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1-10 PROBIOTICS- AN INDIAN PERSPECTIVE Jashbhai B. Prajapati

ABSTRACT: This is an invited position paper that summarizes status of probiotics research activities in India. The purpose of these country or region based postion papers are to encourage and facilitate collaborative research within and outside geopgraphic regions. This is the first of the many papers in this series.

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11-16 PROBIOTICS: A NEW THERAPEUTIC APPROACH IN THE TREATMENT OF ALLERGY AND ECZEMA L. Drago and M. Toscano

ABSTRACT: In the last decades allergic diseases, such as atopic dermatitis, raised significantly worldwide, causing physical and physiological discomfort. Several factors, such as inflammatory diseases associated to the gut, are able to weaken the intestinal barrier, leading to an increase in mucosa permeability. The subsequent dysregulation of intestinal immune system has a significant role in worsening allergic diseases and it has been correlated with intestinal bacteria, as the gut microbiota is able to influence the immune system, by stimulating the release of pro- and anti-inflammatory cytokines. Therefore, several clinical studies suggested that probiotic bacteria may be a potential therapeutic approach in the management of allergic diseases, as probiotics are able to influence the gut microbiota composition and interact with the intestinal mucosa-associated immune system. The aim of this work was to review the knowledge about the role of probiotics in the treatment and prevention of allergic diseases and eczema.

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17-22 *IN VITRO* BIOSURFACTANT PRODUCTION AND BIOFILM INHIBITION BY LACTIC ACID BACTERIA ISOLATED FROM FERMENTED FOOD PRODUCTS **Sukhminderjit Kaur, Amrita, Prabhjot Kaur and Ravinder Nagpal**

ABSTRACT: Lactic acid bacteria, one of the most important types of friendly bacteria found in the digestive tract, have also been found to produce biosurfactants that can inhibit biofilm formation by pathogens. The present study was aimed at screening such lactic acid bacteria for biosurfactant production, particularly in relation to the inhibition of biofilm formation by Escherichia coli and Staphylococcus aureus. A total of 19 bacterial isolates were screened for biosurfactant production and inhibition of biofilm formation in-vitro. Fourteen (73%) isolates showed biosurfactant production by drop-collapse and oil displacement methods. Of these, 4 isolates were also found to prevent the biofilm formation by E. coli and S. aureus. Particularly, isolate L. plantarum LB19 showed highest biosurfactant activity and inhibition of biofilm by E. coli and S. aureus. Biofilms are responsible for chronic bacterial infections, infections on medical devices, deterioration of water quality, and contamination of foods. Lactic acid bacterial strains with biosurfactant producing and biofilm formation inhibiting abilities could prove to be beneficial in controlling diseases caused by pathogenic biofilms.

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23-30 CARCASSES, MEAT AND BONE QUALITY OF BROILER CHICKENS FED WITH POSTBIOTIC AND PREBIOTIC COMBINATIONS Karwan Yassen Kareem, Teck Chwen Loh, Hooi Ling Foo, Samsudin Anjas Asmara, Henny Akit, Nazim Rasul Abdulla and May Foong Ooi

ABSTRACT: The study assessed the effects of different types of postbiotics that mixed with different levels of prebiotic (inulin) on carcass, meat and bone quality. A total of 280 male Cobb broiler chickens were randomly assigned to 8 treatment groups. The treatments included basal diet (-ve control), basal diet+neomycin and oxytetracycline (+ve control), (T1) basal diet+0.3% postbiotic RI11 (T2) basal diet+0.3% postbiotic RG14 (T3) basal diet+0.3% postbiotic RI11+0.8% inulin, (T4) basal diet+0.3% postbiotic RI11+1.0% inulin, (T5) basal diet+0.3% postbiotic RG14+1.0% inulin. The birds were fed the diets for 6 weeks and slaughtered. Meat quality assessment was conducted on the breast muscle while bone quality traits were assessed on tibia of right leg. Birds fed postbiotics and inulin had lower (p < 0.05) drip loss and improved (p < 0.05) lightness of breast muscle as compared to the control birds. No changes were observed in cooking loss, shear force and most carcass attributes among the treatments. Carcass attributes, bone breaking strength, tibiotarsal index and robusticity index were not significantly different (p > 0.05) among the treatments. Postbiotic and inulin had beneficial effect on meat quality as compared to antibiotics.

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31-36 ANTI-INFLAMMATORY AND IMMUNOMODULATORY EFFECTS OF *BACILLUS COAGULANS* UNIQUE IS2 **M. Ratna Sudha and Kalle M. Arunasree**

ABSTRACT: The anti-inflammatory and immunomodulatory effects of the heat-killed filtered culture supernatant (HSUP) of Bacillus coagulans Unique IS2 (BC IS2) strain was investigated. The anti-inflammatory effects BC IS2 was studied using lipolysaccharide (LPS)induced inflammation of mouse macrophage cells, RAW 264.7 cells, and determining the protein and RNA levels of cyclooxygenase-2 (COX-2) by immunoblot and RT-PCR respectively. The immunomodulatory effects were studied using LPS-activated PBMCs by quantifying the cytokines produced by Th1 cells (TNF-a, IFN-g, IL-2) and Th2 cells (IL-6, IL-10). Results of the study show that the anti-inflammatory effects of the heat killed filtered culture supernatant of Bacillus coagulans Unique IS2 (HUSP BC IS2) were mediated through inhibition of COX-2 and inflammatory cytokines via inhibition of NF-kB activity. The immunomodulatory effects were mediated by significant production of Th1 cytokines. Our data suggests that a heat stable component of the supernatant of Bacillus coagulans Unique IS2 was able to reduce inflammation through modulation of the inflammatory gene expressions of COX-2, NF-kB, via cytokines initiating a cellular immune response. The study provides evidence that the heat killed supernatant of Bacillus coagulans Unique IS2 acts as an adjuvant for inflammatory diseases, mechanism of which is through Th1 cell-mediated immune response.

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37-42 ANTIOXIDANT ACTIVITIES AND BIFIDOGENIC PROPERTIES OF WATER-SOLUBLE CRUDE POLYSACCHARIDE PREPARATIONS FROM *FLAMMULINA VELUTIPES* AND *HYPSIZYGUS MARMOREUS* MUSHROOMS **Li Huang, Ming Chen, Sigian Li and Nagendra P. Shah**

ABSTRACT: Antioxidant activities of water-soluble crude polysaccharides (WSCP) were determined using the DPPH radical-scavenging test and reducing-power assay. Bifidogenic properties of WSCP were evaluated by enumerating viable counts of Bifidobacterium longum CSCC 5089 in soymilk containing WSCP and monitoring a decrease in pH values during incubation. Results indicated that H. marmoreus WSCP had significantly (P<0.05) stronger antioxidant activities than those of F. velutipes WSCP. Antioxidant activity of WSCP from H. marmoreus was 4.40 times stronger than those of F. velutipes WSCP with DPPH free radicalscavenging activity test, and 2.65 times stronger with the reducing-power assay. The viable counts of Bifidobacterium longum CSCC 5089 with powders of H. marmoreus and F. velutipes were significantly (P<0.05) higher than that of H. marmoreus and F. velutipes WSCP at 0, 12, 24, 36 and 48 h during fermentation. The viable counts of Bifidobacterium longum CSCC 5089 at 24 h with F. velutipes WSCP was $8.34 \pm 0.06 \log CFU/mL$, which was not significantly (P>0.05) different than that of H. marmoreus WSCP ($8.15 \pm 0.08 \log CFU/mL$), while both results were significantly (P < 0.05) higher than that of the control (7.36 ± 0.05 log CFU/mL). The pH values during incubation showed a pattern similar to that of the viable count of Bifidobacterium longum CSCC 5089. Our results showed that WSCP of H. marmoreus had significantly (P<0.05) higher DPPH radical scavenging activity and reducing power and both H. marmoreus and F. velutipes powders showed good bifidogenic effects on Bifidobacterium longum CSCC 5089.