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Posters






Polycyclic aromatic hydrocarbon binding characteristics of Lactobacillus rhamnosus NRRL B-442

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Lactic acid bacteria are the co-habitant group of human intestinal microbiota. As intestinal tract is the last stop of genotoxins, before incorporating into the circulating system, these microorganisms play a key role. Lactobacillus rhamnosus NRRL B-442 is the most known probiotic which has a great potent to adhere intestinal mucosal cells. This study is aimed to reveal the decrease of sixteen polycyclic aromatic hydrocarbons (PAHs) content by Lactobacillus rhamnosus using HPLC (High-performance liquid chromatography) assay. At 0, 3, 6, 12 and 24 hour samples were centrifuged, supernatants collected and freezed at -24°C until extraction. Liquid-liquid extraction was applied and analyzed with HPLC-DAD. During incubation, L. rhamnosus cells vitality was checked using plate count method. The research indicated, L. rhamnosus can keep alive and reduce efficiently PAHs from artificially contaminated PBS (Phosphate-buffered saline) time-dependently and the most mutagenic compound of PAHs, Benzo[a]pyrene was completely removed from the medium both 0h and 24h.

Biography

Sebnem Kurhan obtained her Bachelor's Degree at Uludag University, Turkey in Food Engineering and completed her Master of Science program in Department of Food Engineering, Ankara University, Turkey. After a short experience in private sector, she started to work as a specialist and she started her PhD at Abant Izzet Baysal University, Turkey during 2013. She works on "DNA-bioprotective effects of industrially important lactic acid bacteria" in her thesis. She has worked as a Researcher in 9 national projects and published 1 paper and gave 2 oral and 2 poster presentations as author in different international congresses. She has been working as a Specialist in Novel Food Technologies Development, Application and Research Center in Abant Izzet Baysal University. She is using actively high performance liquid chromatography (HPLC), gas chromatography, laser scanning confocal microscope, flow cytometer and particle size analyzer.

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Chemical and sensory characterization of grape and wine "GRECHETTO": Evaluation of technological potentialities as a function of the harvest date

Anita Nari, Angela Zinnai, Chiara Sanmartin, Isabella Taglieri, Gianpaolo Andrich, Xiaoguo Ying and Francesca Venturi
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Grape harvest time is one of the most fundamental aspects that have influence on the future of wine quality. This research project aims at investigating the influence of different ripening stages on berry quality (cv Grechetto G5) and on the sensorial expression of the obtained wine. The same grapes, harvested in three different scheduled dates, were characterized by a structural, compositional and sensorial point of view as well as the obtained wine. To individuate the best combination ripening degree of grape/style of wine, the grapes harvested in different dates are processed separately. First period wine showed a good freshness and acidity together with a sensory profile that could represent a good basis for a sparkling wine. Second harvest wine was sensory complex and structured, with good fatness/roundness perception and harmony, showing more than the others, typical Grechetto scents such as citrus, broom, acacia flowers and tropical fruits, especially pineapple. Third harvest wine revealed to be notable for its chemical and sensory characteristics, especially exhibiting valuable complexity, overall structure and intensity and combining a good acidity with a fine flavour. Wine produced from riper grapes could therefore be usefully employed either as meditation or dessert wine.

Biography

Anita Nari has graduated in Food Biosafety and Quality. She is a PhD student (II year) in Agriculture, Food and Environment at the University of Pisa, Italy. With a research project about producing olive oil with a high nutraceutical and organoleptic quality using innovative operative technique (extraction and storage methods). She is interested in R&D activities, development and validation of analytical methods for food quality of raw materials, products, qualification, characterization and monitoring of food technologies.

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Comparison between Sangiovese grapes composition and quality of the wine aged in oak barrels obtained with or without early defoliation

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Leaf removal (defoliation) in the fruiting zone is a canopy management practice which could be applied in vineyard at any time, from fruit set to veraison, to enhance air circulation and light penetration in dense foliage. Grape composition and its technological characteristics, together with the values of the physical and chemical parameters adopted in winemaking, are the most fundamental aspects which can influence on the future of wine sensory quality and composition. To verify the usefulness of early defoliation as a tool to reduce cluster compactness and yield and improve grape composition and wine quality, a research was carried out in a Sangiovese vineyard located in Tuscany. Two different methods for early defoliation, consisting of removal of all leaves from the first 5-7 nodes, was tested close around flowering: manual and pseudo-mechanical. Non-defoliated vines were considered as a control. The effect of the canopy management method adopted on yield, grape composition and sensorial expression of grapes was evaluated following the methods reported in previous works, as well as the evolution of wines obtained by defoliated grapes in the previous two harvest seasons, as a function of aging in oak barrels. Early defoliation, especially the manual one, reduced cluster compactness and yield but increased total phenolic concentration in berries. However, the differences tend to decrease during wine aging.

Biography

Anita Nari is graduated in Food Biosafety and Quality. She is a PhD student (II year) in Agriculture, Food and Environment at the University of Pisa with a research project about producing olive oil with a high nutraceutical and organoleptic quality using innovative operative technique (extraction and storage methods). She is interested in R&D activities, development and validation of analytical methods for food quality of raw materials and products, qualification, characterization and monitoring of food technologies.

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Proteins, catabolism, and sepsis: A literature review

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Sepsis and its progression, septic shocks are multi-organ failures caused by a complication of an infection. These cases are characterized by an increase in the nutritional requirements and this leads to a catabolic state. This shows a negative nitrogen balance which demonstrates the use of body muscle is metabolic substrate for energy production. This fact leads to a malnourished patient with increased mortality rates. Nutrition in the septic patient is a complicated topic not only for the acute component of the disease but also due to the location and the nutritional misconceptions of the medical team. Investigation in this field is very limited and mainly specific amino acids have been studied but a complete nutritional approach to the patient could lead to a correction in the catabolic state. By correcting the catabolism, we would not only improve the nutritional status of the patient but also improve and/or correct the metabolism. This could lead to appropriate metabolic pathways and better outcomes.

Biography

Macarena L Fernandez Carro is qualified as a Nurse by the University of the Basque Country in 2014 and already possessed an interest in the nutritional management of patients. Obtaining a Master of Science in Nutrition for Health promotion while working as an Intensive Care Nurse triggered her passion for the septic patient. Now, she is studying Medicine at the University of Manchester while working in ITU units across the North West of England. She is focused on improving nutritional management from a nursing perspective and she is involved in education and training in this field.

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Associations of vitamin D intake and other risk factors with 25-hydroxyvitamin D concentrations in ethnic minority adults living in the UK

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In recent years, there has been an increase in the rate of vitamin D deficiency among ethnic minority groups living in UK due to reduced sun exposure and low dietary intake of vitamin D. It therefore follows that the aim of this study is to determine diet and lifestyle factors adopted by different ethnic minority adults from Manchester, that are associated with an increased risk of vitamin D deficiency. A self-reported questionnaire was used to assess vitamin D intake, sun exposure behaviours and lifestyle factors. Vitamin D status was assessed by measuring serum 25(OH)D concentrations. Overall, seventy-four participants have had their vitamin D status checked and have completed the study. Among study participants, serum 25(OH)D level was 34.2, 28.7 and 29 nmol/l for Arab, South Asian and Black African groups, respectively. The mean vitamin D intake estimated by the food frequency questionnaire was 2.31 µ/d for Black Africans, followed by South Asians (1.75 µ/d) while the lowest vitamin D intake was found to be among Arabs. The average of the usual sun exposure was approximately 90 minutes a day for whole samples. Other possible risk factors for vitamin D deficiency included low use of supplements (81%) being overweight or obese (60% Arabs and 46% South Asians); the percentage of smoker and alcohol intake were higher among Black Africans compared with other ethnic groups (45%). Ethnic differences in diet, clothing, and religious customs might be responsible for the higher prevalence of vitamin D deficiency among minority ethnic adults especially Arabs and South Asians. Further, research focusing on the barriers to seek health is conducted among this at-risk population, to develop effective policy interventions and awareness campaigns.

Biography

Mona Almujaydil is currently pursuing PhD in Human Nutrition at Manchester Metropolitan University, Manchester, United Kingdom. She has completed her Master's Degree in the Field of Human Nutrition from 2010-2011 at Heriot-Watt University and Bachelor of Science in the field of Nutrition and Food Science from King Abdul Aziz University, Saudi Arabia.

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Mediterranean diet and GERD symptoms: A case control study in Lebanese adults

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Background: The prevalence of gastro esophageal reflux disease (GERD) is increasing worldwide and its symptoms are associated with several risk factors such as diet and stress. Our aim was to assess the association between GERD symptoms and both lifestyle and dietary factors among adult men and women in Lebanon, a Mediterranean country with specific characteristics.

Methods: This case control study was carried between January and March 2016. A convenient sample of 264 adults was equally divided into GERD group and control group. Socio-demographic, dietary and lifestyle data were collected from a face-to-face interview performed by a trained local dietician.

Results: GERD symptoms were associated with high body mass index ($p<0.001$), smoking ($p<0.001$), family history of GERD ($p<0.001$), low physical activity ($p=0.01$), and high stress level ($p=0.02$). These symptoms were also associated with the following dietary habits: eating large volume meals ($p<0.001$), irregular meal pattern ($p<0.001$), eating out ($p<0.001$), rapid eating (in less than 10 min) ($p<0.001$), late-evening meals (short before bed-time) ($p=0.001$) and eating between meals ($p<0.001$). Heartburn was the most common symptom. Coffee (OR, 5.81; 95% CI, 1.93-17.45) and carbonated beverages (OR, 3.09; 95% CI, 1.31-7.30) were significantly correlated with GERD symptoms. Moreover, coffee emerged as the strongest predictor for heartburn, globus sensation and hoarseness, while carbonated beverages were the strongest risk factor for dyspepsia. Among several Lebanese traditional dishes, only labneh with garlic (OR, 3.71; 95% CI, 1.72-8.03) and pomegranate molasses (OR, 2.86; 95% CI, 1.39-5.86) were associated with GERD symptoms aggravation.

Conclusion: Some lifestyle factors and components of the Lebanese Mediterranean diet may increase the symptoms of GERD.

Biography

Jacqueline H Doumit is currently an Associate Professor in the Faculty of Nursing and Health Sciences at Notre Dame University-Louaize (NDU) Lebanon, where she has been teaching biology, nutrition and biochemistry courses since 1999. Her research interests are largely in food quality, nutrition, the well-being of adults and epidemiological research on elderly.

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The warning of the consumers about the effect of food synthetic dyes on children

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Attention deficit hyperactivity disorder (ADHD) is one of the most common childhood disorders. It can continue through adolescence and adulthood. Symptoms include difficulty staying focused and paying attention, difficulty controlling behavior, and hyperactivity (over-activity).For more than 30 years, scientists have examined the effect of food additives, especially food colorings on children's behavior which gives rise to much controversy. The debate took birth when Dr. Benjamin Feingold has established a link between food dyes and hyperactivity in children in 1982. According to his hypothesis, some children are genetically predisposed to hyperactivity. He reported a dramatic improvement in the behavior of 50% of children who adopted a diet with no dyes, artificial flavorings or salicylates.

The impact of this distant controversy continues to influence parents' opinions about the effect of food additives on children's behavior. A study published in 1987 highlighted the need for pediatricians have to manage the growing manifestations of anxiety aroused by the issue of food among parents. The author found that many parents have learned the possible effect of additives in the media In Algeria the synthetic dyes regulation exists in Algeria. The nonexistent is a regulation that requires a health warning on the labels.

The aim of this project is to allow a new interdepartmental decree between the Department of Health and the Department of Trade It will require labeling of products containing synthetics dyes that can have adverse effects by adding the mention "may have an adverse effect on activity and attention of the children".

The aim of our study is to know if the synthetic food dyes have an impact on the lifestyle and the children's functioning. It will allow us to understand the risks associated with the use of these dyes. For this we have chosen to work on hyperactive children rather than the healthy ones because of the effect of the interaction which will be more apparent on the hyperactive children who have a lack of dopamine "induced hyperactivity".

The immediate purpose of the study is to raise public awareness about the effect that can have synthetic food dyes on children. We are based on hyperactive children because the effects of dyes are more noticeable than in "healthy" children, but our goal is to protect all children.

The overall objectives are to never put on the market a food product is its source before it is tested and labeled and to create a new decree to band the synthetic dyes which have bad effects on our health.

Biography

Saoud Zahia is a pharmacist master assistant in hydrology, environment and nutrition. He is working at the faculty of medicine of Algiers in the department of pharmacy and Institute Pasteur of Algeria which it depends on the network institute Pasteur of Paris. He worked as a quality manager for 4 years and at the moment he joined the laboratory of water, food and environment of the Pasteurb Institute of Algeria.

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Acceptability, nutritional and non-nutritional components of rice [Oryza sativa (L.)] and pigmented corn [ZEA MAYS (L.)] grits mix

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Three rice varieties namely, Lian (NSIC Rc98), Tubigan 18 (NSIC Rc222), and Mabango 3 (NSIC Rc218) were combined with Camotes (CGUARD-N68) corn grits. The gel consistency of the samples ranged from 28 to 59 mm (hard to medium). On the other hand, the gelatinization temperature for Mabango 3 was low (<70°C) and intermediate (70°- 74°C) for Tubigan 18, Lian, and Camotes. Cooking water, cooking time, and height increase were directly proportional to the amount of corn. The water absorption index (WAI) and water solubility index (WSI) increased with greater amounts of corn. Sensory evaluation results revealed that Lian-Camotes (90:10, 80:20, 70:30), Tubigan 18-Camotes (90:10, 80:20, 70:30), and Mabango 3-Camotes (90:10, 80:20,70:30) were the top nine most acceptable mixtures. Proximate compositions between raw and cooked samples were not significantly different from each other. Minerals, essential amino acids, phytochemicals, and antioxidant capacity significantly decreased after cooking. Starch and amylose significantly increased after cooking. On the other hand, amylopectin decreased after cooking. Correlation analysis also found that amylopectin has a strong positive correlation with Estimated Glycaemic Index (EGI). Based on CODEX Alimentarius, EAR (Estimated Average Requirements), and RENI (Recommended Energy and Nutrient Intakes), rice and pigmented corn grits mix is a good source of protein, zinc, phosphorus, and energy and thus, can contribute to food and nutrition security.

Biography

Theresa Krista B Jolejole has completed her Master of Science in the Field of Applied Nutrition from University of the Philippines, Philippines and Bachelor of Science in the field of Nutrition from University of the Philippines, Philippines. She worked as Science Research Analyst at National Institute of Molecular Biology and Biotechnology – UPLB, Philippines during the year of September 2014-February 2016.

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Role of aged crushed Allium Sativum L. on systemic inflammatory markers in patients with Syndrome-X

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Syndrome-X (Metabolic syndrome) comprised a cluster of risk factors described by abdominal obesity, hypertension, atherogenic dyslipidemia, hyperglycemia, prothrombotic and proinflammatory conditions. Raw Allium sativum L (garlic) homogenate has been explained to diminished cardiovascular risk factors in animal model; however, no specific studies have been conducted to appraise the role of aged crushed Allium sativum L. on components and inflammatory markers in syndrome-X. Hence present study was intended to explore the role of aged crushed garlic on systemic inflammatory markers in patients with syndrome-X. A total of 40 patients with syndrome-X were enrolled from diabetic's centre of Medical College Bikaner, India. They were endure treatment with 100 mg/kg body weight aged crushed garlic two times a day with usual diet for four weeks and their anthropometric as well as serum biochemical variables were measured both at the beginning and end of the study. Homeostasis model assessment for insulin resistance (HOMA-IR) was calculated. Statistical analysis was done using IBM: SPSS version 20, and student paired-t test was used to compare variables before and end of treatment of aged garlic preparation. Aged crushed garlic significantly abridged variables of syndrome-X including waist circumference ($p<0.05$), systolic and diastolic blood pressure ($p<0.001$), serum triglycerides ($p<0.01$), fasting blood glucose ($p<0.0001$), tissue narcosis factor-α (TNF-α) ($p<0.05$), serum leptin ($p<0.01$), interleukin-6 (IL-6) ($p<0.001$), high sensitivity C-reactive proteins (hs-CRP) ($p<0.01$) and Homoeostatic model of insulin resistance (HOMA-IR) ($p<0.001$) whereas significantly increased serum high density lipoprotein cholesterol ($p<0.0001$) and adiponectin levels ($p<0.01$) Moreover, there was no significant difference found in body mass index ($p>0.05$) of patients with syndrome-X after consumption of age crushed garlic for 4 weeks. Age crushed garlic has valuable effects on systemic inflammatory markers in patients with syndrome-X thus it can be used as a supplementary remedy for prevention and treatment cardiovascular disorders in patients with metabolic syndrome.

Biography

Prema Ram Choudhary is an assistant professor in the Department of Physiology at C. U. Shah Medical College, Gujarat, India and he is interested in the fields of haematology, herbal medicine, metabolic syndrome, endocrinology, cardio-respiratory physiology, and metabolism and endocrinology. Moreover, published more than 35 original research publications in international journal with high impact factor. He has completed his Masters in Medical Physiology from 2001-2004 at Dr. S.N. Medical College, Jodhpur, India and B.Sc in Biology from 1996 – 1999 at Govt College Sirohi, India.

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e-Poster

Serum ferritin level in children and adolescents from a Brazilian quilombola community are associated with daily coffee intake

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Statement of the Problem: coffee intake is a habit in several countries, including Brazil, and in all age groups. There is evidence that high daily intake of coffee can reduce iron absorption in the duodenum, and can impair the growth and development of children and adolescents. In relation to children and adolescents from African continental ancestry group, coffee consumption can be even more harmful because of their inadequate nutritional status due to low income. Therefore, the objective of this study was to associate the daily consumption of coffee with serum ferritin levels in children and adolescents from a Brazilian quilombola community.

Methodology: this cross-sectional study was carried out, in 2012, with 26 children and adolescents (10.46±4.69 years) from a quilombola community located in the Central-West region of Brazil. Blood sample was collected to obtain serum ferritin levels. The assessment of coffee consumption was carried out using the food frequency questionnaire, which contains 58 foods (including coffee). Student's t-test for independent samples was used to evaluate the difference in serum ferritin levels between participants with and without daily consumption of coffee. P values <0.05 were considered significant. This research was approved by Research Ethics Committee of Federal University of Goiás, Brazil. Findings: Most of the participants were female (61.5%, n=16). The average serum ferritin level was 52.75±28.79 ng/mL, and 38.46% (n=10) of them consumed coffee at least once a day. Participants with daily coffee consumption had lower serum ferritin levels (p=0.012) (Table 1).

Conclusion: The daily consumption of coffee influenced negatively in serum ferritin levels in children and adolescents from the quilombola community of Brazil. Whereas iron is an important mineral in the stage of childhood and adolescence, this result suggests a greater control in coffee consumption among the participants for their growth and development not be affected.

Biography

Ana Gabriella P Alves is a Nutritionist who graduated from the Federal University of Goiás, Brazil. She completed a Master's degree in Health Sciences (Faculty of Medicine/Federal University of Goiás, Brazil) and is currently a PhD student in the same program. She also concluded a Postgraduate study in Sports Nutrition and Functional Clinical Nutrition. She is a co-author of two book chapters, related to Sports Nutrition, and is Anthropometrist ISAK Level 1. She is member of the Laboratory of Physiology, Nutrition and Health (College of Physical Education and Dance/Federal University of Goiás, Brazil).

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Accepted Abstracts






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TRPV4 calcium-permeable channel is a novel regulator of oxidized LDL-induced Macrophage foam cell formation

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Cardiovascular disease is the number one cause of death in developed world, and atherosclerosis, a chronic inflammatory arterial disease, is the most dominant underlying pathology. Macrophages are thought to orchestrate atherosclerosis by generating lipid-laden foam cells and by secreting inflammatory mediators. Emerging data support a role for a mechanical factor, e.g., matrix stiffness, in regulation of macrophage function and atherogenesis. We have obtained evidence that TRPV4, an ion channel in the transient receptor potential vanilloid family and a known mechanosensor, is the likely mediator of oxidized low-density lipoprotein (oxLDL)-dependent macrophage foam cell formation, a critical process in atherogenesis. Specifically, we found that: i) genetic ablation of TRPV4 or pharmacologic inhibition of TRPV4 activity by a specific antagonist blocked oxLDL-induced macrophage foam cell formation, and ii) TRPV4 deficiency prevented matrix stiffness or scratch-induced exacerbation of oxLDL-induced foam cell formation. Mechanistically, we found that: i) plasma membrane localization of TRPV4 was sensitized to the increasing level of matrix stiffness, and ii) TRPV4 activity regulated oxLDL uptake but not its internalization in macrophages. Altogether, these findings identify a novel role for TRPV4 in regulating macrophage foam cell formation by modulating uptake of oxLDL.

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Insights Nutr Metab 2017

Enhancing dairy milk CLA by tailoring rumen dynamics through dietary manipulations

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Conjugated linoleic acid (CLA) has been recognized to impart health benefits to human beings by supporting or manipulating health protecting mechanisms. Bovine milk is considered an important source of this valuable fatty acid; however, its synthesis by the dairy cow is influenced by multiple factors, among which dairy feed is one of them. Fabricating dietary nutrients to feed the dairy animal aimed to enhance its CLA has offered a tool to be used to synchronize the dietary, ruminal and cellular nutrient interaction and utilization to achieve higher CLA in milk. This article will underline how dietary feed Ingredients can alter rumen dynamics and milk biosynthesis to attain a higher CLA in dairy milk fatty acid profile. Studies indicate changes in milk CLA might be attributed to the diversity of fat sources and varying concentration of forage and concentrate. However, role of nutrients which are degraded and / or undegraded in rumen can't be neglected. Feeding type of fat which doesn't break in rumen and certain amino acids which break and don't break in rumen are important tools to design milk fatty acid profile with higher CLA. Dietary fat may influence the bio hydrogenation phenomena in the rumen which has direct impact on milk fatty acid profile. Feeding type of protein which is not degraded in the rumen have been reported to enhance the milk CLA, however, this impact of dietary protein may be affected by composition and quantity of amino acids which don't break in the rumen. Biosynthesis of milk need precursors or nutrients which dairy Animal gets form blood which reflects the existence of an isotonic equilibrium between blood and milk. This abstract review and underline the dietary interventions aimed to synchronize dietary nutrients to tailor rumen dynamics towards synthesis of nutrients or their precursors for higher milk CLA and this nutritional avenue still awaits to be capitalized for better human nutrition.

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Insights Nutr Metab 2017

Bioactive fiber: Bioactivity of Cereal arabinoxylans in Relation to Their Sources and Structure

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Arabinoxylans are major components of cereal cell walls and they occur at higher content in the by-products of milling, wheat brans, rich brans and rice hulls of dietary fibre than in wheat flour and rice. Arabinoxylans have been reported to have numerous health benefits in recent studies. This presentation will report our recent studies on effects of cereal arabinoxylan extracts with various molecular weights and structures on their human immunity modulation and anticancer activity in in vitro testing.

The extraction yield and structure of AXs varied with sources and extraction technologies. In this study, AXs were extracted from wheat flour pentosan with and without xylanase treatment. In in vitro testing, nitric oxide (NO) secretion and inducible nitric oxide synthase (iNOS) expression of human immune cells of U937 induced by enzyme extracted AXs and water extracted AX were compared. The results show that AXs treatments not only enhanced NO production but also iNOS levels in U937 cells ($P < 0.05$) compared to untreated cells. The enzyme-treated AXs with a higher proportion of low Mw AXs (1-10KDa) and high A/X ratio (0.83) induced significantly higher ($P < 0.05$) iNOS expression (132.2 ± 11.9 μg/ml) than water-extracted AXs iNOS expression (104.3 ± 4.6μg/ml) and the increase in NO secretion corresponds to iNOS concentration in cultured cells, which suggest a pathway by which AXs modulate NO production in human macrophage cells. In addition, It was also found that at a concentration of 500μg/mL, enzyme-treated AXs caused a more significant inhibition of proliferation of Gastric cancer cells ($p<0.05$) and also more significantly reduced the viability of Gastric cancer cells than water extracted AXs following 24 and 48 hours treatment in in vitro ($p<0.05$). Therefore, a potential application of AXs is potentially used as a new method of treating gastric cancers.

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Extraction and characterization of pectin from banana (Musa Acuminata × Balbisiana) peel with different percentage of sugar

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Pectin was extracted from banana (Musa acuminata × balbisiana) peels by traditional method. Banana peel is an underutilized waste produced from banana processing in Malaysia. The suitable ratio of banana peel to water for pectin extraction was 1:0.8 as it was proved to successfully produce gel with addition of sugar and lemon juice. Four formulations of gels with different percentage of sugar (20.8%, 27.7%, 41.6% and 48.6%) were analyzed to study the effect of sugar on the characteristic of gels in terms of spreadibility, tenderness, colour, texture, water activity and moisture content of gels. The spreadibility of gel was determined using Line Spread test. As the formulation went up by the increasing percentage of sugar, the distance of gel spread was decrease. Gel tenderness was determined in terms of percentage sag and it showed a significantly decrease (P≤0.05) as the percentage of sugar increase from formulation 1 to 4. The colour and texture analysis showed a significant difference between each formulation. Both water activity and moisture content of gels decrease as the formulation went up by the increasing percentage of sugar. Watermelon jam added with gel form from banana peel was made to test the ability of gel.

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Greenhouses for food production and the environment

Abdeen Omer
Environmental Research Institute, UK

A greenhouse is essentially an enclosed structure, which traps the short wavelength solar radiation and stores the long wavelength thermal radiation to create a favourable microclimate for higher productivity. The sun's radiation incident on the greenhouse has two parts: direct radiation and an associated diffuse sky radiation. The diffuse part is not focused by the lenses and goes right through Frensel lenses onto the surface of the absorbers. This energy is absorbed and transformed into heat, which is then transported via the liquid medium in copper pipes to the water (heat) storage tanks or, if used, open fish tanks. In this way, an optimal temperature for both plant cultivation and fish production can be maintained. Stable plant growth conditions are light, temperature and air humidity. Light for the photosynthesis of plants comes from the diffuse radiation, which is without substantial fluctuations and variation throughout most of the day. The air temperature inside the greenhouse is one of the factors that have an influence on the precocity of production. The selective collector acts in a more perceptible way on extreme air temperatures inside the greenhouse. Hence, the system makes it possible to avoid the excessive deviation of the temperature inside the greenhouse and provides a favourable microclimate for the precocity of the culture. Sediment and some associated water from the sediment traps are used as organic fertiliser for the plant cultivation. The present trend in greenhouse cultivation is to extend the crop production season in order to maximise use of the equipment and increase annual productivity and profitability. However, in many Mediterranean greenhouses, such practices are limited because the improper cooling methods (mainly natural or forced ventilation) used do not provide the desired micro-climatic condition during the summer of a composite climate. Also, some of these greenhouses have been built where the meteorological conditions require some heating during the winter, particularly at night. The worst scenario is during the winter months when relatively large difference in temperature between day and night occurs. However, overheating of the greenhouse during the day is common, even in winter, requiring ventilation of the structure. Hence, several techniques have been proposed for the storage of the solar energy received by the greenhouse during the day and its use to heat the structure at night. Reviews of such techniques are presented in this chapter. Air or water can be used for heat transport. The circulating water is heated during the day via two processes. The water absorbs part of the infrared radiation of the solar spectrum. Since the water is transparent in the visible region, they do not compete with the plants that need it. Alternatively, the water exchanges heat with the greenhouse air through the walls. At night, if the greenhouse temperature goes down below a specified value, the water begins to circulate acting as heat transfer surfaces heating the air in the greenhouse. This chapter describes various designs of low energy greenhouses. It also, outlines the effect of dense urban building nature on energy consumption, and its contribution to climate change. Measures, which would help to save energy in greenhouses, are also presented. It also enabled the minimisation of temperature variation and, hence avoided the hazard of any sudden climatic change inside the greenhouse.

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Eco-efficiency: Application in the university restaurants on Brazil

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Meal production for communities is an important activity in the service segment. The concept of eco-efficiency (EE) prioritizes the more efficient use of materials and energy, combining economic and environmental performance. In this context, the objective of this study was to propose and apply a procedure for evaluating environmental performance from the perspective of EE, for the foodservice segment. The procedure developed was applied to measure the EE relationship of supplies used in food service in five university restaurants (URs) at a Brazilian federal public university with secondary data from 2012. The calculations for assessing the EE included the selection of foods of animal and plant origin according to ABC analysis. Considering that one of the purposes of providing meals is to give energy support to their users, the approach used for calculating EE included the provision of energy in kilocalories and financial values in relation to the Environmental impacts upon which the variables of the water footprint and amount of wastes generated from the foods used were selected. The five URs served 1,532,588 meals in 2012, and the average served varied from 481 to 3141 meals per day, according to the size of each restaurant. The EE in the relationship between kilocalories and kilograms regarding the environmental impacts of the foods used exhibited values that varied from 0.283 to 1.071. When calculating the EE that considered the provision of kilocalories and financial values regarding the environmental impacts, the values varied from 0.091 to 0.322. In both measurements, the best results were obtained by UR 5 and UR 3, that respectively which had the lowest and highest annual average of meals served. The procedure developed and proposed proved to be adequate for evaluating the environmental performance in terms of EE among restaurants with the same type of service.

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Breastfeeding at maternity hospital and infant mortality in Brazil

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Introduction: Breastfeeding should be implemented from birth, as it contributes to the reduction of infant mortality.

Objective: To estimate the number of deaths potentially avoided by the Baby-Friendly Hospital Initiative (BFHI) in Brazil, this enables strategies that allow breastfeeding exclusively from birth.

Methods: The analysis consisted of: estimating the effectiveness of BFHI in breastfeeding in the first hour of life (BF1h), the exclusive breastfeeding in infants 0-5 months (EBF) and of any breastfeeding. The potential impact of BFHI on the reduction of infant mortality mediated by increased breastfeeding was estimated by subtracting the prevalence of each breastfeeding indicator for both BFH and NBFH born babies. For this purpose, the Population Attributable Fraction (PAF) of breastfeeding was used for the following indicators: late neonatal mortality mediated by non-breastfeeding in the first hour of life, all-cause mortality in infants less than 6m and mortality due to infection in infants under 6 months; The latter two, mediated by non-breastfeeding. The PAF was obtained for children born in BFH and NBFH, using the prevalence of non-breastfeeding and the estimated relative risks. Finally, it was estimated the number of deaths potentially preventable by the BFHI, considering the data on infant mortality occurred in 2008.

Results: The sample consisted of 18,929 children under 6 months of age; Of these 34.1% were born in BFH. The BFHI promoted a statistically significant increase in the 3 indicators of BF: 11.7% in BF1h; 7.9% in EBF and 2.1% in any breastfeeding. If all children were born in BFH, the fraction of mortality attributable to non-breastfeeding (PAF) would be lower, potentially avoiding 4.2% of late neonatal mortality, 3.5% of all-cause mortality, and 4.2% mortality from infection.

Conclusion: BFHI improves breastfeeding and contributes to a reduction in mortality.

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The Ghost Aim in Medical research - Preventing fattening/insulin resistance/ overall inflammation

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In the world, physicians more and more appreciate findings on preprandial hunger arousal and less and less deny their validity in my country (Tuscany). People taking food after perceiving signals of hunger (Initial Hunger Meal Pattern, IHMP) prevent fattening/insulin resistance that causes an overall inflammation, diseases like asthma, vascular and malignancy risks. I wonder why scientists denied value to my endeavor. The division had a start when I read the Handbook of Physiology of the American Society for Physiology, in 1967. I was charged with the treatment of malnutrition and diarrhea. I read the handbook to become aware about mucosal digestion and absorption. At that time, these points had to be diagnosed to treat malnourished children. Before beginning any research, a dynamic, reversible condition seemed instead to operate in chronic diarrhea children and had to be found. I read that 50% - 60% or more immune cells of the human body reside in the mucosa of small intestine (Mowat, 1987, 44; Brandtzaeg et al., 1989; Abrams, 1977). Bacteria grow in the small and large intestine in dependence on nutrients, mainly those nutrients that produce energy availability (sugars, carbohydrates, amino-acids, fats (Hungate, 1967). Thus bacterial growth is proportionate to positive energy balance. I studied bacteria number on the intestinal mucosa in time after last meal. A longer interval from the meal produced a decrease in bacteria number. Thus I concluded that meal absorption develops in a competition between mucosa cells and bacteria (Ciampolini et al. 1996, 2000). The conflictual nature of mucosal absorption has been confirmed (Cooper, Siadaty, 2014; Mccoy, Köller, 2015). I personally provided many demonstrations that current meal pattern provides a lot of illnesses. I add here another proof: The many successful cures of gastrointestinal pathologies by IHMP suggest that the theory used for recovery was objective. In this view, the question: ”what food provokes cancer?” is absurd. Tumor heterogeneity is a problem for cancer therapeutics. I am pleased by this information. Malignancy needs to be prevented through a better maintenance of immune system. Health follows the relation between energy intake and expenditure. Both the existence of hundreds or thousands of bacterial species in intestine and the existence of a local huge immune reaction in intestinal mucosa sustained the conflictual view. Reading the Handbook isolated myself in a Medical World that was unaware of microbiology. Physicians saw improvements in the children I treated, but did not understand the intestinal mechanisms that were far away from their observation. They repeated: Ciampolini is alone in his statements. Now, hundreds of printing houses, and hundreds of scientific Journals ask me for submitting articles. I am alone and cannot produce hundred articles that are new and different each other. The growing number of electronic Journals created a “Babel” condition that may be useful for commercial exploitation (or for maintenance of power in some editors) but not for the “ghost aim” of improving awareness about the upsurge of malignant and vascular risks, not to meet the expectation of one billion of malnourished people.

Do we have to go on in the illusion of promoting knowledge by printing ten similar articles instead of one? I would prefer a grouping of Journals on basic assumptions: the study of contagion, the study of energy balance, the study of essential nutrients, the study of genetics. A confrontation inside groups is necessary to decide either the opening of new research fields or the fusion of similar Journals.

Publishing on Health requires an absence of conflicts of interest. This becomes more and more difficult. I was stopped in my institute just because I was unable at constructing a profit from my findings. Individuals devoid of conflicts of interest are precious and rare in a complex world founded on the commerce of innovation and research. Heads of Journals might join together in an endeavor for the construction of a new order. Having forwarded this claim for a shared action, I expect that somebody will respond to my address to discuss chances.

The first step within the ghost aim should be the creation of a consensus among scientists on the pathogenic principal mechanism(s). The second step would be much easier: teaching the consented mechanism to the population. Other mechanisms might better function.

This small piece is intended to be published in many Journals that requested a writing from mine. The piece is sufficient to show a valid although intolerable situation.

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Insights Nutr Metab 2017

Nutritional management of polycystic ovary syndrome

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Polycystic ovary syndrome is becoming very common among girls from ages 14 to 21 years old alongside women in their childbearing period. A combination of menstrual irregularities, overweight or obesity, insulin resistance (type2 diabetes) and symptoms of virilization are characteristics of these cases.

A multidisciplinary team should be involved in managing these cases and may consist of a Gynecologist, endocrinologist, nutritionist and a psychologist.

The role of nutritionists is crucial in these cases in weight reduction and nutritional management.

It is mandatory to present some questions that may help in expanding further our understanding of the nutritional management of this syndrome, such as;

1. Is it an easy process to reduce weight of PCO patients?
2. What is the most suitable nutritional plan for these cases?
3. Is it successful to use one diet plan for all patients or a specific plan tailored for each patient?

Based on these questions, we will summarize the medical nutritional therapy and weight management in PCO patients and highlight the best eating plan and dietary composition in the treatment of these women. We will also discuss the role of dieticians in treating PCOs and overcoming the Challenges these women face.

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Insights Nutr Metab 2017

Effectiveness of a 16-month multi-component and environmental school-based intervention for recovery of poor income overweight/obese children and adolescents: Study protocol of The Health Multipliers Program

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Excess of weight is a serious public health problem in almost all countries afflicting people from different ages and socioeconomic levels. Studies have indicated the need for developing strategies of treatment that intervene directly in the obesogenic environment. This study aims to evaluate the effectiveness of a multi-component and environmental school-based intervention, lasting 16 months, for the recovery of the nutritional status of low-income children and adolescents with overweight/ obesity. Methods/ Study design The study is conducted by the Center for Recovery and Nutritional Education (CREN) in the city of São Paulo, Brazil. Two schools located in poor neighborhoods were selected for the intervention. The intervention duration is from March 2016 to June 2017. The participants are 791 students aged 8 to 12 that make up the universe of students of this age in the two schools. At the beginning of the intervention anthropometric measurements were carried out to assess nutritional status. One school was chosen for convenience to be the control group and the other to be the experimental group. The intervention of the experimental group (n = 438) consists of the following weekly activities at school: psychological counseling in groups, theoretical/practical nutrition workshops and supervised physical education classes. In addition, theoretical and practical educational activities are held regularly for parents, teachers and cooks. Students with excess of weight (>1 BMI –for-age Z score, n = 138) underwent clinical and nutritional care periodically in outpatient care at CREN. Students enrolled in the control group (n = 353) participated in psychological counseling groups and theoretical/ practical nutrition workshops for 6 months that took place in the school environment with the whole classroom for motivational purpose. In the following 10 months the students with excess of weight from the control group (n = 125) were invited to attend the routine outpatient care at CREN. Discussion:This study is the first to assess the effectiveness of a multi-component and environmental school-based intervention for the recovery of low-income overweight/obese children and adolescents. If positive, the results will demonstrate the feasibility for the recovery of excess of weight in populations in similar conditions and age.

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Some hematological studies in broiler chicks as affected by using dried distiller's grains with solubles in their diets

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A total number of 256 unsexed, one day old Arbor acres broiler chicks were used to study the effect of using distillers dried grains with solubles (DDGS) at levels (0, 5, 10, 15%) treated without or with enzyme (avizyme 1500) at level 0 and 1gm / kg diet on some blood parameter of broiler chicks. At the 6thweek of age, blood samples were collected from wing vein of four chicks from each experimental groups to study some blood hematological study. Birds fed dietary 15% DDGS recorded the highest (P≤ 0.01) values of RBC's, PCV%, Hb, MCH and MCHC compared to other treatments. The greatest (P≤ 0.01) value of MCHC was recorded for birds fed dietary 5% and 15% DDGS. While, birds fed 15% DDGS recorded the highest (P≤ 0.01) value of PCV%. Hemoglobin (Hb) concentration increased by using DDGS at all levels compared to control group. Adding enzymes to broiler diet improved (P≤ 0.01) Hb and MCV values.

The principle reason for broiler producers to select dietary ingredients is economy, because feed represents approximately 70% of the live production cost. In feed formulation, nutritionists consider a wide range of ingredients and attempt to develop feed formulas that provide the desired level of nutrients at minimum cost. In formulating diets the nutritionist must consider not only cost and nutrient content of the ingredient, but also the quantity available for use and consistency of supply (Wang et al., 2007). Therefore, many attempts are usually made to reduce feed cost without adversely affecting performance and/or product safety by using some Un-traditional ingredients in the diets. In developing countries, there is a shortage of both energy sources and feedstuffs with acceptable protein content for animal production. In view of the worldwide demand for additional feed sources. Moreover, enzymes were used most commonly to aid digestion of diets where improvements are seen in dry matter digestibility. There is also current interest in enzymes designed specifically to improve soybean meal digestibility (Lesson and Summers, 2005).

Recently, increased emphasis on ethanol production as biofuel in the United States and other countries has and will continue to lead to significant increase in the amount of dried distillers grains with solubles (DDGS) available to the feed industry (Batal and Dale, 2003). DDGS has been a by-product of the beverage industry, for the most part, with several different grains used in the fermentation process. In the late 1930s, feed producers began to incorporate DDGS into livestock rations, but before this, it was a by-product with limited value (Scott, 1970). The beverage industry was not the only source of DDGS; ethanol plants also produced this ingredient. Production of ethanol from 100 kg of corn using the dry-milling method produces approximately 34.4 kg of ethanol, 34.0 kg of carbon dioxide and 31.6 kg of distillers dried grains with solubles (Renewable Fuels Association, 2005).

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Malnutrition in Disabled Children

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Statement of the Problem: Children with special needs suffer from malnutrition due to lack of nutrients necessary for child development and physical and cognitive development.

It is therefore necessary to intervene in order to overcome the problems that malnutrition may cause to address the problems related to malnutrition early, which contributes to improving the quality of life and preserving the remaining physical and mental potential and try to develop them to be healthier in the future.

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Insights Nutr Metab 2017

Nutritional Assessment of Children with Sickle Cell Diseases in Komfo Anokye Teaching Hospital

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Background: Sickle cell disease (SCD) is a long term haemolytic disease mostly associated with impaired growth, delayed maturation and poor nutrition status. It is also one of the major contributing factors for childhood mortality.

Objective: The study aimed to assess the nutritional status of children with sickle cell diseases using dietary intakes, anthropometric measurements and biochemical markers.

Methods: A cross sectional study was conducted on 100 children with sickle cell diseases aged 3- 12 years at the Komfo Anokye Teaching Hospital. Twenty-four hour dietary recall and food frequency questionnaire were used to assess dietary intake. Serum protein, albumin and ferritin as well as full blood count were used to assess biochemical status. Weight, height and Mid-Upper-Arm-Circumference were used to calculate Body Mass Index (BMI), weight-for-age (percentile), height-for-age (percentile), BMI-for-age (percentile) and MUAC-for-age (percentile).

Main findings: The mean intake of iron was 5.9±3.0 mg/d, zinc was 5.1±3.0 mg/d, and vitamin A was 107 ± 112.4, while vitamin E was 4.2±2.9 for the children with SCD. Calories were 852 ± 342.3 kcal while protein was 25.0 ± 10.7g/d. Low BMI-for-age, MUAC-for-age, weight-for-age and height-for-age were observed in 40%, 37%, 22%, and 69% of the children, respectively.

Conclusion/ Recommendation: There was significant association (p = 0.00, r = 0.64) between vitamin B12 and the Red Blood Cell count. Thus, there was inadequate nutritional intake of the children that were assessed. It is therefore recommended that a longitudinal study be conducted on children with sickle cell diseases to assess the actual nutritional requirements of children with SCD.

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Insights Nutr Metab 2017

The effects of fat substitution using palm stearin on the physicochemical properties of shortened cake

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Fats used in baking contain trans fatty acid that has been proven to contribute towards various health problems. Palm stearin is used to substitute shortening in different ratios to observe the effects on the physicochemical properties of cake. Formulations A, B, C, D, and E each has palm stearin substitution of 0%, 25%, 50%, 75%, and 100% respectively. All formulations were analyzed for its specific gravity, fat content, moisture content, color analysis, texture analysis and sensory analysis. At 25% level of substitution (formula B), moisture content (0.44 ±0.00 %), fat content (27.75 ± 0.42%), hardness (1469.4 ± 432.1 N), and overall liking in sensory analysis (5.5 ± 1.10) are found to be similar with formula A; formula B for color analysis 80.84 ± 0.20 (L*),2.79 ± 0.40 (a*), and 30.30 ± 0.64 (b*) and specific gravity (0.84 ± 0.12) are however significantly different with formula A. It is found that a different substitution ratio does affect the physicochemical properties of the cakes. Substitution up to 25 % shows that it is best in producing cakes most similar to formula A. Further studies need to be carried out in order to find a method that may incorporate higher palm stearin substitution as well as palm stearin functionality in a cake system.

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Insights Nutr Metab 2017

Nutritional profile of Diabetes Asian Indians with Low Body Mass Index: What are the unmet needs?

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Statement of the problem: There is paucity of data on nutritional intake in low BMI (BMI) Asian Indians with Diabetes.

Aim: To study the difference in nutrient pattern in lean Type 1 Diabetes Mellitus (T1DM) and Fibro-calcific Pancreatic Diabetes (FCPD) patients.

Methodology: This cross-sectional study consisted of T1DM (n = 40) and FCPD patients (n = 20) who were gender and BMI matched Nutritional data was collected using 24 hour recall method and food diary. Fasting blood samples were analyzed for lipid profile, serum creatinine, glycosylated hemoglobin, albumin, calcium and vitamin D. Stool samples were analyzed for pancreatic elastase. Percentage analysis, Independent sample t test and Pearson Coefficient Correlation were used to analyze the data. P value < 0.05 was considered as statistically significant.

Findings: The FCPD patients had a significantly lower vitamin D status compared to the TIDM group (p=0.035) however, hemoglobin, triglycerides, low density lipoproteins, creatinine, albumin and calcium were similar between the groups. Further, FCPD patients had a significant higher intake of fat (p=0.039), fibre (p=0.000), calcium (p=0.047), phosphorous (p=0.035), and niacin (p=0.001) and calories from fat (p=0.047). The TIDM group had a significantly higher intake of thiamine (p=0.047) and carbohydrates (p=0.014).

Conclusion: TIDM and FCPD groups have similar dietary pattern with deficit in fibre, calories, macronutrients and micronutrients. Malabsorption and poor glycaemic control in FCPD patients can be attributed to a higher dietary fat intake. A balanced diet can ensure better glycemic control.

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Insights Nutr Metab 2017

Improvements in long term weight-loss and clinical parameters with the use of nutrigenetics in a 2-years prospective study

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Objectives: Genetic variation is known may influence dietary requirements, giving rise to the new field of nutritional genomics and raising the possibility of individualizing nutritional intake for optimal health, disease prevention and better weight management on the basis of an individual's genome This study investigated whether the inclusion of genetic information to personalize a patient's diet (nutrigenetics) could improve long term weight management.

Methods: Two groups of patients attending a weight management clinic were prospectively studied. The ketogenic group consisted of 53 patients followed for 24 weeks a ketogenic diet plan with 1600 kcal. The nutrigenetics group consisted of 61 patients were offered a nutrigenetic test screening 26 variants in 24 genes involved in metabolism. This group followed a personalized diet with 1600 kcal too and all recommendations based on their DNA. Weight, BMI, total cholesterol, HDL cholesterol and fasting blood sugar levels were monitored.

Results: Both diets group performed well over the 24 weeks but after 2 years the nutrigenetic group fared better on the clinical values of plasma glucose, total cholesterol and HDL. Furthermore after 2 years 75% of the nutrigenetic patients had maintained weight loss compared to 21% in the non-genetic group.

Conclusions: Addition of nutrigenetically tailored diets in the weight loss phase and the general healthy eating for life phase resulted in better longer-term BMI reduction and improvements in blood glucose and cholesterol levels

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