PREBIOTIC EFFECT OF FRUIT AND VEGETABLE SHOTS CONTAINING JERUSALEM ARTICHOKE INULIN: A HUMAN INTERVENTION STUDY

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Aim: The present study aimed at determining the prebiotic efficacy of fruit and vegetable shots containing inulin from Jerusalem artichoke (JA).

Methods: A 3-arm parallel placebo controlled double blind study was carried out with 66 healthy human volunteers (33 men and 33 women, age range: 18-50). Subjects were randomized into three groups (n=22) assigned to consume either the test shots, Pear-carrot-sea buckthorn (PCS) or Plum-pear-beetroot (PPB), containing JA inulin (5g/day) or placebo. Fluorescent *in-situ* hybridization (FISH) was used to monitor populations of total bacteria, bacteroides, bifidobacteria, *Clostridium perfringens/histolyticum* subgroup, *Eubacterium rectale/Clostridium coccoides* group, *Lactobacillus/ Enterococcus* spp., *Atopobium* spp., *Faecalibacterium prausnitzii* and propionibacteria.

Results and discussion: Bifidobacteria levels were significantly higher on consumption of both PCS and PPB shots (10.01 $\pm$ 0.24 and 9.84 $\pm$ 0.22 $\log_{10}$ cells/g faeces, respectively) compared to placebo (9.31 $\pm$ 0.42 $\log_{10}$ cells/g faeces) ($p<0.0001$). A small overall increase in *Lactobacillus/ Enterococcus* group was also observed for both PCS and PPB shots compared to placebo (8.32 $\pm$ 0.49 and 8.32 $\pm$ 0.36 $\log_{10}$ cells/g faeces, respectively compared to 8.13 $\pm$ 0.37 $\log_{10}$ cells/g faeces placebo; $p=0.042$). Other bacterial groups and faecal SCFA concentrations remained unaffected. No extremities were seen in the adverse events, medication and bowel habits. A slight significant increase in flatulence was reported in subjects consuming PCS and PPB shots compared to placebo, but flatulence levels remained mild. A very high level of compliance (>90%) to the product was observed. This study confirms the prebiotic efficacy of fruit and vegetable shots containing JA inulin.