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ISNFF 2017

The 10th International Conference and Exhibition on Nutraceuticals & Functional Foods

Platform for Foods, Nutrition and Medical Science

October 22 - 25, 2017 / GSCO, Gunsan, Jeonbuk, Korea

Abstract Book

Organized by



International Society for Nutraceuticals and Functional Foods (ISNFF)

Co-Organized by



Korea Food Industry Promotion Forum (KFIPF)



Rural Development Administration (RDA)



Korea National Food Cluster (FOODPOLIS)



Korean Society of Food Science and Technology (KoSFoST)



Microbial Institute for Fermentation Industry (MIFI)



Jeonbuk Institute for Food-Bioindustry (JIF)



Clinical Trial Center for Functional Foods (CTCF2) of Chonbuk National University Hospital



Cereal Grains/Legumes/Nuts

Room D

October 25 (Wed), 2017 || 10:50~12:30

Chair : Cesarettin Alasalvar (TÜBİTAK Marmara Research Center, Turkey)

- O178.** | Isolation of Bioactive Polysaccharides from *Lupinus Albus* (White Lupin) and Their Structural Characterisation
10:50~11:15 | Solomon Rajesh Thambiraj, Michael Phillips, Sundar Rao Koyyalamudi, and Narsimha Reddy (School of Science and Health, Parramatta Campus, University of Western Sydney, Australia)
- O179.** | Polyphenol Profiles of Turkish Hazelnut Samples (Natural, Roasted, and Roasted Hazelnut Skin)
11:15~11:40
Invited | Ebru Pelvan¹, Elmas Öktem Olgun², Ayşe Karadağ¹, and Cesarettin Alasalvar¹ (¹TÜBİTAK Marmara Research Center, Food Institute, Turkey, ²TÜBİTAK Marmara Research Center, Environment and Cleaner Production Institute, Turkey)
- O180.** | The Effect of Gelatinization Temperature on Physicochemical and Sensory Properties of Functional Analog Rice
11:40~12:05 | Satrijo Saloko, Sri Widyastuti, Muktasam Rumiya, Agung Endro Nugroho, Yudi Pranoto, Yekti Asih Purwestri, Dody Handito, and Haliluddin (Faculty of Food Technology and Agroindustry, Mataram University, Indonesia)
- O181.** | Functional Analog Rice Based on Corn, Modified Cassava, Lebei Pea, and Seaweed and Their Potential Health Benefits
12:05~12:30 | Rumiya¹, Agung Endro Nugroho¹, Yudi Pranoto², Yekti Asih Purwestri³, Satrijo Saloko⁴, Sri Widyastuti⁴, Muktasam⁵, Muhammad Luqman Al Hakim², Sisca Diani Rosalina², and Thira Aziza² (¹Faculty of Pharmacy, Universitas Gadjah Mada, Indonesia, ²Department of Food and Agricultural Product Technology, Faculty of Agricultural Technology, Universitas Gadjah Mada, Indonesia, ³Faculty of Biology, Universitas Gadjah Mada, Indonesia, ⁴Faculty of Food Technology and Agroindustry, Mataram University, Indonesia, ⁵Department of Socio Economic, Faculty of Agriculture, Mataram University, Indonesia)

O178

Isolation of Bioactive Polysaccharides from *Lupinus Albus* (White Lupin) and Their Structural Characterisation

Solomon Rajesh Thambiraj, Michael Phillips, Sundar Rao Koyyalamudi, and Narsimha Reddy

School of Science and Health, Parramatta Campus, University of Western Sydney, Australia

Lupinus albus L (white lupin) is a rotational crop used to fix nitrogen in cereal fields. Lupin seeds have good nutritional profile that has not been fully exploited. In this study, water-soluble polysaccharides were extracted from the whole seeds of white lupin, purified by size exclusion chromatography and a spectrum of their biological activities investigated. Two isolated polysaccharide fractions WLP-1 and WLP-2 have displayed highly significant radical scavenging, iron chelating, immunostimulatory and prebiotic activities. These activities of WLP-1 and WLP-2 showed good correlation to their galactose contents. FT-IR and NMR spectroscopic characterisation revealed that the WLPs contain galactans and galactomannans with β - (1, 4) glycosidic linkage in their main chain. The side chain Galp of galactomannan is linked to the main chain by α - (1, 6) glycosidic bond. The results presented in this paper strongly suggest that the white lupin polysaccharides possess great potential as nutraceutical and functional agents.

O180

The Effect of Gelatinization Temperature on Physicochemical and Sensory Properties of Functional Analog Rice

Satrijo Saloko, Sri Widyastuti, Muktasam Rumiati, Agung Endro Nugroho, Yudi Pranoto, Yekti Asih Purwestri, Dody Handito, and Haliluddin

Faculty of Food Technology and Agroindustry, Mataram University, Indonesia

The aimed of this research was to know the effects of gelatinization temperature treatment on the quality of physicochemical and sensory properties of functional analog rice with the formula ingredients 45% mocaf; 45% corn flour; 9% pigeon pea flour and 1% flour of seaweed. This research used single factor experimental method with three replications. The treatments were T1=60°C; T2=70°C; T3=80°C; T4=90°C; T5=100°C and T6=110°C. Gelatinization temperature had significant effect on moisture content, protein, carbohydrate, fat, bulk density, a thousand weight grain and color. T2 treatment (gelatinization with Temperature 70°C) was recommended as the best treatment on moisture (9,365%), protein (9,245%), carbohydrate (79,997%), fat (0.633%), ash (0.76%), color (value L* 33,603), °Hue (23,888). Sensory score gave color with criteria like (3.55), flavor criteria like slightly (3.15), Descriptive color with criteria brownish yellow (1.67) and descriptive flavor with criteria smell slightly (2.93).

O179

Polyphenol Profiles of Turkish Hazelnut Samples (Natural, Roasted, and Roasted Hazelnut Skin)

Ebru Pelvan¹, Elmas Öktem Olgun², Ayşe Karadağ¹, and Cesaretin Alasalvar¹

¹TÜBİTAK Marmara Research Center, Food Institute, Turkey,

²TÜBİTAK Marmara Research Center, Environment and Cleaner Production Institute, Turkey

The polyphenol profiles and antioxidant status of hazelnut samples [natural (raw) hazelnut, roasted hazelnut, and roasted hazelnut skin] were compared. Free and bound (ester-linked and glycoside-linked) phenolic acids were examined using liquid chromatography-tandem mass spectrometry (LC-MS/MS). Comprehensive identification of phenolics was carried out using Q-exactive hybrid quadrupole-orbitrap mass spectrometer (Q-OT-MS). Samples were also assessed for their total phenolics and antioxidant activities using three different assays. Ten free and bound phenolic acids were quantified in hazelnut samples. Roasted hazelnut skin contained the highest content of phenolic acids, followed by natural and roasted hazelnuts. Significant losses in total phenolics (~66.3%), ORAC values (~41.6%), condensed tannins (~75.2), and phenolic acids (~42.7) were noted when the hazelnuts were roasted. The majority of phenolic acids were present in the bound form. Using a Q-OT-MS, 22 compounds were tentatively identified, 16 of which were identified for the first time in hazelnut samples. The newly identified compounds consisted of flavonoids, phenolic acids and related compounds, hydrolysable tannins and related compounds, and other phenolics. Three antioxidant assays demonstrated similar trends that roasted hazelnut skin rendered the highest activity. The present work suggests that roasted hazelnut skin is a rich source of phenolics and can be considered as a value-added co-product for use as functional food ingredient and antioxidant.

O181

Functional Analog Rice Based on Corn, Modified Cassava, Lebui Pea, and Seaweed and Their Potential Health Benefits

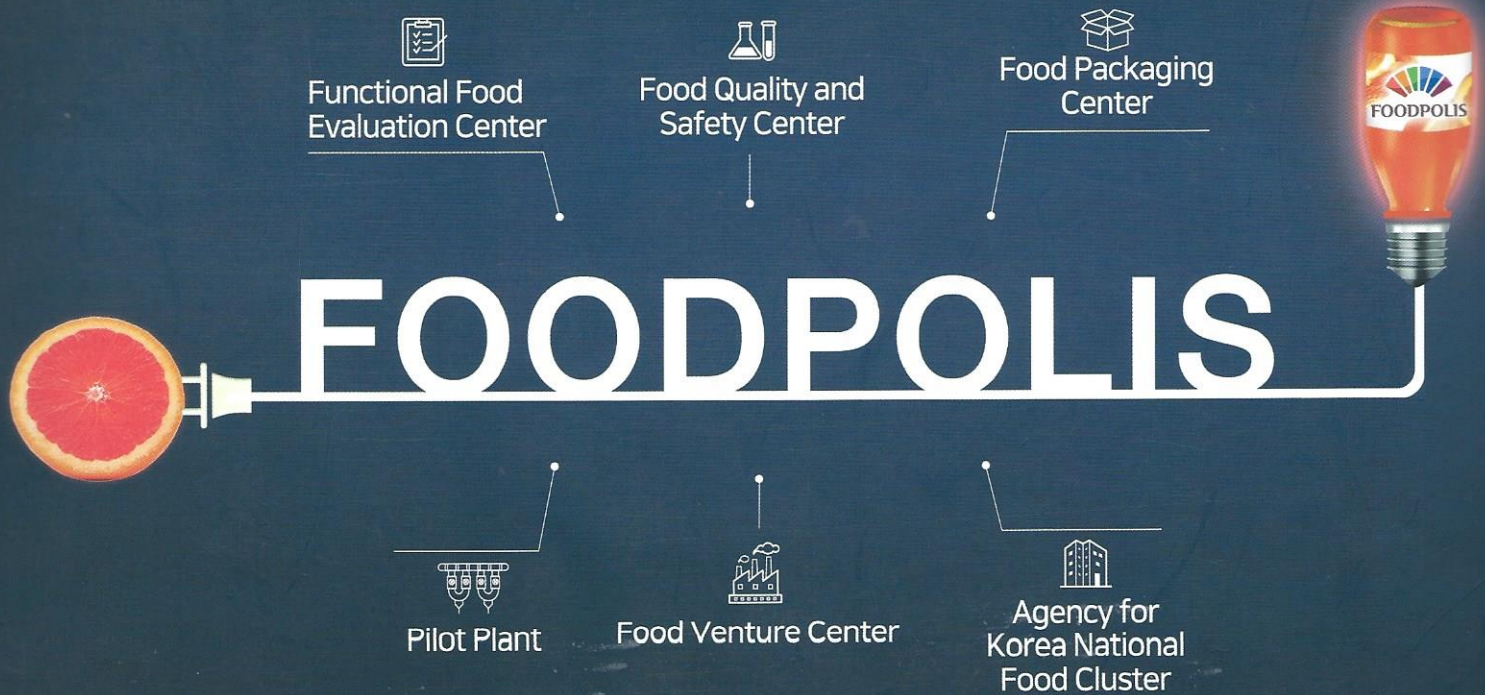
Rumiati¹, Agung Endro Nugroho¹, Yudi Pranoto², Yekti Asih Purwestri³, Satrijo Saloko⁴, Sri Widyastuti⁴, Muktasam⁵, Muhammad Luqman Al Hakim², Sisca Diani Rosalina², and Thira Aziza²

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In this research, analog rice was formulated from raw materials such as yellow corn, modified cassava, pigeon/lebui pea, and seaweed from Lombok, West Nusa Tenggara, with addition of CMC as gelling agent. This research was aimed to create analog rice from these raw materials, followed by characterization of physical properties and identification of their potential health benefits.

Raw materials were previously characterized chemically such as to for proximate and amylose content. The analog rice was composed by yellow corn, modified cassava, lebui pea, and seaweed at 28.54%, 33.36%, 18.29%, and 0.38% (db) that have amylose content at level 20% up to 32% (db). Result showed that formula with good rice grain was obtained at amylose content of 29 (F29), 30 (F30), and 31 (F31). Physical analysis of analog rice showed F30 had a significantly lighter colour than the other sample, whereas rice lightness is the main consumer acceptance requirement. In cooked analog rice analysis showed rice all sample were not different except for stringiness length (elasticity). Stringiness length of F30 is 0.62 mm, between F29 and F31, 1.06 mm and 0.25 mm, respectively. F30 had a good elasticity and not too sticky or firm and this formula is suggested to be the best formulation according to lightness and elasticity properties. Furthermore, according to Glycemic Index(GI) value of the raw materials and its analog rice formula, also their nutrient value, the analog rice may serve as a potential functional analog rice with many health benefits.

The Korea National Food Cluster



Where Innovation Meets Taste

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Rent and rental deposit
(Annual rent) Equivalent to 1% (with 10% VAT)
of the original land price(KRW 7,745/m²)
(Rental deposit) Equivalent to 5% of the original
land price(KRW 7,745/m²)
(payable in four installments per year)

Benefit II Employment subsidy

Education and training subsidy
KRW 200million per company(maximum)

Benefit III Tax reductions

Reduction or exemption of national tax
(corporate and income taxes)
Reduction or exemption of local tax
(acquisition and property taxes)
Reduction of tariffs, individual
consumption tax, value-added tax

Benefit IV Support Programs

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construction of resident companies
from government agency