

Research Articles

55-64 FUNCTIONAL BENEFITS OF PSYLLIUM FIBER SUPPLEMENTATION

Julia Wärnberg, Ascensión Marcos, Gloria Bueno and Luís A. Moreno

65-72 ALTERATION IN OXIDATIVE STRESS AND C-MYC PROTEIN BY ADMINISTRATION OF ACIDOPHILUS-CASEI DAHI ON DMH INDUCED COLON CARCINOGENESIS

Arvind, P. R. Sinha, Nikhlesh Kumar Singh and Raj Kumar

73-80 NEUROPROTECTION AGAINST HYPERHOMOCYSTEINEMIA-INDUCED SELECTIVE OXIDATIVE STRESS IN BRAIN REGIONS OF RATS WITH FOLIC ACID OR *DIOSCOREA ALATA* SUPPLEMENTATION

Hsiu-Ling Tsai, Jiun-Lin Yan, Shang-Ming Wang and Sue-Joan Chang

81-88 AN OLIGOFRUCTOSE-ENRICHED INULIN DIET: COGNITIVE AND PHYSICAL PERFORMANCES IN RATS

Pascale Rozan, Amine Nejdj, Sophie Hidalgo, Jean-François Bisson, Didier Desor, Michaël Messaoudi and Robert Lalonde

89-92 N Ω -NITRO-L-ARGININE METHYL ESTER HYDROCHLORIDE BLOCKS HYPOTENSIVE EFFECTS OF NICOTINAMIDE

RB Castro and LM Vianna

93-96 APPLE JUICE STIMULATES ORGANIZED SYNAPTIC ACTIVITY IN CULTURED CORTICAL NEURONS

Michael Serra and Thomas B. Shea

Reviews

97-104 METABOLOMICS: AN EMERGING TOOL FOR NUTRITION RESEARCH

Manoj Kumar, Dheeraj Mohania, Ashok Kumar, Ravinder Nagpal, P.V. Behare, P.K. Aggarwal, Mukesh Yadav, Francesco Marotta, Shalini Jain and Hariom Yadav

Current Topics in Nutraceutical Research 7 (2): 55-64

55-64 FUNCTIONAL BENEFITS OF PSYLLIUM FIBER SUPPLEMENTATION

Julia Wärnberg, Ascensión Marcos, Gloria Bueno and Luís A. Moreno

ABSTRACT: *Commonly called Psyllium (Ispaghula Psyllium, Plantago ispaghula and Plantago ovata), has a long history of use as a dietary fiber supplement, primarily as a gentle bulk-forming laxative to promote the regulation of large bowel function, but it has as well a potential role in the treatment and prevention of bowel diseases such as diverticulosis, irritable bowel syndrome and inflammatory bowel disease, and could even play a protective role in the prevention of colon cancer. During the last decade, dietary supplementation with Psyllium has been shown to lower blood cholesterol level (especially LDL cholesterol) and to maintain blood glucose homeostasis, which together are the most effective preventive measures against diabetes and cardiovascular diseases. Much interest is being shown by the general public, the scientific community, and federal US regulators in the medical application of foods with specific health benefits (functional foods), foods that favorably modify physiologic function. There is also considerable interest in health claims by the industry to produce functional foods and to ensure efficacy of action. The intent of this review is to summarize the functional benefits of Psyllium fiber consumption and to explore the potential application this fiber has for first-line dietary prevention of these diseases and disorders.*

Current Topics in Nutraceutical Research 7 (2): 65-72

65-72 ALTERATION IN OXIDATIVE STRESS AND C-MYC PROTEIN BY ADMINISTRATION OF ACIDOPHILUS-CASEI DAHI ON DMH INDUCED COLON CARCINOGENESIS

Arvind, P. R. Sinha, Nikhlesh Kumar Singh and Raj Kumar

ABSTRACT: *Inhibitory potential of Acidophilus-casei dahi (Ac Dahi; a probiotic microorganism's fermented milk product) against DMH induced colon carcinogenesis was elucidated on the basis of alteration in oxidative stress and c-Myc protein level. Ninety rats were allocated to six groups including Normal control, DMH control, DRC-1 dahi (Normal dahi), Ac Dahi-DMH-Ac Dahi (pre initiation), Ac -Dahi (initiation) and DMH+ Ac Dahi group (post initiation). At 40th week, rats were sacrificed and activity of antioxidative enzymes i.e. Catalase and Superoxide dismutase, detoxification enzymes i.e. glutathione -s- transferase and glutathione peroxidase were estimated in RBC lysate. The c-Myc protein level was estimated in rats' colon. The results showed significant increase in antioxidant and detoxification level in Ac Dahi fed group in comparison to DMH control group. The c-Myc level was found highest in DMH control group. Feeding of Ac dahi at post initiation phase also reduced the oxidative and c-Myc protein level.*

CURRENT TOPICS IN NUTRACEUTICAL RESEARCH VOLUME 7 NUMBER 2

Current Topics in Nutraceutical Research 7 (2): 73-80

73-80 NEUROPROTECTION AGAINST HYPERHOMOCYSTEINEMIA-INDUCED SELECTIVE OXIDATIVE STRESS IN BRAIN REGIONS OF RATS WITH FOLIC ACID OR *DIOSCOREA ALATA* SUPPLEMENTATION

Hsiu-Ling Tsai, Jiun-Lin Yan, Shang-Ming Wang and Sue-Joan Chang

ABSTRACT: *Hyperhomocysteinemia (HHcy), an oxidative stress inducer, has been implicated in several oxidative-related neurodegenerative diseases. The present study evaluated the neuroprotective effects of folic acid or Dioscorea alata on different regions of the brain in HHcy-induced brain oxidative stress of rats with methionine (Met) loading. Rats were divided into control, Met, Met with folic acid and Met with Dios. HHcy promoted oxidative stress in brain by providing evidences that an elevation of ROS level occurred in the striatum and cerebellum in the Met group as well as the activities of SOD in the same region. A marked depletion of GSH content in the striatum was also observed in HHcy rats. Neuroprotective effect of folic acid supplement was more efficient than D. alata at reducing HHcy-induced ROS production and SOD activities, but effect of restoring striatal GSH content was less prominent. Our results provided that folic acid or D. alata supplement exhibited differentially neuroprotective effects.*

CURRENT TOPICS IN NUTRACEUTICAL RESEARCH VOLUME 7 NUMBER 2

Current Topics in Nutraceutical Research 7 (2): 81-88

81-88 AN OLIGOFRACTOSE-ENRICHED INULIN DIET: COGNITIVE AND PHYSICAL PERFORMANCES IN RATS

Pascale Rozan, Amine Nejdj, Sophie Hidalgo, Jean-François Bisson, Didier Desor, Michaël Messaoudi and Robert Lalonde

ABSTRACT: *The aim of the present study was to investigate the effects of long-term intervention with oligofructose-enriched inulin on behavioral, cognitive, and visuomotor coordination in rats. Three-month-old male and female rats were randomly distributed into two groups receiving either a diet with 10% oligofructose-enriched inulin (SYN1) or a standard diet tested at 12, 18 and 24 months of age. Rats supplemented with SYN1 showed age- and sex-related improvements in spatial learning abilities, depression, anxiety, and visuomotor speed more prominent at 12 and 18 months. These results suggest that long-term intervention with SYN1 can improve cognitive and emotional aspects of aging.*

CURRENT TOPICS IN NUTRACEUTICAL RESEARCH VOLUME 7 NUMBER 2

Current Topics in Nutraceutical Research 7 (2): 89-92

89-92 N ω -NITRO-L-ARGININE METHYL ESTER HYDROCHLORIDE BLOCKS HYPOTENSIVE EFFECTS OF NICOTINAMIDE

RB Castro and LM Vianna

ABSTRACT: *Stroke is the third leading cause of death and there are no proven neuroprotective drugs available today. Nicotinamide may have a possible effect on stroke risk factors and its mechanism of action is probably related to nitric oxide pathway. 36 stroke prone rats were divided in groups and received nicotinamide or tap water. Some groups also received a special hypercaloric hyperlipidic diet. Were also evaluated systolic blood pressure, blood glucose and lipid profile. The supposed mechanism of action on blood pressure was associated to nitric oxide and in 6 rats were also administered L-name. Nicotinamide reduced systolic blood pressure, blood glucose, total cholesterol and LDL, is also increased HDL. L-name administration blocked the hypotensive effect of nicotinamide. Our data suggests that Nicotinamide may be a powerful drug on the control of stroke risk factors such as hypertension, blood glucose levels and dyslipidemia. There was an association between the hypotensive effect of nicotinamide and nitric oxide.*

CURRENT TOPICS IN NUTRACEUTICAL RESEARCH VOLUME 7 NUMBER 2

Current Topics in Nutraceutical Research 7 (2): 93-96

93-96 APPLE JUICE STIMULATES ORGANIZED SYNAPTIC ACTIVITY IN CULTURED CORTICAL NEURONS

Michael Serra and Thomas B. Shea

ABSTRACT: *Supplementation with certain fruits and vegetables can improve cognition. Prior studies demonstrated that apple juice concentrate (AJC) improved cognitive performance and increased acetylcholine levels in brain tissue of mice. To determine whether or not AJC stimulated synaptic activity, cortical neurons of embryonic mice cultured on multi-electrode arrays received 0.1% AJC diluted in culture medium. AJC did not alter overall signaling, but fostered an organization of signals into less frequent and longer “bursts” of activity. These effects were attenuated by the inhibitory neuron antagonist bicuculline, indicating that AJC modulated signaling patterns by stimulation activity of inhibitory neurons. Since a balance between excitatory and inhibitory neuronal functions is an essential element of brain function, AJC may foster improved cognition at least in part by stimulation of inhibitory activity in situ. Culturing of neurons on multi-electrode arrays may be useful to study detailed aspects of nutrition on signaling.*

CURRENT TOPICS IN NUTRACEUTICAL RESEARCH VOLUME 7 NUMBER 2

Current Topics in Nutraceutical Research 7 (2): 97-104

97-104 METABOLOMICS: AN EMERGING TOOL FOR NUTRITION RESEARCH

Manoj Kumar, Dheeraj Mohania, Ashok Kumar, Ravinder Nagpal, P.V. Behare, P.K. Aggarwal, Mukesh Yadav, Francesco Marotta, Shalini Jain and Hariom Yadav

ABSTRACT: *Metabolomics is an emerging strategy of research in the field of medicine and biological sciences, which provide a platform to study small, endogenous*

metabolites in an organ, biofluid or whole organism. The development of metabolomics has been accelerated in the post genomic era, since these molecules report the interaction of genes and environment or the functional genome. The global analysis of metabolomics can execute the important information in the search of predictive disease biomarkers and can explore the understanding of diseases pathophysiology and development of molecular targeted therapeutics. Recently, the use of metabolomics in nutritional research has been increased, because of intimate relationship between nutrients and metabolism. The purpose of this review is to summarize the importance and evaluate the obtained information from the application of metabolomics in nutritional research, commonly tools to analyze interaction of nutrients and metabolites and future potentials.