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Idoui Tayeb, D. Boudjerda, Leghouchi Essaid and Karam Nour-Eddine

International Journal of Probiotics & Prebiotics 4(4): 229-232

229-232 **ANTIVIRAL ACTIVITY OF NEW FOOD PROBIOTIC PRODUCT *IN VITRO***
CV Sobol and MA Bichurina

ABSTRACT: *We propose a new probiotic food product (PFP) fermented by probiotic bacteria. While safe and innocuous, it acts against pathogens, potentially by several mechanisms. The feature of this study was to demonstrate antiviral activity against influenza by a completely natural food product, not a pharmacological agent. PFP displays considerable antiviral activity in vitro; various dilutions of this product reduced the titer of influenza virus in culture by more than 1 000 times. Rimantadine (0.1 mg/ml) was less effective in these experiments in vitro. It is very important to note that PFP reduced virus titer with the same efficacy, whether added to culture before or after infection. Because of its low toxicity, PFP could be an ideal prophylactic agent against influenza and viral pneumonia, especially in immuno-compromised people who are at high risk from the serious complications of influenza.*

International Journal of Probiotics & Prebiotics 4(4): 233-240

233-240 **COMPARATIVE EVALUATION OF MEDIA FOR PEDIOCIN PRODUCTION BY *PEDIOCOCCUS ACIDILACTICI* CP2 ISOLATE**
Baljinder Kaur, Balvir Kumar, Praveen P. Balgir and Puja Bhatia

ABSTRACT: *The optimal media composition for pediocin production from *Pediococcus acidilactici* isolates CP-1, CP-2 and CP-3 was comparatively investigated in standard and modified culture media. Very high pediocin titers of 36,000 AU/ml were obtained in MRS broth with isolates CP-2 and CP-3. For lactose fermenting CP-1 isolate pediocin activity was comparatively low in MRS. Maximum pediocin activity recorded in TGE medium was only 10,000 AU/ml in all the three producers. However, growth of isolates in TGE supplemented with skimmed milk yielded three times more pediocin activity. Synthetic media formulations containing molasses and corn steep liquor, completely inhibited pediocin productions in isolate CP-1. Reduced pediocin activities were also observed in other producers in synthetic media containing CSL. Pediocin yields of 16,000 AU/ml were achieved in synthetic media. Thus results indicate that industrial scale production of pediocin at an acceptable cost and quality can be accomplished using TGE medium supplemented with skimmed milk.*

International Journal of Probiotics & Prebiotics 4(4): 241-248

241-248 **CLINICAL EFFECTS OF CELL PREPARATION OF *LACTOBACILLUS* GG AND *L. GASSERI* TMC0356 ON PERENNIAL ALLERGIC RHINITIS: A DOUBLE-BLIND PLACEBO -CONTROLLED TRIAL**
Manabu Kawase, Fang He, Akira Kubota, Gaku Harata and Masaru Hiramatsu

ABSTRACT: Lactobacillus GG (LGG) and L. gasseri TMC0356 (TMC0356) have the characteristic property of influencing the immunity of the host, by which these probiotics probably contribute to the management of allergic diseases. The present study was conducted to examine the potency of a LGG plus TMC0356 cell preparation to alleviate perennial allergic rhinitis in a double-blind, placebo-controlled clinical trial. A cell preparation of LGG plus TMC0356 (LGG-TMC0356) or placebo was administered for 8 weeks to 35 subjects having a clinical history of perennial allergic rhinitis. Subjective symptoms, self-care measures, and blood samples were compared between the two groups. Treatment with the LGG plus TMC0356 cell preparation significantly decreased the nasal symptom-medication score (SMS) after 2 weeks ($P < 0.05$). In the subgroup of patients with moderate to severe SMS for rhinorrhea before intervention, the test preparation significantly altered rhinorrhea SMS after 2, 4, 6, and 8 weeks as compared with the group treated with placebo ($P < 0.05$). These results indicate that LGG and TMC0356 might be beneficial in patients with perennial allergic rhinitis having moderate to severe SMS.

International Journal of Probiotics & Prebiotics 4(4): 249-256

249-256 **SELECTION AND CHARACTERIZATION OF POTENTIAL PROBIOTIC SACCHAROMYCES STRAINS ISOLATED FROM FRUITS, FERMENTED FOOD AND DAIRY PRODUCTS**
Kalpana Dixit, D. N. Gandhi and Prashant Chauhan

ABSTRACT: *The present study investigates the probiotic potential of Saccharomyces strains, isolated from different fermented milk products and glucose rich fruits like lychee and grapes. A total number of 11 Saccharomyces strains were selected for the evaluation of their probiotic attributes on the basis of biochemical and molecular identification. Among 11 strains, screened for in vitro probiotic tests, two Saccharomyces strains viz. VG and 8S4 have been found to bear promising probiotic potential with reference to their survival in simulated gastrointestinal environment and appreciable adherence properties. Both the isolates were sequenced and submitted in NCBI genbank with Accession no. EU486158 and EU486159 respectively. Present study offers exciting opportunities for the successful exploitation of probiotic Saccharomyces as a biotherapeutic agent because of their co-applicability with a large number of antibiotics as adjuvant therapy.*

International Journal of Probiotics & Prebiotics 4(4): 257-262

257-262 **APPLICATION OF STATISTICAL METHOD FOR *IN VITRO* SELECTION OF PROBIOTIC LACTOBACILLUS STRAINS**
Nupur Goyal and D.N. Gandhi

ABSTRACT: *A collection of 20 cultures from NCDC (National Collection of Dairy Culture), NDRI and 2 from MTCC (Microbial Type of Culture Collection), IMTECH were screened to select the plausible strains with maximum basic characteristics of probiotics. All the strains were evaluated for their resistance to low acidic conditions (pH1.0) and bile tolerance at 2% bile concentration. In parallel, the cultures were screened for their antimicrobial activity, adhesion, and lactose hydrolyzing activity. The data obtained was statistically analyzed using the method of rank correlation and commonality analysis; the strains were ranked and cultures contributing maximum to overall probiotic effect were selected. Among all species with different strains, the desired promising ones were the strains of acidophilus and casei. In*

vitro tests along with statistical application was done to choose probiotics among variable Lactobacillus spp, so that the selected one can be exploited in food for the treatment against diarrhea causing pathogens.

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263-270 **THE EFFICACY AND THE SAFETY OF *LACTOBACILLUS BREVIS* KB290 AS A HUMAN PROBIOTICS**

Yukihiro Nobuta, Takuro Inoue, Shigenori Suzuki, Chinatsu Arakawa, Takafumi Yakabe, Mutsumi Ogawa and Nobuhiro Yajima

ABSTRACT: *We recruited healthy volunteers for the series of 4 human trials evaluating the suitability of Lactobacillus brevis KB290 as a probiotic. Subjects consumed placebos or various products of KB290, and we investigated in vivo survivability of different strains, its effects on bowel movement, intestinal acids and microflora, and its safety. For the survival study, we classified fecal microflora according to phenotypic and genetic characteristics and determined that KB290 did survive passage through the digestive tract. For the effect on bowel movement, analysis revealed that KB290 at 2.1×10^9 cfu/day for 4-week was enough to improve bowel movement in some cases. Examination of fecal samples suggested that KB290 at 4.2×10^9 cfu/day for 2-week increased the number of bifidobacteria and lactobacilli in the intestine as well as the concentration of total organic acid. For the safety study, subjects consumed KB290 at 2.7×10^{10} cfu in beverage or 5.9×10^{10} cfu in tablets a day for 2-week, or 7.1×10^9 cfu once a day for 12-week. Few adverse effects were attributable to the ingested KB290; they resembled the effects reported for other probiotics and disappeared spontaneously in a few days. Our results suggest that KB290 is safe for humans, improves bowel function, intestinal acetic acid concentration, and microflora.*

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271-276 **DEVELOPMENT OF EFFICIENT PROBIOTIC *PROPIONIBACTERIUM FREUDENREICHII* SUBSPECIES *SHERMANII* TO COMBAT VITAMIN B₁₂ DEFICIENCY**

Thirupathaiah Yeruva, Swarupa Rani Chiliveri, Sudhakara Reddy Marrivada, Manikyam Ananth and Venkateswar Rao Linga

ABSTRACT: *The aim of present study is to examine the possibilities of isolating effective Propionibacterium freudenreichii subsp. shermanii to use as a probiotic to combat vitamin B₁₂ deficiency. The strains were isolated and identified by biochemical and molecular (16s rRNA) methods. The tolerance of selected isolate, P. freudenreichii subsp. shermanii (OLP5) to low pH, high bile concentration and production of vitamin B₁₂ were assessed. Quantitative studies of vitamin B₁₂ production in the presence of bile salts were also carried out. It was observed that P. freudenreichii subsp. shermanii (OLP5) could tolerate extreme conditions viz. bile salts (1.0 g/l), acidic pH (2.0). A maximum of 14.7 mg/L of vitamin B₁₂ was produced under optimal conditions. Extracellular vitamin B₁₂ was found to be increased (0 to 0.3 mg/L) concurrently with bile salt concentration. Current studies indicate the survival of P. freudenreichii subsp. shermanii (OLP5) in extreme conditions and production of significant amounts of extracellular Vitamin B₁₂. The effective utilization of this strain can be used as an agent to overcome vitamin B₁₂ deficiency. In addition, this would eventually benefit to exert the other important therapeutic applications. To the best of our knowledge we have reported first time, the relation between bile salts concentration and vitamin B₁₂ production.*

277-280 **THE EFFECT OF *Lactobacillus plantarum* BJ0021 FEEDING ON GROWTH PERFORMANCE AND FAECAL MICROFLORA OF CHICKENS (ISA 15 STRAIN)**

Idoui Tayeb, D. Boudjerda, Leghouchi Essaid and Karam Nour-Eddine

ABSTRACT: *Probiotics have been used with increasing frequency in nutrition and for prophylactic purposes during the last years. In the present study, a probiotic Lb.plantarum BJ0021 preparation was supplemented in drinking water for chicken ISA15 strain during seven weeks and some growth performance were measured. The effect of this probiotic on faecal flora was evaluated too. The results demonstrated that the 7 –weeks application of this probiotic significantly increased the population of lactic acid bacteria ($P<0.05$) and significantly decreased the counts of enterobacteria in faeces ($P<0.05$). The results had concluded that beneficial effect on some growth performance was seen when *Lactobacillus plantarum* BJ0021 was used in drinking water.*