staphylococcus aureus enterotoxin	completed	

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(4)	POST-HARVEST TECHNOLOGY OF FRUITS AND VEGETABLES (11-07-05-079)	DR. AZIZAH OSMAN	485,116			
J02	Kesan pre-penyjukan dan beberapa perlakuan lain ke atas perubahan tekstur dan aktiviti enzim PG buah-buahan terpilih	Dr. Azizah Osman		Selected fruits (beimbing, ciku, guava) are subjected to different post-harvest treatments including precooling. Determination are made on the changes in the pulp texture, PG activity and other physico-chemical characteristics.	on-going	Storage technology of fresh fruit.
J03	Kajian fisiologi lepas luti buah-buahan tropika	Hj. Mohamad Nordin Abdul Karim		Corrugated fibre board boxes are suitable for transportation of fresh ciku. Such packages also impart additional point of sale features.	completed	Ready for field application / trial.
J04	Penyulatan permukaan buah-buahan tempatan dengan berbagai-bagai bahan penyulut	Dr. Suhaila Mohamed		Search for antifungal and antifruity compound to be used with surface treatment of fresh fruits to prolong shelf life.	on-going	Package technology for export of fresh fruit.
J06	Kajian perubahan warna semasa kematangan buah	Dr. Siti Hajar Ahmad		Final quantification of colour to produce colour cards for quick colour evaluation of ripening fruits.	on-going	Production of plastic cards for colour evaluation
J07	Perubahan sifat-sifat fizikal, kimia dan struktur mikro lisi buah-buahan semasa kecederaan dingin	Dr. Salmah Yusof		Research was conducted using sourclop. The studies conducted relate to the physico-chemical and structural changes during fruit development and storage.	on-going	Recommendation as a suitable storage technique for sourclop.
J08	Kesan rawatan pemrosesan gabungan ke atas perubahan-perubahan fizikal dan kimia terhadap buah-buahan terpilih	Dr. Rusly A. Rahman		Retail pack design and in-pack atmosphere concentration measurements.	on-going	Modified atmosphere retail pack of 'ciku' and pisang.
(5)	FUNDAMENTAL AND APPLIED STUDIES OF PROTEIN (11-07-05-081)	ABDUL HAMID	613,158			
J03	The studies of factors that control the functionalities of proteins and enzymes	Dr. Hasanah Mohd Ghazali P. M. Dr. Suhaila Mohamed		Transesterification of palm olein is being carried out on various fractions of palm oil using different types of lipases. Optimising conditions for enzymatic synthesis of asp-met (a new low calorie sweetener).	on-going	Modified palm olein. A new low calorie sweetener
J04	Studies on the production of protein hydrolysate	Dr. Yu Swee Yean		Studies on the production of protein hydrolysate from under-utilised fish.	on-going	Process improvement
J05	Studies on the detection of macromolecules/food components using enzymes	Dr. Junairah Abd. Hamid		Continuous analysis of food components using flow-through enzyme electrodes.	on-going	Food sensors
J06	Studies on enzymes and its application in food processing	Dr. Jamilah Bakar		Extraction and purification of proteases from discarded portions in fish processing or plant sources for application in food-related industries.	on-going	Alternative source of proteases for industrial

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(6)	DAIRY TECHNOLOGY (1-07-05-082)	DR. MOHD. YAZID ABD. MANAP	613,158	1. Development of probiotic starter culture 2. Development of inter-esterified fat for ice cream and processed 3. Pilot plant production - Optimization of ultra filtration system for the food industry.	on-going on-going on-going	A probiotic dairy starter culture IE palm oil fat for the dairy industry UF technology
J02	Dairy processing technology (A dan B)	Dr. Mohd. Yazid Manap/ Dr. Mohd. Yusof Abu				
J03	Milk coagulation properties of the extract from kesinar (<i>sirebilus asper</i>)	Dr. Abdullah Sipat		Purification and scaling-up production of Keszizyme	on-going	A rennet substitute from plant source
(7)	PROCESSING AND UTILIZATION OF TROPICAL OIL (1-07-05-083)	DR. YAAKOB CHE MAN	528,396	Three methods will be studied: extraction using multi-solvent, adding absorption agent, and transesterification. To study emulsion stability of palm-oil with food proteins in a food model system, in particular beef emulsion. Fat intake prior to legume ingestion reduces the formation of associated flatulence.	on-going on-going on-going	Improve palm oil quality Product development Nutritional awareness
J01	In search of Better Processing Technique with special Attention to Eliminate Cloud	Dr. Yaakob Che Man				
J02	Physio-chemical properties of Palm oil used as ingredient in food formulations	Dr. Asbi Ali				
J03	Kesan minyak tropika ke atas pembentukan flatulence	Nordin/Abdul Kairm				

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(8)	PRODUCT DEVELOPMENT: CEREAL & LEGUMES (1-07-05-085)	Pn. ASIAH MOHD. ZAIN	240,000			
J01	Kajian mengenai kesan pengstoran ke atas kestabilan makanan kanak-kanak	Pn. Asiah Mohd. Zain		Formulation with added sweet potato and storage stability	on going	One product available for commercialisation.
J02	The production of vermicelli based on legume	Hj. Mohamad Nordin Abdul Karim		In the production of glass noodle, the maximum possible substitution for mung bean starch is found to be 10%.	on going	Product substitution.
J03	Produk baru peringkat komersial	Dr. Yaakob B. Che Man		Development of a new soy-nangka leather with improve protein content.	on-going	A new nutritional product.
J04	Fungsi komponen makanan	Suhaila Mohamed		Properties of food products (volume texture, oil absorption, moisture, etc.) made from various proteins, starch and fats under various conditions.	on-going	Food products with improved acceptability
(9)	FOOD BIOTECHNOLOGY (1-07-05-087)	DR. HASANAH MOHD GHAZALI	440,000			
J01	Penghasilan pigmen pewarna makanan	Dr. Faujan Hj. Ahmad/ Dr. Hasanah M. Ghazali		Production of edible pigments by Monascus sp. - optimising the parameters for the production of the pigments. Production of pigments from senduduk byu plant cell culture technology - studies conducted to overcome problems faced with maintaining the stability of callus.	on-going On-going	Pigments shall be available for stability tests in food systems. Pigments shall be tested in food systems.
J02	Penghasilan ester berperisa menggunakan pebagai sistem kultur fermentasi	Dr. Jinap Selamat		Optimisation of bulk fermentation process to obtain tapai flavour concentrate.	on-going	Tapai (natural) flavour concentrate.
J04	Penghasilan bahan cilaressa (flavour) dan kultura sel tumbuhan	Dr. Hasanah Mohd Ghazali		'Callus was induced from 'kari' embryo and efforts are being expanded to obtain a stable cell line capable of producing 'kari' flavour. Method for the extraction of the flavour is being developed.	on-going	Kari extract for incorporation into foods.

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(1)	FERMENTATION TECHNOLOGY THE UTILIZATION OF LOCALLY AVAILABLE AGRICULTURAL MATERIALS AND ITS BYPRODUCTS TO PRODUCE USEFUL AND VALUE ADDED PRODUCTS THROUGH FERMENTATION PROCESS (2-07-05-006)	DR. MOHAMED ISMAIL ABDUL KARIM	800,000			
JO2	Penapaian asid sitrik dan lain-lain asid organik dari bahan-bahan pertanian melalui proses penapaian	Dr. Baharuddin Abdul Ghani		Fermentation of organic acids (citric, kojic and itaconic) using locally available materials.	on-going	Developing fermentation processes and scaling up. Production of citric, kojic and itaconic acids.
JO3	Treatment and utilization of agricultural wastes and effluent	Dr. Ohman Abdul Samah/ Dr. Mohamed Ismail Abdul Karim		Treatment of cocoa juice, oil palm mill effluent and sago wastes.	on-going	Reduction of organic polluted wastes from cocoa, sago and oil palm industry. Production of bioplastic and citric acid.
JO4	Bioreactor design, process control and optimization of fermentation process	En. Mohd. Ali Hassan / Dr. Ismail		Bioreactor design, process control and optimization of fermentation processes.	on-going	Development of upflow sludge blanket bioreactor (UASB) reactor for POME and sago wastes treatment.
JO5	The production of enzymes by fermentation technology using local abundant carbon source	Dr. Baharuddin/ Dr. Nooraini		Isolation and cloning of thermophilic amylase gene from Bacillus. Protein engineering work on site-directed mutagenesis alkaline proteinases.	on-going	Determination of active site of alkaline proteinase. Construction and production of antibody for industrial application in counteracting immunodeficiency.

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(2)	PROCESSING AND UTILIZATION OF COCOA (2-07-05-022)		1,200,000			
J01	Isolation and characterization of cocoa enzymes.	DR. JINAP SELAMAT Dr. Jamilah Bakar		Role of protease in improving Malaysian cocoa through processing is determined.	on-going	Teknologi Process
J02	Heat and mass transfer in processing of cocoa	Dr. Asbi Ali		Understanding of the heat and mass transfer during cocoa processing to enable processing prediction / optimization for better cocoa quality.	on-going	Teknologi Process
J03	Penghasilan produk dari pulpa koko	Dr. Jinap Selamat		Formulation, development and storage study of canned cocoa pulp juice.	on-going	Teknologi process dan produk
J04	Penggunaan kacang soya dalam produk koko	P. M. Asiah Mahd, Zain		Formulation, development and storage study of cocoa powder drink containing ISP.	on-going	Teknologi process dan produk
J07	Pembentukan komponen perisa sewaktu pemrosesan koko	Dr. Jinap Selamat		Determination of optimum parameters for the production of flavour precursors during fermentation and drying.	on-going	Teknologi process
J08	Kajian fisiologi-kimia buah koko sewaktu pembersaran dan penyimpanan lepas tua	Dr. Jinap Selamat		Practicability and effectiveness post-storage (before cocoa fermentation) would be evaluated, for the improvement of cocoa flavour at different situation (small holders, estate operators).	on-going	Teknologi process
J09	Kajian penghasilan produk konfektorian coklat dari lemak koko	Dr. Jinap Selamat		The quality characteristics (physical and chemical) of Malaysian cocoa butter, the crystallization behaviour and storage stability would be evaluated in comparison with those of other countries. The effect on the quality of chocolate produced would be examined.	on-going	Teknologi process
J10	Mengkaji aktiviti polifenol oksidase & lipase semasa fermentasi	Dr. Osman Abu Samah		Evaluation on the factors affecting polyphenol oxidase and lipase activity in the improvement of Malaysian cocoa flavour.	on-going	Teknologi process
J11	Peranan Bacillus sp dalam pembentukan komponen perisa koko	Dr. Gulam Rusul Rahmat Ali		Determination of the role of Bacillus spp. in the production of flavour components especially pyrazines during cocoa processing.	on-going	Teknologi process

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(3)	FRUIT PROCESSING (2-07-03-025)	DR. SALMAH YUSOF	550,000			
J01	Pemrosesan nenas, kualiti dan kesiapan produk	Pn. Asiah Mohd. Zain		Storage stability and packaging requirement were studied.	on-going	Dehydrated product available for scaling up and commercialization.
J02	Peningkatan penggunaan buah tropika melalui proses AQF (individually quick Frozen)	Hj. Mohamad Nordin Abdul Karim		The optimum freezing storage temperature for ciku is -15oC as there are no different between storage at -15oC and -20oC.	completed	Ready for field application / trial.
J03	Pemrosesan jus buah-buahan tempatan	Dr. Asbi Ali		The optimum condition for thermal processing of tropical fruit juices and stability of juice cloud was determined.	on-going	Product development
J04	Pemrosesan kepingan buah-buahan	Dr. Yaakob Che Man		Studies on the processing, formulation and storage stability of Nangka leather.	on-going	New food product from Nangka fruit.
J05	Kajian ke atas bahan buangan pemrosesan buah-buahan	Dr. Subhala Mohamed		Extraction, purification and identification of edible antimicrobial compounds from the fruit processing waste.	on-going	New edible food preservatives.
J06	Pemrosesan dan kualiti simpanan, hasian dari puri buah-buahan	Dr. Salmah Yusof		Utilization of banana and pineapple purees for breakfast flakes. Study includes formulation, product characteristic and storage.	on-going	New product for breakfast christened "pina flake".

SL	TAJUK PROGRAM/PROJEK (NO. RUKUKAN PROGRAM)	KETUA PROGRAM/	PERUNTUKAN RM6	KETERANGAN MENGENAI PROGRAM/PROJEK (Brief description of program/projects)	KEDUDUKAN SEMASA (STATUS) ON-GOING or COMPLETED	JANGKAAN PENGHASILAN (Expected Output)
(4)	FISH HANDLING AND UTILIZATION TECHNOLOGY (2-07-05-026)	DR. ABDULLAH ABU BAKAR	631,192	<i>Completed</i>		
J01	Handling of live prawn	Dr. Abdullah Abu Bakar				
J02	Microbiology and spoilage of freshwater prawn	Pn. Fatimah Abu Bakar				
J03	Quality maintenance of fresh fish	Dr. Jamilah Bakar				
J04	Pengeluaran aurimi dari ikan air tawar/masam dan pengaliran atas kualitinya semasa penyimpanan	Dr. Yu Swee Yean				
J05	Pemuliharaan dan penggunaan protein ikan	Dr. Yu Swee Yean				

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(1)	DEVELOPMENT OF DNA RESTRICTION MAPPING ENZYME FINGERPRINTING METHODS FOR MALAYSIAN ECONOMIC PLANTS AND MICROORGANISMS FOUND IN MALAYSIA (4-07-05-049)	DR. NORIHAN MOHD. SALEH	505,855			
JO1	Development of DNA dot blot hybridization and enzyme fingerprinting methods for microorganisms	Dr. Hasanah Mohd Ghazali/ Dr. Norhan Mohd Saleh		Molecular studies on microorganisms producing the enzyme mannose isomerase and peptide sequencing of the enzyme.	on-going	Purified enzyme, information regarding the characteristics of the enzyme and the microorganisms.
JO2	Development of DNA restriction mapping and enzymes fingerprinting methods	Dr. Norhan Mohd. Saleh		Molecular analysis of various ciku clones for identification and classifications of the ciku clones.	on-going	Establishment of reproducible methods for suitable and more accurate classification system for tropical fruit tree.
JO3	Biochemical genetics of Malaysia forest species. (this project will be carried out in FRIM and in UPM)	Dr. Zaliha Christine Wang/Dr. K. Bakarati		Evaluation of the genetic diversity between and among six wild and one cultivated species of Gracchia using isoenzyme techniques.	on-going	Genetic background of Gracchia species.

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(1)	IMMUNOBIOLOGY AND HIDROMA 3-07-95-003	DR. ABDUL MANAF ALI	901,000	The objective of the program is to establish hybridoma technology for the production of monoclonal antibodies against cancer cells.	on-going	Monoclonal antibodies against cancer cells.
J01	Antibodi monoklonal manusia terhadap barah buah dada dan serviks	Dr. Aishah Mohd Ali		The project is involve in the production of mouse hybridomas that secrete the monoclonal antibodies against breast and cervical cancer cells.	on-going	Monoclonal antibodies against cancer cells.
J04	Humanise Mouse Monoclonal Antibodies	Dr. Raha Bt. Hj. A. Rahim		To construct the recombinant antibodies from mouse monoclonal antibodies that react to cancer cells.	on-going	Monoclonal antibodies against cancer cells.
			901,000			

6 学生数の推移

TOTAL OF STUDENT FSMB

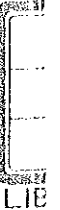
1989 - 1994

YEAR	PROGRAM/TOTAL OF STUDENT			
	BSTM	BS (BTK)	POST GRADUATE (BTK)	POST GRADUATE (FOOD SCI & TECH)
1989	146	90	10	15
1990	191	130	13	21
1991	220	154	13	16
1992	228	179	17	15
1993	223	180	25	27
1994	227	182	27	30

BSTM - Bac of Food Science & Food Technology

BTK - Bac of Biotechnology

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