Archives of Food and Nutritional Science

Volume - 2, Issue - 1

Research Article **Published Date:- 2018-12-31**

Lemongrass tea consumption and changes in Acid-Base Balance and Electrolyte homeostasis

The consumption of dietary herbs and supplements may be associated with several physiological consequences including, but not limited to disturbances of acid-base homeostasis, minerals and electrolytes wasting, gastrointestinal disturbances as well as hemodynamic changes. Plants food based nutritional studies are important for assessing the effect of plants on human health and wellbeing. The aim of this study was to assess the changes in acid-base status and electrolyte homeostasis following the consumption of lemongrass tea. The acute and sub-chronic effects of infusions prepared from 2, 4, and 8g lemongrass leaf powder on serum and urinary pH, and electrolytes levels were assessed in 105 subjects using an interventional study design. The results post-treatment were compared with baseline values.

Plasma pH decreased from baseline value of 7.37 ± 0.02 to 7.20 ± 0.03, and 7.30 ± 0.02 at days 10 and 30 respectively for participants treated with infusion prepared from 2g of lemongrass leaf powder. For those treated with infusion prepared from 4g of lemongrass leaf powder, plasma pH decreased from baseline value of 7.35 ± 0.02 to 7.22 ± 0.02 and 7.29 ± 0.02 at days 10 and 30 respectively.

Treatment with infusion prepared from 8g of lemongrass leaf powder caused a decrease in plasma pH from baseline value of 7.38 ± 0.02 to 7.15 ± 0.02 and 7.18 ± 0.02 at days 10 and 30 respectively. Corresponding changes in urinary pH were also observed. Furthermore, at days 10 and 30, plasma protein concentrations increased significantly ($p < 0.05$) in subjects treated with infusion prepared from 8g lemongrass leaf extract. There were also significant increases ($p < 0.05$) in urinary volume, urination frequency, and urinary electrolytes levels within the same period.

The consumption of lemongrass tea may be associated with changes in acid-base balance and electrolyte homeostasis due to its varied biological constituents and their activities

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Editorial **Published Date:- 2018-12-18**

Recent findings related to Nutrition and Diabetes Mellitus

Roux-en-Y Gastric Bypass surgery is superior to medical treatment for short- to medium-term remission of Type 2 diabetes (T2DM) [1]. Recent research indicates that the improvements in insulin sensitivity following bariatric surgery are associated with elevated circulating bile acid concentration and remodeling of gut microbiota [2]. Gut microbiome can be considered as a target of dietary interventions or medicines to prevention/treatment of hyperglycemia in T2DM. Since, the glucose-lowering effects of metformin are mediated by changes in the composition and function of gut microbiota [3,4].

Research Article **Published Date:- 2018-12-04**

Evaluation of Clupeids and Danish fish meal based diets on the growth of African catfish, Clarias gariepinus fingerlings

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Two experimental feeding trials were conducted concurrently to study the growth response of African catfish Clarias gariepinus fingerlings to graded levels (0, 5, 10, 15 or 20%) of clupeids in Danish fish meal (DFM) based diets. Chemical analysis of the DFM and clupeids fish meal (CFM) was carried out. Completely randomized design with triplicated groups of fingerlings were used for both trials in an indoor and out-door concrete tanks for six and twelve weeks respectively. The study aimed at achieving a cost effective fish meal from local aquatic resources (clupeids fish) highly prolific and abundant in Nigeria water bodies to replace foreign fish meal in West Africa Region. A project supported by West African Agricultural Productivity Project (WAAPP) in NIFFR, Nigeria.

The results of proximate, amino acid profile, mineral and fatty acid composition analysis of CFM indicated values which are very close to those of the DFM. The proximate analysis revealed CFM to contain 70.6% crude protein while DFM contains 72%. There were no significant difference between the treatments with respect to final weight, feed consumed, feed conversion ratio, digestibility and survival ($P>0.05$) although there was significant difference in specific growth rate ($P<0.05$) with the highest value obtained in the diets with both fish meal at ratio 1:1. There were no significant difference in haematological parameters ($P>0.05$). However the lymphocytes were high in all the groups which might not be particularly due to the treatments. The high proliferation of the body defence cells by the fish could be a mechanism of survival in the aqua-medium which is likely to be high in microbial load due to waste materials. Feed Cost/Kg for DFM was N260.16 while for CFM was N227.16. The results of chemical analysis and feeding trials indicated positive replacement of the DFM with CFM in fish feeds without negative effect on growth performance

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Research Article **Published Date:- 2018-11-30**

Micronutrient deficiency, a novel nutritional risk factor for insulin resistance and Syndrom X

Emerging evidence indicates that micronutrient deficiency could play a significant role in the pathogenesis and progression of many chronic diseases including diabetes mellitus, hypertension, obesity, dyslipidemia, hyperuricemia, kidney disease, cancer, anemia and other cardio-metabolic and neurodegenerative diseases through the induction of Insulin resistance (IR). However, there are still gaps in our scientific knowledge regarding the links between micronutrient deficiencies, IR, and cardio metabolic disorders. This review provides current information on recent advances and a global perspective regarding the relationship between micronutrient deficiency, IR, and cardio metabolic disorders. Empirical evidence indicates that deficiencies in either micronutrients associated with insulin activity (such as Chromium, manganese, magnesium, and iron) or antioxidant enzyme cofactors (such as vitamin A, copper, zinc, and manganese) could impact several physiological processes leading to a cascade of metabolic and biochemical derangements such as B-cell apoptosis, loss of islet cell mass, defective tyrosine kinase activity, oxidative stress, pancreatic ?-cell dysfunction, reduction in lean body mass, defective insulin signaling mechanism, elevated protein kinase C activity, and excess intracellular calcium. Collaboratively, these states of metabolic malfunctioning are associated with IR, which triggers the onset of many cardio metabolic diseases. Undoubtedly, the prevention of micronutrient deficiency may indeed ameliorate the incidence of IR and cardio-metabolic disorders in those at risk and in the general population.

Research Article **Published Date:- 2018-10-10**

Effects of Balanites Aegyptiaca (del) Seed Cake on Growth and Carcass Performance of Growing Rabbit

A study on growth and carcass performance was conducted to evaluate the effect of Balanites aegyptiaca seed cake meal (BASCM) as a substitute for groundnut cake in the diet of growing rabbit. Five experimental diets were formulated representing the following treatments: T1, T2, T3, T4 and T5 respectively. T1 (0% BASCM) was served as the control diet, while T2, T3, T4 and T5 contained 25%, 50% 75% and 100% BASCM respectively. A total of 100 weaner rabbits of mixed breeds were purchased from the National Animal Production Research Institute (NAPRI), Zaria, Nigeria. The rabbits were fed the control diet during the one week of adjustment period. They were given vitalyte as anti-stress and were dewormed using ivermectin, at the end of one week of adjustment; the rabbits were housed in different hutches and fed their respective experimental diet for one month. Each treatment contained 20 rabbits and these treatments' (T1-T5) each were replicated in four portions and each portion had five rabbits each. Results showed that all the parameters were significantly different ($P<0.05$) among the treatment groups. Balanites aegyptiaca seed cake meal can replace groundnut cake at 25% level inclusion without adverse effect on the rabbit physiology.

Research Article **Published Date:- 2018-03-12**

[Nutritional and structural evaluation of selected Black gram varieties for preparation of Fermented Thick Pancake (Dosa)]

The quality characteristics of selected black gram varieties viz., VBN 5, VBN 7, ADT 3, T9 and CO 6 and were evaluated for their suitability for the preparation of thick pancake. The foaming stability and foaming capacity were found to be maximum in VBN 5, CO 6 and T9. Maximum rise in volume was recorded in CO 6 (149 ml) followed by VBN 5 (148 ml) and T9 (147 ml) which is an indication good quality of thick pancake. Thick pancake prepared using 5 black gram varieties were analyzed for the physicochemical and microbial load. The texture profile viz., springiness, cohesiveness, chewiness and gumminess was evaluated for VBN 5, CO 6, T9 and VBN 7 respectively. The protein content was higher in thick pancake prepared from VBN 5 (25.47/100 g) compared to CO 6 (24.66 g/100g). Among the selected varieties, CO 6, T9 and VBN 5 had good batter content, texture, and microstructure and were found to be most suitable for thick pancake preparation.