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Evaluation of anti-inflammatory activity of *Psychotria sarmentosa* leaves used in traditional porridge in Sri Lanka

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Psychotria sarmentosa Blume (named "Gonica" in Sinhala; Family: Rubiaceae) has a long history of use in the folk medicine in Sri Lanka and it has wide popularity in the community as a leafy vegetable used in traditional porridge. Indigenous healers prescribe an aqueous extract of leaves for individuals who have been physically assaulted, indicating that it may possess potent analgesic/anti-inflammatory activity. Phytochemical screening indicated that the concentration of secondary metabolites is low in the aqueous extract. Recent developments in the field of bioactive macromolecules prompted us to study the anti-inflammatory potential of an aqueous extract and a macromolecular fraction obtained from it by ethanol precipitation in the carrageenan induced rat paw oedema model.

Doses of 100 mg/kg each of aqueous extract and the macromolecular fraction were orally administered to male Wistar rats ($n=6/\text{group}$) in comparison with distilled water and indomethacin (5 mg/kg) which served as the negative and positive controls respectively. One hour following administration of respective doses, 0.1 mL 1% carrageenan suspension was injected into the sub plantar surface of the rat's hind paw to induce local oedema. The volumes of paw were measured 1 hour prior to the injection and every hourly for 5 hours following the injection using a plethysmometer. The percentage inhibition of oedema was calculated at each hour. Data analysis was carried out using one-way analysis variance (ANOVA). Results with $p < 0.05$ were considered as statistically significant.

The maximum percentage inhibitions of carrageenan induced rat paw oedema were found to be 58.3% and 64.6% respectively for aqueous extract and macromolecular fraction at 3rd hour whereas it was 66.7% for indomethacin indicating comparable anti-inflammatory effect. These results warrant further search on identifying novel anti-inflammatory constituents from macromolecular fraction of this plant.

Keywords: Anti-inflammatory, *Psychotria sarmentosa*, Paw oedema

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Effect of isomaltulose on skeletal muscle in high-fat/high-sugar-fed rats

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[Objectives]

Isomaltulose (Palatinose®, 6-O- β -glucopyranosyl- β -fructose) is a structural isomer of sucrose. It is naturally found in honey and produced through the enzymatic transformation of sucrose. Isomaltulose has the same available energy as sucrose (4kcal/g); however, it has been reported that isomaltulose suppresses the accumulation of visceral fat because its digestion rate is 3 times slower than that of sucrose. Therefore, it is useful for athletes, allowing them to obtain energy from carbohydrate without accumulating visceral fat. However, the skeletal muscle enhancing effect of isomaltulose is not clear. The aim of this study is to clarify the skeletal muscle enhancing effect of isomaltulose on high fat high sugar fed rats.

[Materials & Methods]

6 week old Wistar rats were fed a high fat high sucrose (HFHS group) or high fat high isomaltulose (HFHI group) diet for 17 weeks. At the end of the experiment, blood was collected, and visceral fat and skeletal muscles were excised. The serum was used for general biochemical examinations.

[Results & Findings]

No significant difference was observed in energy consumption (kcal/kg) between the two groups. The body weight in the HFHI group was lower than that in the HFHS group; however, no significant difference was observed. Mesenteric, epididymal, and perirenal fat weights were significantly lower in the HFHI group than in the HFHS group. The gastrocnemius, plantaris, and extensor digitorum longus muscle mass showed little difference between the two groups.

[Conclusion]

Isomaltulose inhibited visceral fat accumulation but maintained skeletal muscle mass. Therefore, isomaltulose has great potential as an energy source for athletes during training.

Keywords: isomaltulose, muscle, athlete

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The Effect of vine tea on metabolic syndrome in Diet-induced Obese Rats

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The metabolic syndrome (MS) is defined as a cluster of metabolic disorders in the person. Many studies shown MS caused an increased risk for type 2 diabetes mellitus and cardiovascular disease. Vine Tea (*Ampelopsis Grossedentata*) has been consumed as a health tea and herbal medicine for hundreds of years. The objective of this study is to investigate the effect of vine tea extract (VT) on MS. The male Wistar rats were divided into four groups: basal group (B), fed with chow diet; control group (C), fed with high fat diet alone; low dose group (L), fed with high fat diet plus low dose VT; high dose group (H), fed with high fat diet plus high dose VT. The study lasted for 9 weeks. Blood pressure, plasma glucose, insulin, triglyceride, total cholesterol and insulin sensitivity were measured. Our data showed that, systolic blood pressure, fasting plasma glucose, hepatic lipid content and abdominal fat mass were significantly raised in group C. These data indicated that high fructose diet could cause a pathologic status resembling MS. The H group showed improvement in all of these metabolic defects and in insulin resistance. In conclusion, the present data suggest that VT supplement might improve MS.

keywords: *Ampelopsis Grossedentata*, metabolic syndrome, insulin resistance

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Zinc enriched Probiotic improves immune function and bioavailability of nutrients in young children

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Dadih, an Indonesian traditional fermented buffalo milk in Indonesia has been believed

to have a beneficial impact on human health. Previous studies showed *in vitro* adhesion capacity of *Lactobacillus plantarum* IS-10506 from dadih to intestinal mucus and the ability to inhibit and displace pathogens from human mucus. Significant increased of fecal lactic acid bacteria and fecal sIgA were observed in animal experiment. Studies conducted in Wistar rats showed that the strain has ability to repair brush border damage of intestinal due to LPS *E. coli*. **OBJECTIVE** : Working hypothesis was probiotic *L. plantarum* IS-10506 can maintain the intact intestinal epithelial and optimize the nutrient absorption. The aim of this study was to find out the significant function of probiotic in nutrient bioavailability. **MATERIALS AND METHODS** : Randomized double blind placebo controlled pre post trial on 12-24 months children was conducted with 4 groups, namely placebo, probiotic, zinc and probiotic and zinc supplementation for 90 days. Blood and stool samples were collected at baseline and at the end. Fecal sIgA was assessed by ELISA and serum zinc and serum selenium concentrations by ICP-MS and Watkinson method, respectively. Changes after supplementation were analyzed using paired t-tests; differences between groups by one-way ANOVA, Mann-Whitney U, Kruskal-Wallis and Chi-square tests, as appropriate. **RESULTS AND FINDINGS**: significant increase of fecal sIgA and the bodyweight gain of the children after 90 days supplementation of *L. plantarum* IS-10506 at 10^{10} cfu/day with or without zinc, $p < 0.01$ and $p < 0.027$, respectively, were found. Supplementation of probiotic *L. plantarum* IS-10506 with zinc at 20 mg/day as zinc sulfate also showed significant increased of serum zinc ($p < 0.05$) and serum selenium ($p < 0.05$) of the young children. **CONCLUSION** : Taken together, *L. plantarum* IS-10506 improved bioavailability of nutrients through the improvement of digestion and/or absorption in the intestine.

keywords: dadih, *L. plantarum* IS-10506, bioavailability of nutrients

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