UNIVERSITI TEKNOLOGI MARA
Cawangan Kedah
Kampus Sungai Petani

Faculty of Administrative
Science and Policy Studies

i-SPiKE 2021

Leading An Artificial Innovation In Knowledge, Education And Design

i-SPiKE 2021
INTERNATIONAL EXHIBITION & SYMPOSIUM

E-PROCEEDINGS

https://ispike2021.uitm.edu.my/

e-ISBN 978-967-2948-20-9

Copyright © 2021 is held by the owner/author(s). These papers are published in their original version without editing of the content.

The views, opinions and technical recommendations expressed by the contributors are entirely their own and do not necessarily reflect the views of the Faculty or the University.

Copy Editors : Azni Syafena Andin Salamat, Syazliyati Ibrahim, Asrol Hasan, Nor Zaini Zainal Abidin, Fatihah Norazami Abdullah, Chaleeda Som Sak, Nor Asni Syahriza Abu Hassan & Muhamad Khairul Anuar Zulkepli

Layout Editor : Asrol Hasan

Cover Design : Syahrini Shawalludin

Published by : Universiti Teknologi MARA Cawangan Kedah,
Kampus Merbok,
08400 Merbok,
Kedah,
Malaysia.

TABLE OF CONTENTS:-

i-SPiKE 2021 International Exhibition & Symposium E-Proceedings

NO.	TITLE	PAGE
1.	'Viewfinder' Mobile Learning Application for Videography and Cinematography Based on the Rules of Perspective ***Amir Nor Azan Samar, Harim Izzati Hamdan, Iqbal Jaapar & Muhammad Firdaus Amairudin***	1
2.	Systematic Alternative Fuzzy Logic Evaluator (SAFLE) for Student Performance Evaluation ***Shirley Sinatra Gran, Tracy Adeline Ajol & Awang Nasrizal Awang Ali***	8
3.	360 Employees – I ***Dayang Hazenah Awang Abdul Hamid, Nur Dina Athia Mohd Ramley, Nur Hidayah Jusoh, Nurul Husna Abd Jalil & Mohammad Firdaus Mohammad Hatta***	12
4.	AbMTI: Adventure Based Mental Toughness Inventory for Post Covid-19 Pandemic Era ***Mohd Shariman Shafie, Professor Dato Dr. Md Amin Md Taff, Dr. M.Adli bin Mohd Sidi, Mohamed Azizul bin Mohamed Afandi, Dr. Omar Firdaus Mohd Said & Nik Jazwiri Johannis***	18
5.	AbMTM: Post Covid-19 Adventure-Based Mental Toughness Training Model ***Mohd Shariman Shafie, Professor Dato' Dr. Md Amin Md Taff. Assoc. Professor Dr. Zuraidah Zainol & Dr. Siti Musliha Mat Rasid***	23
6.	Pembentukan Modul Undi18@School untuk Pendidikan Kenegaraan dan Demokrasi kepada Belia 18-21 Tahun ***Wan Rohila Ganti Wan Abdul Ghapar, Che Hamdan Che Mohd. Razali, Muhamad Fazil Ahmad & Abdul Rahman Abdul Latip***	28
7.	A Planning of Templer Forest Park and Templer Forest Reserve through Management Plan ***Mohammad Zharif Hakimi Mohammad Mazani, Nurul Atikah Mohd Salleh, Muhammad Hafiy Safwan Sahak, Nurul Nabila Che Ahamed, Teeny Valerian,Mohamad Fathi Radhi Ishak, Nor Hanisah Mohd Hashim & Firdaus Chek Sulaiman***	33
8.	Administrative Model for Sekolah Agama Rakyat (SAR): Excellence Practices ***Mohd Nasir Ayub, Nazmi @ Nazni Noordin, Mohd Zool Hilmie Mohamed Sawal & Surita Hartini Mat Hassan***	38
9.	ADR-Now Application: Bridging Theoretical and Practical Approach in Alternative Dispute Resolution Process and Procedures ***Dr. Shahrizal Mohd Zin, Abdul Mu'iz Abdul Razak, Prof. Madya Dr. Nur Ezan Rahmat & Nik Hasbi Fathi***	43

10. Agricultural Career Training Program for Drop Out Students through Work Based Learning 47
Marinah Muhammad, Noor Janatun Naim Jemali, Nik Raihan Nik Yusoff & Rozidaini Mohd Ghazi

11. An Eco-Friendly Concrete Blends from Palm Oil Boiler Ash 52
Nurrul Amilin Zainal Abidin, Zeno Michael, Mohamed Khatif Tawaf Bin Mohamed Yusof, Azmi Roslan, Siti Shahidah Binti Sharipudin, Shahrul Nizam Bin Mohammad & Ilya Izyan Binti Shahrul Azhar

12. An Investigation of Clothing for Elderly: Emphasizing Safety, Protection and Functional Attributes 57
Shahrizad Fitri Mustapha, Shuhaila Nahrawi , Rizal Azni Dahaman & Norzaleha Zainun

13. Ardu-Electrochromic Film for Home Safety And Privacy Purpose 65
Anas Akasyah Abd Patas, Nur Athirah Mohd Taib & Syahida Suhaimi

14. Let's Talk about the Movies: The Movie Journal 71
Associate Profesor Dr Norwati Binti Hj Roslim, Associate Profesor Dr Hj, Muhammad Hakimi Tew Abdullah, Ku Nurul Atiqah Ku Ahamad, Nur Faathinah Mohammad Roshdan, Suhaila binti Sharil & Siti 'Aishatul-Humairah Muhammad Fisol

15. Asymmetric Impact of The Oil Price Changes on Stocks Market for Selected Asean Countries 78
Shahiszan binti Ismail, Prof. Madya Dr. Noor Zahirah Mohd Sidek, Fauziah Mohamad Yunus, Jamilah Laidin & Nor Azira Ismail

16. Automated System for Concrete Damage Classification Identification Using Various Classification Techniques in Machine Learning 81
Nur Haziqah binti Mat, Athifa Aisha binti Ahmad Zahida, Siti Nurhaliza binti Abdul Malik, Nur Athirah Syuhada binti Azmadi & Syahrul Fithry bin Senin

17. Automatic Price Scanning System 88
Fahmi Nazreen Zakuan, Anis Diyana Rosli & Nurlida Ismail

18. Al Hijaei V1 94
Yuslina Mohamed, Mesbahul Hoque, Sulaiman Ismail Nurhasma & Muhamad Saad

19. Infographic of Benevolence Practices: Public Sector's Myth or Reality 100
Dr Nor Zaini Zainal Abidin, Azni Syafena Andin Salamat, Syahrini. Shawalludin, Azlan Abdul Rahman & Dr Siti Norfazlina Yusoff

20. BIO-CHEM KIT: Understanding Biogeochemical Cycles 104
Nurul Hidayana Mohd Noor, Shawal Sahid Hamid@Hussain, Mahazril 'Aini Yaacob & Mohd Hafiz Hazwan Hashim

21. Biodegradable and Recycle Husk Mailer from *Cocos nucifera* 110
Anas Firdaus bin Zakaria, Nur Atirah binti Hamzah, Siti Farahin binti Abdull Patah, Wan Zuraida Wan Mohd Zain & Nur' Amira binti Hamid

22. Bunny's Pellet: Natural Mulberry Pellet 114
Nor Dini Rusli, Khairiyah Mat, Hasnita Che Harun, Mohd Mahmud & Syed Muhammad Al-Amsyar Syed Abd. Kadir

23. Cails Paper Wash 120
Aisyah Nur Izzah binti Azhar, Intan Nafissa binti Mohd Jaffri, Loris Anak Noh, Caroline Anak Kiroh & Silverina Anabelle Kibat

24. Capcut 124
Dr Sharifah Shafinaz Sh Abdullah, Nur Afini Azwa binti Roslan, Nur Alya Nabila binti Ashariman, Nur Mazmira binti Mohamad Zuki &Nur Nabila binti Omar

25. Regenerated Kenaf Core Cellulose Hydrogels and Films Prepared via Pre-Cooled Method 128
Adam Khairul Faiz, Muhammad Khairil Hakim Ismail, Hatika Kaco & Mohd Shaiful Sajab

26. Encapsulation of Winged Termites in Cellulose Nanofibre for the Fabrication of Cellulose Bioplastic 134
Syahidatul Nadhilah Shah Lail, Noorul Jannah Aizul Hussin, Hatika Kaco & Mohd Shaiful Sajab

27. Chinese Character Card Game: Learners' Attitudes and Motivation 140
Ting Hie-Ling

28. Coffee Capsule Vending Machine 146
Mohd Sufian Ramli, Siti Sufiah Abd Wahid, Muhammad Hasif Razak & Muhammad Hakimi Md Said

29. Corn-Based Bioplastic as Seedling Bag 151
Nur Nadia Nasir & Siti Amira Othman

30. Coupiers: Course Pre-Registration System 156
Zeti Darleena Eri, Mohd Hanapi Abdul Latif, Mohd Atif Ramlan, Ruhana Jaafar, Sharifah Nurulhikmah Syed Yasin, Hasiah Mohamed & Sarah Yusoff

31. Divorce Protection Takaful 162
Siti Thaqifah Ruzaidy, Siti Adibah Embong, Mohammad Firdaus Mohammad Hatta & Arlinah Abd. Rashid

32. Entrepreneurial Website Project "Www.Businessletter4you.Com" 168
Akmal Syaifudin bin Kaharudin, Siti Zuraina binti Gafar @ Abd Ghaffar & Juritah Misman

33. Early Flash Flood Detection and Avoidance System 174
Muhammad Aidil Aisar Mohd Yatim, Muhammad Khalis Zuhri Izahar, Rohaiza Baharudin & Mohd Hussaini Abbas

34. Ebook: Easy Research For All 180
Sylvia Nabila Azwa Ambad

35. e-Info_JK Formation Committee System for the School of Civil Engineering (Pka) Universiti Teknologi MARA 183
Azlinda Saadon, Musmuliadi Kamaruding, Syahrun Neizam Mohd Dzulkifli, Mazidah Mukri, Noraida Mohd Saim, Dzulaikha Khairuddin & Siti Hamidah Abdull Rahman

36. E-Module *ABRA-Maths* - Early Mathematics Learning viaMini Tennis 189
Rahela Abdul Rahim, Haslinda Ibrahim, Fauziah Baharom, Mohd. Rahizam Abdul Rahim & Syahrul Ridhwan Morazuki

37. Enhanced Microwave Heat Susceptor Crucible 194
Assoc. Prof. Dr. Muhammad Azwadi Sulaiman, Fathin Asila Mohd Pabli, Syifa' Muhamad Sharifuddin, Assoc. Prof. Dr. Julie Juliewatty Mohamed & Dr. Norfadhilah Ibrahim

38. Enhancement of Latent Fingerprint Using Dyed Eggshell Powder 198
Kavitha Rajagopal

39. Product Development - E-Personal Possessions Takaful (e-PPT) 200
Siti Hasnulbariah binti Ahmad Rusmili, Nor Ashikin binti Dal Nia, Dania Carmila binti Said, Mohammad Firdaus bin Mohammad Hatta & Norzanah binti Mat Nor

40. E-Pocket Note: An Interactive Video Learning for Effective Online Teaching and Learning Process 205
Norhayati Zamri, Nor Bahiyah Omar, Norul Akma Mansor, Liyana Ab Rahman & Farah Husna Mohd Fatzel

41. The Clauses SMM2 at Construction Site Board Game For (WBLFF) 210
Roseline anak Ikau, Zafikha Aida Bidin, Syamimi Liyana Amat Rais, Amira Shazlin Adnan & Mohd Khairul Fitri othman

42. e-Voting: Votehere4u 2.0 215
Adib Sarkawi, Aiza Johari, Azlina Bujang & Zainon Haji Bibi

43. IO2TX 220
Dr Sharifah Shafinaz Sh Abdullah, Nur Afini Azwa binti Roslan , Nur Alya Nabila binti Ashariman, Nur Mazmira binti Mohamad Zuki & Nur Nabila binti Omar

44. Waste Segregation through Recycle and Composting Activities among the Community in Urban and Suburban Areas 225
Ts. Dr. Norhafezah binti Kasmuri & SitiNurhafizah binti Abdull Razak

45. Ez-Crutches 2.0: An Innovation of Assistive Device for Disabled Person 231
Suzana binti Yusof, Sharifah Shafinaz binti Sharif Abdullah, Fatimah binti Sham & Norhafizatul Akma binti Shohor

46. Facile-Fabricated Foamed Geopolymer Sphere for Heavy Metal Removal from Wastewater 236
Tan Tee How, Mo Kim Hung, Lai Sai Hin & Ling Tung-Chai

47. Finance and Me (*FinME*) – A Digital Learning Tool 242
Carolin Ann Enchas, Shafinaz Lyana Abu Talib, Fatin Adilah Razali & Norizuandi Ibrahim

48. Fun with Mathematic and Origami: Water Lily Origami 246
Masnira Ramli, Wan Nurul Husna Wan Nordin, Amirah Sa'at & Nurul Fazila Lakasa

49. Fund for Food: A Campus Food Pantry Toolkit to Help Fight Hunger on Campus 252
Nurul Hafizah Mohd Yasin, Nurhaiza Nordin, Nurnaddia Nordin, Nik Noorhazila Nik Mud & Siti Zamanira Mat Zaib

50. Edible Cookie Cup: Cuppa Cookie 257
Raja Nur Hanisah Binti Raja Zainal Alam Shah, Nur Liyana A'tifah Binti Ahmad Jamalulail, Nur Farah Aqilah Binti Mohd Akram, Amera Nazirah Binti Mohd Yusoff & Noorshaadah Binti Omar

51. GTNLARM21 262
Ts. Dr. Sharifah Shafinaz binti Sh Abdullah, Assoc. Prof. Ts. Dr. Zulkifli bin Mohamed , Aisyah Fitriah binti Asmala , Nur Fatihah binti Hanif & Nur Hanisah binti Mahadi

52. Gulali Pandan 267
Amelia binti Zaidan, Ainul Hayati binti Abdull Aziz, Nurul Syamilah binti Ismail, Noristisarah Abd Shattar & Siti Noraisah Dolah

53. Hill Paddy Plough 272
Jasrio Liugan, Sainah binti Melulin, Zurhizainih binti Halledy & 'Umairah Abd Khalid

54. Historic Interior Scheme (HIS) Conservation Framework for Heritage Museum Building in Malaysia 275
Norashikin Abdul Karim, Siti Norlizaiha Harun, Salwa Ayob & Zulkarnain Hazim

55. I-Poket Perumahan: Panduan kepada Newbie 283
Mahazril 'Aini Yaacob, Nurul Hidayana Mohd Noor, Hafizah Hammad Ahmad Khan, Zuraini Yaacob & Farah Amirah Fuad

56. Development of HVAC Virtual Laboratory (HV-Lab Version 1.0) 287
Mohd Faez bin Zainol, Ts. Shikh Ismail Fairus bin Shikh Zakaria & Dr. Muhammad Zulkarnain

57. i-Care2u: Easy-To-Use Application Software to Enhance Knowledge and Awareness of Malaysians towards the Rights of Persons with Disabilities 293
Muhammad Fikri Othman, Nur Ezan Rahmat, Norazlina Abdul Aziz, Nora Abdul Hak & Diyana Kamarudin

58. Immersive Learner's Usability and Experience through VMMBG during Covid-19 Pandemic: An Evidence of a Higher Educational Institution 297
Shahreena Daud, Idris Osman, Zarinah Abu Yazid, Norraeffa Md Taib & Amirudin Mohd Nor

59. VCDT: The Virtual Classroom Debate Tutorial Approach 304
Azlyn Ahmad Zawawi, Junaida Ismail, Irwana Nooridayu Mohd Hakimi Noorayuni Rusli & Intan Syahriza Azizan

60. Indikator Teknik Pengajaran Bahasa Arab di UiTM Menerusi Teknologi 307
Nurul Asma Mazlan, Suhaila Zailani @ Ahmad, Zamri Arifin, Mohd Faizulamri Mohd Saad & Nur Aqilah Norwahi

61. Inquiry-Based Reciprocal Teaching Module 311
Ting Pick Dew, Suyansah Swanto & Vincent Pang

62. Instant Beef Stew 316
Nursyadah binti Nordin, Norhidayah bt Abdullah & Muna Shakirah bt Mohamad

63. Integrated Solar-IoT Monitoring and Predictive Maintenance Systems for Irrigation (S-IoTP) 320
Hasyiya Karimah Adli, Ku Azmie Ku Husin, Khairul Nizar Syazwan Wan Salihin Wong & Muhammad Akmal Remli

64. IOT Based Monitoring System for Oyster Mushroom Farming Pondok Seri Permai Pasir Putih Kelantan 325
Muhd Azhar Bin Zainol, Sh Mohd Firdaus Bin Sh Abdul Nasir, Nor Suhada Binti Abdullah, Koay Mei Hyie, Siti Nur Amalina Binti Mohd Halidi, Hazimi Bin Ismail & Lesairuamin Bin Leiahs

65. IoT Based Water Leakage Monitoring System 334
Muhammad Azfar Shazmi Mohd Adnan & Zulkifli Mohamed

66. i-Tabung 340
Dayang Aniisah Mardhiyyah binti Abg Borhanuddin, Mohamad Nornashriq Irfan bin Nordin, Muhammad Akram bin Nazri, Muhammad Azwar Naim

bin Amilan, Muhammad Fadhillah bin Mohd Zam Zam, Mohd Fazly bin Mohd Razali & Ima Ilyani binti Dato' Hj. Ibrahim

67. Kaedah Pengajaran CHM510: Dari Sudut Pandang Pelajar 343
Sheikh Ahmad Izaddin Sheikh Mohd Ghazali, Nur Nadia Dzulkifli, Nor Monica Ahmad, Jamil bin Mohamed Sapari, Ahmad Husaini Mohamed & Nurul Nadthira binti Che Awang

68. Ke Arah Kelestarian Kebun Komuniti dalam Usaha Menyantuni Golongan B40 348
Intan Syafinaz Mat Shafie, Yuslina Liza Mohd. Yusof , Nor Irvoni Mohd Ishar, Maryam Jameelah Mohd Hashim, Mohd Fairus Kholid, Muhammad Yasin Ramadhan Zahari & Sharidatul Akma Abu Seman

69. Uniquecare Takaful 353
Muhammad Sa'di Bin Mohd Saman, Nur Aimi Binti Abdul Azis, Mohammad Firdaus Bin Mohammad Hatta & Azlina Binti Hanif

70. #Kıtajagakıta: The Manıfestatıon of Modern Jewellery Desıgn 359
Mohd Faiz Jalaludin, Mohd Hakim Mohd Sharif, Adib Mohd Hasan & Muhammad Shafiq Muda

71. Kombu-Feed: A Nutritive & Prophylactic Alternative for Fish Production 363
Ruhil Hayati Hamdan, Tan Li Peng, Nora Faten Afifah Mohamed, Ain Auzureen Mat Zin & Ahmad Syazwan Samsuddin

72. Kriging Interpolated Rainfall Data in ArcGIS for a Sustainable Flood Modelling Prediction 368
Fahda Nurhani Ahmad Razan, Nur Fatin Nasuha Mhd Khatif & Ir. Nur Azwa Muhamad Bashar

73. Kuasai Rintas: Penulisan Ringkasan Bahasa Melayu Yang Lengkap 373
Gladys Sebi binti Entigar, Noor Haty binti Noor Azam, Milfadzhilah binti Mohd Jamil, Roziana binti Ahmed
& Nur Elimtiaz bin Abidin

74. Landscape Architecture Design Studio-Based Using Process-Evaluation Model in Open Distance Learning 378
Masbiha Mat Isa, Alamah Misni & Faridatul Akma Ab Latif

75. LiBCO 382
Noryana binti Ahmad Khusaini, Nur Hasni binti Nasrudin, Mohd Shamsul bin Daud, Noraini binti Abd Rahman, Rosida binti Ahmad Junid & Siti Fairuz binti Ibrahim

76. Limit of Acceptable Change and Recreation Opportunity Spectrum as a Tool in Developing a Management Plan. A Study in Templer Forest Eco Park & Templer Forest Reserve 388

Syahidah Hanani Hamdan, Nur Sabrina Sabri, Muhammad Hazim Zakaria, Khairul Asri, Syanizatul Izreen Kamal, Nor Asma Safuraa Roslan, Ely Rouzee Jamaluddin & Nawfal Kamarul Bahrain

77. Tweet It! Esl Writing Activity Module Using Twitter 393
Nurshahirah Azman & Zaemah Abd Kadir

78. Malaysian Secondary Boarding School Menu Planning System 399
Suliadi F. Sufahani & Anuar M. Yusof

79. Malaysian Studies Pocket Read 405
Ani Juaini Bahrin, Farhana Yaakub, Firdausi Sufian (Dr), Nurfaizah Abbdullah & Saiful Zizi Jalil

80. Mathematical Thinking Enhancement Program (MaTh-EP) 410
Nurul Akmal Md Nasir, Parmjit Singh & Geethanjali Narayanan

81. Medicine Reminder With Low Battery Alert *"MEDMINDER"* 418
Syahirah Asyiqin Binti Alias, Luqman Hakim Bin Fazilah Shuhaimi, Khairin Farhana Binti Kharul Anuar,Muhammad Firdaus Bin Mangsor & Suhana Sulaiman

82. Meow-Meow Food Dispenser Using Internet of Things (IOT) Programme 424
Nor Diyana Md Sin, Saifaris Azizi Saiful Azam, Muhamad Danial Osman, Mohamad Zhafran Hussin, Norbaiti Sidik, Khairul Kamarudin Hasan

83. Mesin Penapis Turpentin 429
Turpentine Filter Machine (TFM)
Hairulnisak binti Merman, Muhammad Salehuddin bin Zakaria, Aiman Yusri bin Mohamad Yusoff, Aimi Atikah binti Roslan & Azian binti Tahir

84. Mind Your Right Booklet: Awareness on Cyber Defamation Law & Media 434
Suria Fadhillah Md Pauzi, Musramaini Mustapha, Azniza Ahmad Zaini, Suhanom Mohd Zaki & Mohd Aidil Riduan Awang Kader

85. Modelling the Effectiveness of Using Online Food Delivery Services Apps Among Customers in Klang Valley During Covid-19 Pandemic 440
Prof Madya. Dr Rozita Naina Mohamed, Mohd Saifullah Bin Rusli & Prof.Madya. Dr.Halimahton Borhan

86. The Innovation Process Modelling for Ethanol Gas Sensing Using Artificial Neural Network 447
Muhammad Afiq Wazini bin Jemani, Vicinisvarri Inderan, Syahrul Fithry bin Senin, Norain Binti Isa & Lee Hooi Ling

87. The Effectiveness of i-Lab v2 as a Teaching Tool for Online Distance Learning 453
Nur Zaidani Wati binti Mohd Darwis, Noor Raifana binti Ab Rahim, Narita binti Noh & Juwita binti Asfar

88. My Ecredit Banking Apps (MECBA) V3 459
Wan Razazila Wan Abdullah (Dr), Enny Nurdin Sutan Maruhun (Dr), Norzarina Nordin, Sunarti Halid & Ahmad Saiful Azlin Puteh Salin (Prof. Madya Dr)

89. The Dynamics of MILO (Multimedia Interactive Learning Online) in Role Playing: Enhancing the Learning Process in Covid-19 Pandemic 464
Woo Pak Yuan, Nina Farisha binti Isa & Ezwani Azmi

90. The Continuance of External Review InformationSystem Adoption In Malaysia 470
Mohd Norafizal Abd Aziz, Razulaimi Razali, Nik Rosli Abdullah & Shahrul Azam Abdullah

91. Understanding Islamic Finance Concepts through Innovative Game: Name The Riba Transaction! 479
Azilawati Banchit, Puteri Faida Alya Zainuddin & Lai Tze Wee

92. Natmag Cleaner (Natural Magnificent Cleaner) 484
Hani Hasriena binti Hasrin, Muhammad Firdaus bin Ahmad Nizam, Nur Amalin Batrisya binti Ujud, Deeny Robeatul Adawiyah binti Khairul Anuar & Norzalina binti Jenal

93. New Fundamental Theory in Solving the Royalty Payment Problem 489
Wan Noor Afifah binti Wan Ahmad & Suliadi Firdaus bin Sufahani

94. Notebookly (A Pageless Notebook) 492
Aimi Natasha binti Rujha, Amani binti Mohamad Soree Awankasim, Muhammad Faiz bin Abdul Hamid & Nur Dania Syahirah binti Mohd Asri

95. Nutritious Digital Menu System for Malaysian Religious Primary School Children: Improving Good Memories 495
Azila M. Sudin, Suliadi F. Sufahani & Mohd A.A. Abdullah

96. Online Games for Learning Lewis Structure 501
Wan Elina Faradilla Wan Khalid, Tuan Sarifah Aini Syed Ahmad, Nor Akmalazura Jani, Rohaiza Saat & Nurazira Mohd Nor

97. Optimal Charging Schedule of Electric Vehicles Using Evolutionary Programming to Minimise Costs 506
Hasmaini Mohamad, Norhasniza Md Razali, Ahmad Farid Abidin, Nur Ashida Salim & Zuhaila Mat Yasin

98. The Smart Attendance of Microsoft Team (SAMT 2021) in an Online Learning Classroom 511
Wan Normila Mohamad & Zahari bin Md Rodzi

99. Penelitian Terhadap Kepelbagaian Fungsi Bandar Kecil Terhadap Penduduk Setempat di Gemas, Negeri Sembilan 521
Natasya Farhana Nazry, Jabil Mapjabil & Farzanna Yashera Abdulla

100. Penentuan Kaedah Mengukur Kesanggupan Untuk Membayar (WTP) Dalam Pelancongan 525
Nabila Farysha Dering & Jabil Mapjabil

101. Penentuan Kecenderungan Tingkah Laku Pelancong yang Berkunjung ke Kota Kinabalu – Psikosentrik dan Alosentrik 531
Farzanna Yashera Abdulla , Jabil Mapjabil & Natasya Farhana Nazry

102. Penentuan Kuasa Beli Pengunjung terhadap Perkhidmatan Pelancongan Terpilih di Bandaraya Kota Kinabalu, Sabah 535
Nurul Izzah Ismail & Jabil Mapjabil

103. The Artificial Neuron Network for Photocatalytic Degradation of Acid Orange 7 Using Cerium Oxide (CeO_2) 539
Wan Nur'ain Awanis binti Wan Sa'ari, Vicinisvarri Inderan, Syahrul Fithry bin Senin & Nur Fadzeelah Abu Kassim

104. Perception of Digital Reading Material for Academic Purposes among UMK Undergraduates 544
Noor Syamimie Mohd Nawi, Lena Ramamurthy, Syakirah Shafien, Suhaida Omar & Nik Ahmad Farhan bin Nik Azim

105. Perception of Language Awareness through Framegram: A Classroom Example 548
Nik Ahmad Farhan bin Azim @ Nik Azim, Lena A/P Ramamurthy, Syakirah binti Shafien, Noor Syamimie binti Mohd Nawi & Shahidatul Maslina binti Mat So'od

106. Perkasa @ Aps : Solusi kepada Kerapuhan Keluargayang Mempunyai Anak Cerebral Palsy 552
Wan Rohila Ganti binti Wan Abdul Ghapar, Muhamad Fazil Ahmad, Norhashimah Yahya & Rahaya Mat Jamin

107. Poket Peka Undang-Undang Dilettante V2:Pemberhentian Kerja 556
Suria Fadhillah Md Pauzi, Muhammad Asyraf Azni, Suriyati Ujang, Azniza Ahmad Zaini & Ida Rosnita Ismail

108. Power Generation Using Thermoelectric Power Generator with Parabolic Solar Concentrator 562
Aneurin Nanggar anak Nyandang, Ir. Dr. Ts. Baljit Singh A/L Bhathal Singh & Dr. Muhammad Fairuz bin Remeli

109. Prediction of Nanostructure of SnO_2 Properties Using Artificial Neural Networks 565
Khadijah binti Mohd Suhami, Vicinisvarri Inderan, Syahrul Fithry bin Senin & Lee Hooi Ling

110. Product Development - e-Ta'awun PA Takaful+ 570
Mohd Faizan bin Mohd Afandi, Norazrisham bin Shamsuddin ,Muhamad Izmul Nizam bin Zubairi , Mohammad Firdaus bin Mohammad Hatta & Mohamad Nizam bin Jaafar

111. Promoting Malayan Emergency State by Using Gaming Platform as An Illustrative Medium 577
Mohammad Nor bin Anwar Hussin

112. ProTecME 583
Rosuzeita Fauzi, Syazwan Firdaus Abu Bakar, Roslinda Isa, Siti Nor Ismalina Isa, Diana Tasha Mohd Nazeri

113. Protein as the Building Blocks of Life 587
Rania Farzana binti Azmi, Azleen Nurkarmilya binti Azami , Nur Shafinaz binti Mohamad Salin & Wan Mazlina Md Saad, PhD

114. Pull Up Crisp Container 589
Mohamad Firdaus bin Shaari , Kamarul Asyraf bin Shamsudin & Nurul Fatihah binti Mohamad Azmi

115. RE Protect-i 592
Mohd Azeem bin Ahmad Zaini, Farid Akmal bin Fadzli, Mohd Saiful Izzat bin Mat Zahari, Wahida binti Ahmad & Mohammad Firdaus Mohammad Hatta

116. ReProDB Web Application (Research Project Database) 598
Jennifah Nordin, Afida Arapa , Ibianaflorinciliana Niane Anthony Aning & Intan Syahriza Azizan

117. Rizbrunana: Advances in High-Fibre Biscuit Using Brown Rice and Banana Peel 609
Nurul Hafizah Mohd Yasin, Derweanna Bah Simpong, Nur Farihin binti Abd Hadi Khan & Mazne Ibrahim

118. Ready-To-Bake (RTB) Cookie Dough 615
Muna Shakirah Bt Mohamad, Norhidayah Bt Abdullah & Nursyadah Bt Nordin

119. RTGreennmFUND: Sejauhmanakah Keberkesanannya dalam Pengurusan Dana Ruang Terbuka Hijau Bandar 618
Nabilaa Mohamed, Thenmolli Vadeveloo, Zarina Mohd Zain & Roni Ekha Putera

120. TCD (Table Connector Design) 622
Ramlan Mustapha, Maziah Mahmud, Surita Hartini Mat Hassan, Siti Norma Aisyah Malkan & Nurul Hidayah Che Hassan

121. Self-Practice Ringkasan (SPRing): An Innovative Mobile Apps for Self-Practice 629
Asmahani Mahdi, Zubaidah Bohari, Abdul Hadi Abdul Talip, Nurul Lizzan Kamarudin & Zainon Haji Bibi

122. Revitalising Heritage Shophouses of Kota Bharu Kelantan 633
Yasmin Mohd Faudzi, Najah Md Alwi, Nor Hafizah Anuar, Juliza Mohamad & Nik Nurul Hana Hanafi

123. Smart 3-Wheel Bike "Empower Disabled Entrepreneurs With Technology" 638
Nurnaddia Nordin, Nurhaiza Nordin & Nur Ilyana Amiira Nordin

124. Takaful Sinar Ihsan Plus 642
Nur Adibah binti Ab Aziry, Erlyn Marlina binti A.Rahman, Nurul Izzaty binti Mohamad Ridzuan & Mohammad Firdaus Mohammad Hatta

125. Smart Keychain 648
Mohd Hifadzly bin Husrin, Adeylson Ray Douni, Muhammad Azlan bin Moh Sali & Edrin Rosley

126. Secured Multi Door Access System as A Web Application 652
Nor Shamshillah Kamarzaman, Norhayati Abdul Jamil, Noraliza Azizan, Jaaz Suhaiza Jaafar & Muhamad Syafiq Ahmad Nazri

127. Standard of Care Framework for Occupier During Pandemic Covid-19 (SOCO): A Facilitation for Understanding Law Relating to Tourism Industry 657
Mohamad Sahizam Musa, Suria Fadhillah Md Pauzi, Shamsinar Abdul Rahman, Mohd Azim Zainal & Ida Rosnita Ismail

128. Development Of Sound System Level Tools "SoQMeT" 664
Muhammad Danial bin Abu Hanafiah, Muhammad Aleef bin Mohamad Yaziz, Muhammad Aiqal bin Mohd Sazali, Adhilla binti Ainun Musir, Nurulzatushima binti Abdul Karim & Daliah binti Hasan

129. Stackable Pinewood Pallet Storage Keeper (SPPiKe) 670
Nurrohana Ahmad, Hazlin Hasan, Sharifah Norhuda Syed Wahid, Mohd Aidil Riduan Awang Kader & Mastura Mohamad

130. Sustainable Hybrid G-W Filter 676
Nur Fatin Nasuha Mhd Khatif, Fahda Nurhani Ahmad Razan, Ir. Nur Azwa Muhamad Bashar & Nurakmal Hamzah

131. Takaphone Takaful 681
Muhammad Waizzulhakim bin Othamannor, Mohd Mazwan bin Mohd Jamil, Mohammad Firdaus bin Mohammad Hatta & Sharifah Faigah binti Syed Alwi

132. Stay@Rural Application 686
Muhammad Faezzul Farhan bin Yazid, Muhammad Hakim Zulqarnain bin Ajis, Mohamad Sazlyzam bin Ledei Dawin@Salim Dawin, Mohd Ashnawi bin Ab Gani & Dr. Spencer Hedley Mogindol

133. Sajadah Pillow 689
Nor Asyiqin Nadhirah binti Roslee Afendi, Sharifah Hafiza binti Abu Bakar, Nur Khaleqa Izzah binti Ikmal Hisam & Siti Hajar binti Md Shahar

134. Pepper Casenitizer 693
Nurfatihah Syahirah binti Zaidi Rahimy, Syahira Nisha Nabila binti Mohamad Shahril, Muhammad Afiq Syahmi bin Rosli, Nur Wani Syamimi binti Yaman & Alvin Gatu

135. My_Watch - Changing the Way We Use Watches 699
Nur Athilla binti Alimin, Nur Hadirah Faqihah binti Zainudin, Siti Nadiah Afiqah binti Suhairi, Joseph Joshua Rumpungan Jr & Adrianna binti Aziz

136. Myeco Application 704
Izz Fitri bin Hairul Sham, Nur Syahirah binti Dzulkarnain , Rosseryn Soubin Lonsiong & Siti Zuraini binti Ramley Alan

137. Multipurpose Pushcart 709
Farah Adlyna Yeoh , Noor Zizy Ameleena binti Jailani , Nur Amiratul Atiqah binti Nur Azli Yaacob & Sairah Saien

138. Multipurpose Handle Stabilizer – To Help You Handle Your Life 714
Nur Athilla binti Alimin, Nur Hadirah Faqihah binti Zainudin, Siti Nadiah Afiqah binti Suhairi, Joseph Joshua Rumpungan Jr & Adrianna Aziz

139. The Travel Amenity Pod 719
Wan Nuramalin binti Wan Hussin, Nur Alissya binti Nazri,Muhammad Takbir bin Arifuddin & Ahmad Fareez bin Yahya

140. Toothbrush 2-In-1 724
Alice Evana Anak Robert, Latijah Obaun, Staffy Stephen & Christy Bidder

141. Torch Bottle 727
Muhammad Shazwan Puzi, Farzana Suaidah binti Suzaini, Nurul Aina Balqis binti Mohd Khairul Anuar & Nur Murniza binti Mohd Zaidi

142. Tourism Application - Touch 731
Siti Hafizah binti Dzulkarnain, Amira Naqiyyah binti Mustaffa Ma'arof , Nursyahidah binti Hamzah, Nur Hidayah binti Mohammad Hazlan & Boyd Sun Fatt

143. Locallah 736
Muhammad Faliq Aizat M.Amran, Nazmeen Fatima binti Istekhar Ahmad, Nur Izzati Nabilah binti Alias, Adriana binti Mohamad Faizal & Mohd Arsy Ardy bin Mohd Hardy

144. Ez-Train Mobile App 741
Siti Aishah binti Sha'ari, Alirah Itor, Muhammad Faizzudin bin Mohd Shukor, Nur Hazeera binti Madehie & Nurafiqah binti Mohamad Musa

145. Eventgo 747
Cassandra Grace anak Hamarah, Nazira Farahin binti Nazarudin, Venessa Kumang Amen anak Victor Luna & Cindy Johnny

146. Duo-Bottle 752
Maybelyna Deborah Dick, Nurashikin Binti Hamzah, Jacqueline Henry & Nurafiqah Binti Mohamad Musa

147. 4 In 1 Safety Kit 755
Nur Maisarah Afiqah binti Mazlan, Aina Afriena binti Afandi, Aida Najihah binti A.Lukman, Muhammad Irfan bin Mazlan & Nur Murniza binti Mohd Zaidi

148. Augmented Reality Design: The Study of Property Development Marketing Tools 761
Norzaful Anuwar bin Ahmad Najamuddin

149. SMART Hygiene Kit 765
Dg Kamisah Ag Budin, Jasmine Vivienne Andrew, Faiqah Mawardi, Mohammad Firdaus bin Mohamad & Dayang Haryani Diana Ag Damit

RIZBRUNANA: ADVANCES IN HIGH-FIBRE BISCUIT USING BROWN RICE AND BANANA PEEL

Nurul Hafizah Mohd Yasin
Faculty of Hospitality, Tourism and Wellness, Universiti Malaysia Kelantan
hafizah.my@umk.edu.my

Derweanna Bah Simpong
Faculty of Hospitality, Tourism and Wellness, Universiti Malaysia Kelantan
derweanna@umk.edu.my

Nur Farihin binti Abd Hadi Khan
Faculty of Hospitality, Tourism and Wellness, Universiti Malaysia Kelantan
farihin.ah@umk.edu.my

Mazne Ibrahim
Faculty of Hospitality, Tourism and Wellness, Universiti Malaysia Kelantan
mazne@umk.edu.my

ABSTRACT
The consumption of brown rice is limited among Malaysians. This study was conducted to develop a product of high-fiber brown rice biscuits made from Saba' banana peel flour. Out of the eight formulations developed, hedonic scale sensory test results showed samples of F6 formulation with a combination of brown rice flour (31.5%) and 13.5% banana peel flour. F6 had the highest mean value for each attribute examined and significant differences ($p < 0.05$) were observed in regard to the colour, aroma and appearance of the biscuits. The results of the proximate test analysis shows high fiber brown rice and banana peel flour biscuits contains 92 ± 0.07% moisture, 2.10 ± 0.27% ash, 9.23 ± 0.34% protein, 18.98 ± 1.62% fat, 6:42 ± 0.05% crude fiber, 7:53 ± 0.00% dietary fiber content and 60.16 ± 1.67% carbohydrate and the amount of energy supplied was 463.44 kcal per 100g. Brown ricewith banana peel flour biscuits are expected to have a storage life span of more than 8 weeks. Finally, the consumer tests showed that this biscuits product has good potential to be commercialized from the positive response of 77% of respondents said they would buy these biscuits if they are available in the market.

Keywords: Product Development, Brown Rice, Banana, Formulation, High-Fiber

INTRODUCTION

The food industry is now primarily concerned with functional food ingredients that are high in fiber. In this light, the development of this product is sparked by the awareness on the importance and benefits of dietary fiber contents of food products available in the current market. Dietary fibers have been shown to have many health benefits. For instance, it can improve the function of the digestive system and are able to reduce the risk of many chronic diseases such as cancer, diabetes and heart disease (Cui & Robert, 2009). According to the American Dietetic Association (ADA), the proposed dietary fiber intake for adults is 20g to 35g/1000 Kcal for Americans. Meanwhile, the recommendations for fiber intakes among Malaysians are 20g to 30g per day for all ages. However, 77% these populations failed to achieve the recommended average intake; Americans were found to take about 14g to 15g dietary fiber per day, while Malaysians consumed 13g to 16g per day. These figures are

lower than the proposed recommendations (Ng et al., 2010).

Rice is an example of high-fiber cereals. There are more than 40,000 varieties of rice grown around the world. Rice is the staple food in Malaysia and white rice is commonly consumed. On the other hand, brown rice is rarely consumed because of its dreadful tastes and takes longer time to cook compared to white rice. However, brown rice has gained its popularity in recent years due to its health benefits, brown rice is recognized for its food value content and its potential as a source of antioxidants, anti-carcinogenic and others (Paretti et al., 2002).

Bananas are one of the foods with high fiber contents. They also have high nutritional values. Banana is easily reproduced at an optimal temperature of 27^{O}C, easily grown and available in tropical Malaysia and could be bought at low prices. However, the high consumption of bananas also caused an increase byproduct of banana peel wastes. High amount of waste has been giving problems to the disposal system of this material without affecting the environment (Emaga et al., 2008). There are various studies conducted regarding the use of other waste products that has been utilized into marketable products, and reported that mostof these waste materials contain greater nutritional value than its fruits and vegetables. A study by Emega et al. (2008), found that 50% of the fiber in bananas are contained in the banana peel. Production of flour from banana peel is able to address the issues of minimizing food waste disposal and maximizing the use of natural resources. Therefore, this issue also provides an opportunity for researchers to develop a product that could solve this problem.

METHODOLOGY

The main raw materials in the production of the high-fiber biscuits are brown rice and banana peels. These materials were locally sourced where the brown rice bought from local market and the bananas peel which are Saba' Banana type were collected from fried banana stall.

Processing of High-Fiber Brown Rice Biscuit and Banana Peel Flour Mixes

To ensure the quality of biscuits produced, brown rice flour and banana peel flour were sifted to remove the impurities. Each ingredient including the brown sugar, baking powder and butter, was weighed respectively. Then, the granulated sugar, baking powder, egg yolks and butter were put into the mixer and mixed thoroughly until they become smooth. Brown rice flour and banana peel flour were added into the dough. The dough was refrigerated for 20 minutes, then, it was shaped and divided into portions weighting 10.0± 0.5g for each dough. The doughs were then baked in the oven with a temperature of 170 ± 5°C for 20 minutes. Thecooled biscuits were wrapped with plastic polypropylene (PP).

Product Formulation of High-Fiber Brown Rice with Banana Peel Flour Mixed

The basic formulation was modified from flour, brown sugar, butter and made into 8 new formulations using experimental design factorial 4 x 2 where 4 levels of the ratio of brown rice flour and banana peel flour and 2 levels of the ratio of brown sugar and butter. Based on the basic formulation by Nagao (2001), the ratio of butter and brown sugar is 2:2. The formulation developed in the initial test was changed based on the results obtained in all three best formulations with the butter and brown sugar ratio of 3:2. Thus, the ratio of butter and brown sugar formulations developed for the next test using the formulations with the butter and brown sugar ratio of 3:2 and 2:3 to test the formulation that will be most accepted by the expert panel. These formulations were modified to obtain the taste and texture to suit the developed product.

Selection of Best Formulations

Sensory evaluation test used to select the best formulation of the eight formulations available are ranking tests and hedonic test. The tests were conducted to select three out of eight formulations that were produced based on the overall level of acceptance of the expert panel towards brown rice biscuits produced. A total of 42 member panel members, consisting of students of School of Food Science and Nutrition, Universiti Malaysia Sabah were chosen to carry out this test. The panel members were served with samples of high-fiber biscuits along with plain water, and were given the sensory test evaluation form. Three samples that scored the lowest amount of the composition, and those with significant difference were selected to undergo the Hedonic Test.

Proximate Analysis

A proximate analysis of the biscuits was conducted to determine the content of protein, crude fiber, moisture, ash, fat and carbohydrates. In this study, the proximate analysis conducted on a sample of the best formulation using AOAC method (2000) to determine moisture content, ash, protein, fat and crude fiber. The carbohydrate content was calculated based on the difference between the amount of water, protein, fat and ash at 100 (Nielsen, 2003).

Shelf Life Study

Samples of high-fiber brown rice with banana peel biscuits that have the best formulation undergone the shelf life study. The resulting sample was packaged using Polipropena Plastic (PP) and kept at room temperature until the end of the storage period of eight weeks. Microbiological, physicochemical and sensory (paired comparison test) tests performed every two weeks during the storage period.

FINDINGS

Sensory Evaluation Test

Ranking tests were carried out on eight biscuit formulations, which were divided into three sessions. Each session consists of four sample formulations. The data obtained from the ranking test using BIB designs were analyzed using Friedman test to get the T value on the degree of accuracy and the level of differences of 5% to determine significant differences between the data obtained. It was found that there was no significant difference ($p > 0.05$) between F6 samples and other samples. However, there were significant differences ($p < 0.05$) between samples F8 and F4 and also between samples F2 and F5 and F7 and F1. No significant difference ($p > 0.05$) between F3 samples and other samples. Samples 6, 8, 4 and 2which had the same amount of sugar content of 52.5% and a little more butter content of 47.5% were the most popular among respondents.

Three samples which had the lowest amount of the composition, as well as showing a significant degree of difference are sample 6, 8 and 4. These samples were selected to undergo Hedonic Test. Sample 6 was the sample that has the lowest score among respondents; this sample had the second largest banana peel content, which is 13.5% while the ratio of butter and sugar content was 2:3. In conclusion, majority of the respondents favoured the formulation containing a moderate amount of banana peel flour (7:3), and followed by formulation with the highest ratio of banana peel content (6:4).

Hedonic Test

Three best formulations of sample F4, F6 and F8 were selected to undergo Hedonic Test. Table 1 shows the results obtained from one-way ANOVA analysis for the Hedonic Test. Based on the results of sensory evaluation, the F6 formulation is the most accepted formulation by the panelists in all attributes tested and there were significant differences ($p < 0.05$) exists in every attribute tested. This means that there are significances in each attribute.

Table 1: The mean scores for all attributes tested for three samples

Attribute \ Sample	F4	F6	F8
Colour	$4.98^{b}\pm0.95$	$5.65^{c}\pm0.80$	$4.15^{a}\pm0.74$
Crunchiness	$4.83^{a}\pm0.64$	$5.85^{b}\pm0.77$	$4.03^{c}\pm0.66$
Aroma	$4.95^{ab}\pm0.99$	$5.25^{b}\pm0.90$	$4.75^{a}\pm0.81$
Taste	$5.28^{a}\pm0.96$	$5.45^{b}\pm0.75$	$4.25^{b}\pm0.90$
Shape	$4.73^{a}\pm0.64$	$5.43^{b}\pm0.55$	$5.18^{b}\pm0.78$
Overall Acceptance	$5.30^{b}\pm0.99$	$5.53^{b}\pm0.64$	$4.43^{a}\pm0.87$

1. The overall acceptability attribute using a hedonic Likert scale of 7 where 1 representsthe very least preferred and 7 represents the most preferred.
2. Letter of the same on the same line did not show any significant difference ($p > 0.05$)between samples ofthe same attributes.

Proximate Analysis

The proximate analysis was conducted on the best formulation of high-fiber brown rice biscuits (Sample F6). The results of the proximate test analysis shows high fiber brown rice and banana peel flour biscuits contains 92 ± 0.07% moisture, 2.10 ± 0.27% ash, 9.23 ± 0.34% protein, 18.98 ± 1.62% fat, 6:42 ± 0.05% crude fiber, 7:53 ± 0.00% dietary fiber content and 60.16 ± 1.67% carbohydrate.

Energy Content

The energy content of the biscuits were calculated by adding the amount of energy in carbohydrates, protein, fat and dietary fiber. The amount of fat, protein, carbohydrate and total dietary fiber obtained are shown in Table 2 below.

Table 2: Nutrition information per serving

Nutrition	100g	Serving size (10g)
Energy (kcal)	463.40	46.34
Protein (g)	9.23	0.92
Fat (g)	18.98	1.90
Carbohydrate (g)	60.16	6.02

Dietary Fibre (g)	7.53	0.75

According to Table 2, the amount of energy supplied by the biscuit is 463.44 kcal where the energy is derived mostly from carbohydrate composition of 15.05 kcal and other nutritional content; 170.82 kcal of fat, 36.92 kcal of protein and 15.06 kcal of dietary fiber. The amount of energy supplied per serving is 46.34 kcal for each serving 10g biscuit.

Storage Quality Study

The storage quality study for high-fiber brown rice with banana peel flour biscuits was carried out for 8 weeks. Throughout this study, these biscuits were packed in polipropena plastic (PP) and stored at room temperature. In this study, physicochemical analysis, microbiological test and sensory evaluation tests were conducted on the biscuits during storage period.

Consumer Test

Finally, the consumer tests showed that this biscuits product has good potential to be commercialized from the positive response of 77% of respondents said they would buy these biscuits if they were available in the market.

CONCLUSION

The study has successfully produced high-fiber brown rice and banana peel flour biscuits. However, a better research output is desirable and further improvement of the formulation could be made. The production process of the banana peel flour should also be reviewed so that the process is simpler and suitable for a larger scale production. Method of producing banana peel flour should be studied so that the final result will have appealing colour to attract potential consumers. This study could be replicated using different types of banana to determine the best type of banana that can be used to produce banana peel flour.

REFERENCES

Cui, S. W. & Roberts, K. T. 2009. *Dietary Fiber: Fulfilling the Promise of Added-Value Formulations.*Canada: Elsevier Inc.

Emaga, T. H., Robert, C. H., Se´bastien, A., Ronkar, A., Wathelet, B., & Michel, P . 2008. Dietary fibre components and pectin chemical features of peels during ripening in bananaand plantain varieties. *Bioresource Technology*. 99: 4346–4354.

Nagao, S. 2001. *Japanese Snack Foods*. Snack Food Processing. United State: CRC Press.
Ng, T. K., Jr Chow, S. S., Chan, L. P., Lee, C. Y., & Lim, S. Q. 2010. Recommended nutrient intake for dietary fibre: Bar set too high for Malaysians? *Malays J Nutr.* 16(2):271-80.

Nielsen, S. S. 2003. *Food Analysis*. 3rd Edition. United States of America : Kluwer Academic.
Perretti, G., Miniati, E., Montanari, L. & Fantozzi, P. 2002. Improving the value of

rice by-products bySFE. *Journal of Supercritical Fluid.* 26: 63–71.

Ng, T.K Jr, Chow SS, Chan LP, Lee CY, Lim SQ. 2010.Recommended nutrient intake for dietary fibre: bar set too high for Malaysians? Malays J Nutr. 16(2):271-80.

UNIVERSITI TEKNOLOGI MARA
Cawangan Kedah
Kampus Sungai Petani

Faculty of Administrative Science and Policy Studies

i-SPiKE 2021

INTERNATIONAL EXHIBITION & SYMPOSIUM ON PRODUCTIVITY, INNOVATION, KNOWLEDGE & EDUCATION

Leading An Artificial Innovation In Knowledge, Education And Design

e ISBN 978-967-2948-20-9

9 789672 948209