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International Journal of Probiotics & Prebiotics 4(1): 1-6

1-6 QUALITY OF RABBIT MEAT AFTER APPLICATION OF BACTERIOCINOGENIC AND PROBIOTIC STRAIN *ENTEROCOCCUS FAECIUM* CCM 4231 IN RABBITS

Monika Pogány Simonová, Renáta Szabóová, Michaela Haviarová, L'ubica Chrastinová, Jozef Mojto, Viola Strompfová, Andrea Lauková and Ján Rafay

ABSTRACT: *Physico-chemical traits, amino acid composition and microbial status of rabbit meat were checked after rabbit feed supplementation by bacteriocinogenic and probiotic strain Enterococcus faecium CCM 4231 in this study. Significant increase of amino acids threonine and serine ($p < 0.001$) in Musculus longissimus dorsi of rabbits was noted after CCM 4231 supplementation. Leucine, histidine, glutamic acid, proline, alanine, tyrosine were also detected in higher concentrations in the samples from experimental group than in control samples. Changes in the physico-chemical properties of rabbit meat were not significant. Reductive effect of CCM 4231 strain against E. coli after 24 hour storage in refrigerator was observed. The increased amino acid content and no negative influence on meat quality and nutritional value during CCM 4231 supplementation suggest that the application of this new bacteriocinogenic strain with probiotic properties could be promising in rabbits breeding.*

International Journal of Probiotics & Prebiotics 4(1): 7-14

7-14 MOLECULAR CHARACTERIZATION OF BIFIDOBACTERIA OF HUMAN ORIGIN

Pawas Goswamia, Sunita Grover and V. K. Batish

ABSTRACT: *Indigenous bifidobacteria of human origin were isolated from infant faecal samples. The isolates were tentatively identified as Bifidobacteria on the basis of fructose-6-phosphate phosphoketolase (F6PPK) enzyme assay and other biochemical tests. Their identity was further confirmed by genus specific PCR using two primer pairs P0 + Im3 and Im26 + Im3 targeted against the 16S rDNA. Out of 47 isolates giving a positive F6PPK reaction, only twenty-three were found to be positive by PCR assay using primers P0 + Im3 while all the F6PPK⁺ isolates produced the desired amplicon of 1.35 kb with PCR based on the other primer set Im26 + Im3. All of these 47 isolates were further subjected to species-specific PCR assays using the respective species specific primers viz. BiLON1+2, BiINF1+2, BiBIF1+2, BiADO1+2 and BiBRE1+2 for B. longum, B. infantis, B. bifidum, B. adolescentis and B. breve giving amplified products of 831 bp, 828 bp, 278 bp, 279 bp and 288 bp respectively. However, nine isolates could not be assigned to any of the five species tested (including B. adolescentis). Three primer pairs targeting the bile salt hydrolase (BSH) gene of bifidobacteria were also designed and evaluated for identification of BSH positive bifidobacteria in single and multiplex formats with genus specific primers Im26 + Im3. These primers when used in conjunction with Im26 and Im3 showed promising results for identification of BSH positive bifidobacteria in multiplex assays.*

International Journal of Probiotics & Prebiotics 4(1): 15-22

15-22 SURVIVAL OF BIFIDOBACTERIA AND OTHER SELECTED INTESTINAL BACTERIA IN TPY MEDIUM SUPPLEMENTED WITH CURCUMIN AS ASSESSED *IN VITRO*

Syed Davoud Jazayeri, Shuhaimi Mustafa, Mohd Yazid Manap, Abdul Manaf Ali, Amin Ismail, Nur Huda Faujan and Mohd Yamin Shaari

ABSTRACT: *The growth of two Bifidobacterium strains (Bifidobacterium longum BB536, Bifidobacterium pseudocatenulatum G4) and other selected intestinal bacteria (Lactobacillus acidophilus, Lactobacillus casei shirota, Enterococcus faecalis JCM 5803 and Escherichia coli K-12) were studied in TPY medium containing various concentrations of curcumin (0.025, 0.050, 0.075 and 0.1% (w/v). Viable cell counts of the bacteria and their respective pH medium were determined during incubation period of 12h, 24h, 36h and 48h incubated at 37°C. In the presence of curcumin, cultures showed various degrees of growth inhibition compared to in TPY medium without curcumin. E. faecalis and B. longum BB536 were survived better than the other bacteria tested. Among the bacteria tested, L. acidophilus recorded the most sensitive to curcumin. The presence of curcumin did not change the pH of the medium*

as compared to the basal TPY. The ability of the bacteria to degrade curcumin after 48h incubation was studied using spectrophotometric method measured at 400.4 nm wavelength. The overall percentage reduction of 0.025, 0.050, 0.075 and 0.1% of curcumin by the bacteria tested was 56-60, 18-24, 15-16 and 12-14, respectively.

International Journal of Probiotics & Prebiotics 4(1): 23-32

23-32 EDUCATIONAL OPPORTUNITIES ABOUND: INFORMATION GLEANED FROM A SURVEY OF PENNSYLVANIA PHARMACISTS REVEALS INSIGHT INTO THEIR KNOWLEDGE AND ATTITUDES ABOUT PROBIOTIC THERAPIES

Brittany A. Ritchey, Brandy M. Pingatore, Denise Alexander and Kelly Karpa

ABSTRACT: *Patients often ask pharmacists for advice concerning use of dietary supplements. To assess pharmacists' attitudes and knowledge concerning use of probiotics for gastrointestinal, vaginal, and immunologic conditions, a questionnaire was distributed to Pennsylvania pharmacists. Two thousand two hundred thirty-eight pharmacists were invited to participate in a survey evaluating pharmacists' attitudes toward probiotics, the frequency with which pharmacists receive inquiries about probiotics from patients, and the frequency with which pharmacists recommend using probiotics for different medical conditions. Two hundred ninety-three pharmacists responded. Most were familiar with the term 'probiotic' and expressed some level of comfort ("somewhat comfortable" to "extremely comfortable") recommending probiotic therapies to select patients, but 8.0% were "not at all comfortable" recommending probiotics for patient use. Pharmacists are >4 times more likely to recommend probiotics to adults than to children. Furthermore, survey responses indicate that pharmacists are more likely to recommend probiotics for antibiotic-associated side effects than any other condition. The majority of pharmacists (91.3%) indicated willingness to learn more about probiotics. These findings show that most pharmacists are familiar and comfortable with the idea of using probiotics as therapeutic agents and are willing to learn more about the potential utility of these biotherapies.*

International Journal of Probiotics & Prebiotics 4(1): 33-40

33-40 EVALUATION OF BACTERIOCINOGENIC LACTIC ACID BACTERIA ISOLATED FROM FERMENTED MILK AND IDLI BATTER FOR PROBIOTIC APPLICATIONS

Vure Badarinath and Prakash M. Halami

ABSTRACT: *In search of new probiotic lactic acid bacteria (LAB) with starter cum protective culture properties, total 12 isolates were selected based on bacteriocin production ability and studied for its probiotic properties such as acid and bile tolerance, adherence property, cholesterol assimilation, bile salt hydrolase activity, prebiotic utilization. The results were compared with *L. rhamnosus* GG and two of enterocin-A producing starter cultures. Based on the survivability of the cultures for 2 hrs at pH 2.5, four isolates, showing survivability of 91±5 to 41±7 %, were selected for further study. Strains tested for bile tolerance, *L. plantarum* S and *Ent. faecium* IB6 were resistant (delay in growth: 10 min) and *P. pentosaceus* Cu5 and *Ent. faecium* RJ4 were tolerant (delay in growth 35 and 45 min) to 0.3 % Ox-gall concentration, and found to assimilate cholesterol (42±5 to 5±0.1 µg/mg of dry wt) as well as possessed bile salt hydrolase activity. Strains tested for β-galactosidase showed high (750±50 miller units) and moderate (300±10 miller units) and low (100±5 miller units) activity. And all the selected isolates showed inhibition against several food borne pathogens (25±2 to 5±0.2 mm), and has the ability to utilize the raffinose and maltose.*

International Journal of Probiotics & Prebiotics 4(1): 41-44

41-44 EFFECT OF THE AÇAÍ PULP ON THE SENSORIAL ATTRIBUTES OF PROBIOTIC YOGURTS

Mario H. B. de Almeida, Adriano G. da Cruz, Jose A. F. Faria, Miriam R. L. Moura, Lucia M. J. de Carvalho, and Maria Cristina J. Freitas

ABSTRACT: *The aim of this work was to evaluate the effect of addition of açai pulp on the sensorial features of probiotic Yogurts, thus defining the parameters for its use in processing. Yogurts with increasing açai pulp concentrations (3, 5 to 7 w/v %) was manufactured and submitted to sensorial evaluation, using discriminative (multiple paired comparison) pulp) and affective (acceptance) tests. The former related there was difference among the yogurts. The results suggested that the level of preference increased with increase in the proportion of açai pulp in*

the Yogurt formulation. The main attributes contributing to acceptance of the Yogurts containing more açai pulp (5% and 7 w/v %) were flavor and color ($p<0.05$). Consistency and aroma presented also better scores for both products, although without statistical difference. It is possible to produce probiotic yogurts with açai pulp with good sensory acceptance respecting the other technological parameters involved.

International Journal of Probiotics & Prebiotics 4(1): 45-50

45-50 EFFECT OF PROBIOTIC DAHI (CURD) ON CYTOGENETICAL PROFILE DURING 1,2-DIMETHYLHYDRAZINE INDUCED COLON CARCINOGENESIS IN RATS

Raj Kumar, P.R. Sinha, B.R. Yadav, Arvind, Nikhlesh Kumar Singh and Rakesh Tonk

ABSTRACT: *In human colon cancer is the major health problem worldwide. It arises by a well-defined series of histopathological changes (adenoma-carcinoma sequence), which are paralleled by mutations and deletion of tumor suppressor genes leading to chromosomal aberrations. Chromosomal aberrations are considered to be good somatic biomarkers of colon cancer and occur with the greatest frequency in lymphocytes. The present work was undertaken with objective to study the protective effect of probiotic dahi on generation of chromosomal aberrations (numerical and structural) in lymphocytes of 1, 2-dimethylhydrazine induced colon carcinogenesis in rats. The rats were divided into four groups 1) Normal diet control group; 2) DMH control; 3) Normal dahi (ND) group; 4) Probiotic dahi (PD) group. Rats were injected with DMH and sacrificed at 50th week of experiment, metaphasic chromosomes were prepared from blood lymphocytes and incidences of chromosomal aberrations were studied. In normal diet group, DMH control group, ND group and in PD group incidence of chromosomal aberrations were 2.0, 15.33, 12.0 and 4.66% respectively. Administration of probiotic dahi to rats significantly decreased the incidence of chromosomal aberrations in lymphocytes as compared to DMH control rats and rats fed with normal dahi ($P<0.05$). The findings of present study suggest that probiotic dahi exerts its antigenotoxic effects by preventing the chromosomal aberrations.*

International Journal of Probiotics & Prebiotics 4(1): 51-54

51-54 EFFECT OF FEEDING DIETS CONTAINING TWO DOSES OF LACTOBACILLUS PLANTARUM BJ0021 ON PERFORMANCE AND SOME CARCASS PARAMETERS OF LOCAL RABBIT

Idoui Tayeba Leghouchi Essaid and Karam Nour-Eddine

ABSTRACT: *Our study had for objective the effect of feeding diets containing two dose of Lactobacillus plantarum BJ0021 on growth performance in local rabbit. Fifteen young rabbits were weaned and divided into three groups with respect body weight at 42 days of age. Control group(C) was feed a standard food regime. In the treated groups (D₁ and D₂) the C feed was supplemented with 10ml and 2×10ml fermented milk/animal/day/seven weeks. The results showed that the supplementation of fermented milk diet with 2.16×10⁷ cfu Lb. plantarum BJ0021 /ml could had a positive effect on the performance of growing local rabbit and commercial carcass weight.*

International Journal of Probiotics & Prebiotics 4(1): 55-64

55-64 RANDOMLY AMPLIFIED POLYMORPHIC DNA PROFILES OF LACTOBACILLUS ISOLATES FROM HUMAN FAECAL SAMPLES

Raj Kumar Duary, Sunita Grover, A.K. Mohanty, J. K. Kaushik, and V.K. Batish

ABSTRACT: *The main purpose of this study was to explore molecular techniques like genus, species-specific and randomly amplified polymorphic DNA polymerase chain reaction for screening and identification of probiotic Lactobacilli. Methods: Twenty eight faecal samples from human subjects belonging to age group 23 – 26 years including infant (4 months to one and a half years) were the resource material for the recovery of probiotic lactobacilli which were subjected to genus and species-specific polymerase chain reaction assays for identification of the isolates of lactobacilli. Six different random 10-mer primers were used to generate randomly amplified polymorphic DNA banding patterns in respect of the selected isolates Results: Twenty-two faecal isolates were identified as Lactobacilli by genus specific polymerase chain reaction assays. Furthermore, their identities to species level were confirmed by species-specific polymerase chain reaction assays and were eventually identified as Lactobacillus plantarum, Lactobacillus casei and Lactobacillus paracasei. Out of Six 10-mer primers, OPL-1, OPL-2 and OPBG-01 primers generated good polymorphic and reproducible banding patterns. Conclusion: Using genus and species-specific*

polymerase chain reaction as a preliminary screening test and then randomly amplified polymorphic DNA - polymerase chain reaction can be as considered as the most reliable methods for correct biotyping of Lactobacillus spp.

International Journal of Probiotics & Prebiotics 4(1): 65-74

65-74 YOGHURT CONTAINING GALACTOOLIGOSACCHARIDES FACILITATES DEFECATION AMONG ELDERLY SUBJECTS AND SELECTIVELY INCREASES THE NUMBER OF BIFIDOBACTERIA

Anu Surakka, Kajsa Kajander, Mirjana Rajilic´-Stojanovic´, Heli Karjalainen, Katja Hatakka, Heikki Vapaatalo, Erwin G. Zoetendal, Willem M. de Vos, Riitta Korpela and Soile Tynkkynen

ABSTRACT: *This study examined the effects of yoghurt containing galactooligosaccharides (GOS) on the intestinal function and faecal microbiota of elderly subjects in a randomised, double-blind, placebo-controlled crossover study. The study comprised a two-week baseline period and two three-week interventions with a two-week wash-out period in between. Subjects consumed daily either GOS (10 g GOS/day) or placebo yoghurt. Only data from the first intervention period were used due to a carry-over effect. Defecation became easier during the GOS yoghurt period (the change in score describing the difficulty in defecation: -3.5; CI₉₅, -4.7 to -2.0 in comparison with placebo -0.1; CI₉₅ -2.1 to 1.7; P = 0.025). No adverse effects were reported. Fluorescence in situ hybridisation analysis showed an increase in Bifidobacterium spp. in the GOS yoghurt group (P = 0.013) whereas the Lactobacillus-Enterococcus group was lower than in the placebo yoghurt group (P = 0.012). Human Intestinal Tract Chip, a novel microarray allowing simultaneous analysis of all known intestinal microbes, confirmed the increase in Bifidobacterium spp. in the group that consumed the GOS yoghurt, and in addition, showed a decrease in Dorea and Clostridium sphenoides groups. In conclusion, GOS yoghurt provides a health-promoting effect since it facilitates defecation and increases the number of beneficial bifidobacteria.*