We claim,

1. A method of increasing the viable colony count of *Bacillus coagulans* MTCC 5856 said method comprising step of growing *Bacillus coagulans* MTCC 5856 in the presence of natural plant fibres selected from the group consisting of *Trigonella foenum-graecum* (fenugreek) seed fibers, *Lycium barbarum* seed fibers, *Linum usitatissimum* (Flax) seed fibers, *Cocos nucifera* (Coconut) fibers, *Zingiber officinale* (Ginger) rhizome fibers, *Emblica officinalis* (Amla) fruit fibers, *Plantago ovata* (Psyllium) fibers and *Vaccinium oxycoccos* (Cranberry) seed fibers,

wherein the growth of *Bacillus coagulans* MTCC 5856 is doubled when incubated with the natural plant fibres as compared to when incubated with fructooligosaccharide.

2. A method of inhibiting the growth of pathogenic Gram Negative bacteria *E. Coli*, said method comprising step of bringing to contact *in vitro* said Gram Negative bacteria with *Bacillus coagulans* MTCC 5856 co-cultured with natural plant fibres selected from the group consisting of *Trigonella foenum-graecum* (fenugreek) seed fibers, *Lycium barbarum* seed fibers, *Linum usitatissimum* (Flax) seed fibers, *Cocos nucifera* (Coconut) fibers, *Zingiber officinale* (Ginger) rhizome fibers, *Emblica officinalis* (Amla) fruit fibers, *Plantago ovata* (Psyllium) fibers and *Vaccinium oxycoccos* (Cranberry) seed fibers

3. A method of producing short chain fatty acids by co-culturing *Bacillus coagulans* MTCC 5856 with natural plant fibres selected from the group consisting of *Trigonella foenum-graecum* (fenugreek) seed fibers, *Lycium barbarum* seed fibers, *Linum usitatissimum* (Flax) seed fibers, *Cocos nucifera* (Coconut) fibers, *Zingiber officinale* (Ginger) rhizome

fibers, *Emblica officinalis* (Amla) fruit fibers, *Plantago ovata* (Psyllium) fibers and *Vaccinium oxycoccos* (Cranberry) seed fibers,

wherein the production of the short chain fatty acids is doubled when *Bacillus coagulans* MTCC 5856 is co-cultured with the natural plant fibres, whereby said fibres are the sole nutritional source, as compared to when fructooligosaccharide is the sole nutritional source.