

## How much can we rely on probiotics in the treatment of irritable bowel syndrome?

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### Abstract

Probiotics available as dietary supplements, acting as "friendly bacteria" are known and used from ancient times for their beneficial effects. According to recent studies reports there is encouraging evidence for use of probiotics in many situations among them being irritable bowel syndrome (IBS), a functional condition where efficacy of current therapeutic options is not yet satisfactory. Present study was an open label prospective randomized study focused on a cohort of constipation predominant IBS patients receiving two kind of probiotic products for 3 months period. We assessed the severity of symptoms prior and after probiotic treatment. Our study has shown that some major symptoms such as: abdominal pain, bowel habit disturbances, flatulence were significantly improved after taken probiotics.

**Keywords:** Probiotics, microorganisms, bacteria, irritable bowel syndrome

### 1. Introduction

Probiotics known as "friendly bacteria" or "good bacteria" are defined as living organisms that, when administered in sufficient quantity, are beneficial to the host [1]. They are available in foods and dietary supplements (capsules, tablets, and powders) containing viable bacteria and yeast and being typically part of the body's normal microbial flora [2].

Some probiotic foods like fermented foods and cultured milk products were recorded from a lot of time ago. If it's about probiotics in most cases, the bacteria come from two groups, Lactobacillus or Bifidobacterium, with different species for each group (*Lactobacillus acidophilus* and *Bifidobacterium bifidus*), and different strains (or varieties) for each species (figure 1).

A few common probiotics, such as *Saccharomyces boulardii*, are different from bacteria being yeasts (figure 2).



Figure 1. Scanning electron micrograph (SEM) of *Bifidobacterium bifidum*

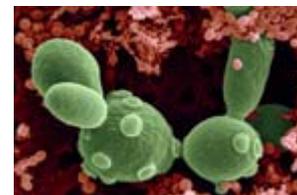


Figure 2. *Saccharomyces boulardii* in fermented fruit juice

According to recent studies reports there is some encouraging evidence for use of probiotics in many situations like: treating diarrhea (strongest area of evidence, especially for diarrhea from rotavirus), preventing and treating infections of the urinary tract or female genital tract, treating irritable bowel syndrome, etc.

Irritable bowel syndrome (IBS) is a functional gut condition characterized by abdominal dyspeptic complaints and alteration of bowel habit. Many treatments, both pharmacological and non-pharmacological, have been proposed for IBS. However, the efficacy of current therapeutic options is not yet satisfactory. A lot of recent studies with probiotics have shown therapeutic benefits, a good safety profile with no important adverse effects, their use representing an option for symptom relief in patients with IBS [3,4,5].

## 2. Materials and methods

**30 patients:** 20 women, 10 men, mean age=55,97±16,19 with constipation predominant IBS according to Rome II irritable bowel syndrome diagnostic criteria, having: (1) a negative physical examination; (2) normal complete blood count and sedimentation rate; (3) absence of ova and parasites in the stool; (4) no fever; and (5) negative findings at colonoscopy or sigmoidoscopy and double-contrast enema, underwent this study.

A thoroughly clinical examination and standard biochemical blood tests, anti Helicobacter pylori antibodies, HBs antigen, anti HCV antibodies, thyroid stimulating hormone levels, urine and stool tests, us abdominal scan, upper digestive endoscopy, colonoscopy were performed. The study design was open label prospective randomized study. Group 1 (15 patients) received “Biotics” by Ozone (1 billion strains/capsule such as *Lactobacillus acidophilus* 50% and *Bifidobacterium bifidus* 50%),3 capsules/day for 3 months, group 2 (15 patients) received “7 Bacterii lactice” by Bio Synergie (1 billion bacteria/capsule such as: *Bifidobacterium bifidum* 15%, *Bifidumbacterium longum* 4%, *Lactobacillus acidophilus* 14%, *Lactobacillus casei* 25%, *Lactobacillus bulgaricus* 2%, *Lactobacillus rhamnosus* 25%, *Streptococcus hemophylus* 15%), 3 capsules/day for 3 months.

Dyspepsia severity was set prior and after the treatment according to Gastrointestinal Symptom Rating Scale (GSRS), in which the intensities of the symptoms are scored on a 7-graded Likert scale from 0 = no symptoms to 6 = very severe symptoms. We scored the following symptoms: abdominal pain, bloating, flatulence and bowel habit.

## 3. Results and Discussion

Mean abdominal pain score prior to therapy with “Biotics” was 3,8±0,94; after therapy score was 2,87±0,83, p=0,011 (statistically significant). Mean abdominal pain score prior to therapy in “7 Bacterii lactice” group was 4,07±0,59; after therapy score was 3,20±0,77, p=0,018 (statistically significant). Curves of pain scores are shown in the figure 3.

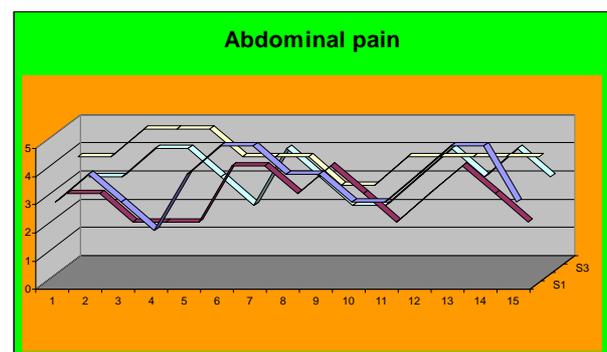


Figure 3. Scores of abdominal pain prior and after probiotics (group1=S1, S2; group 2=S3, S4)

Scoring for bloating were: for “Biotics” group 3,4±0,99 vs 2,87±0,83,p=0,1208( not statistically significant); for“7 Bacterii lactice” group 3,07±0,45 vs 2,67±0,62,p=0,05 (not statistically significant). Curves of bloating scores are seen in figure 4.

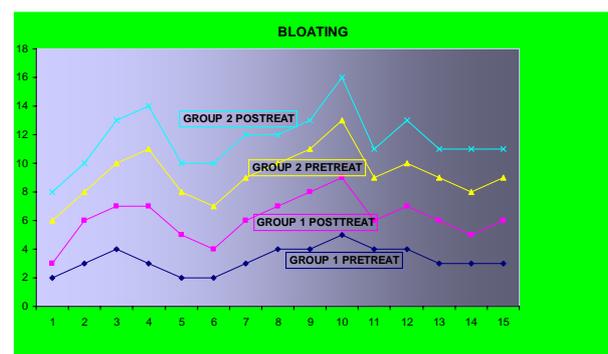


Figure 4. Scores of bloating prior and after probiotics in groups 1 and 2

Scoring for flatulence, were: for “Biotics” group 3,53±0,64 vs 2,33±0,62,p<0,0001( extremely statistically significant); for“7 Bacterii lactice” group 3,47±0,64 vs 2,47±0,83,p=0,0010( extremely statistically significant). Curves of flatulence are seen in figure 5.

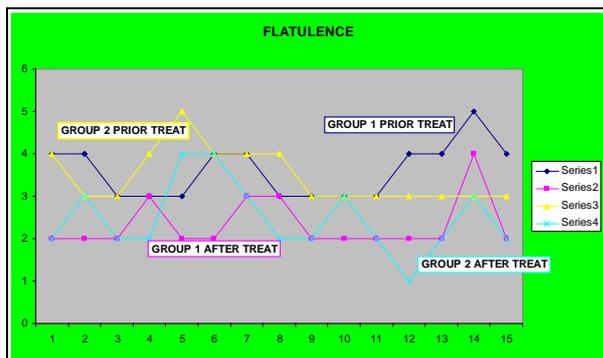


Figure 5. Scores of flatulence prior and after probiotics in groups 1 and 2

Scoring for bowel habit, were: for “Biotics” group  $3,33 \pm 0,62$  vs  $2,20 \pm 0,54$ ,  $p < 0,0001$  (extremely statistically significant); for “7 Bacterii lactice” group  $3,60 \pm 0,83$  vs  $2,40 \pm 0,74$ ,  $p = 0,0002$  (extremely statistically significant). Curves of bowel habit are seen in figure 6.

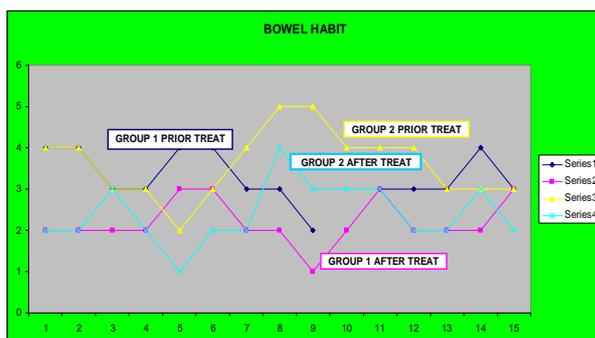


Figure 6. Scores of bowel habit disturbances prior and after probiotics in groups 1 and 2

Several clinical trials have recently used probiotics in patients with IBS in order to relief various symptoms or to improve their quality of life. Results of these studies, did not reach, however, the same conclusions, being still subjects to debate [4-7]. Our study was focused on patients with constipation predominant IBS and the way which two different formula of probiotics with the same presentation form, equivalent doses, taken for a long period of time (3 months) could modify the most important symptoms like: abdominal pain, bloating, flatulence, bowel habit. The best results were seen in improving flatulence and bowel habit.

Good results were also obtained in mitigating the abdominal pain. As for the bloating the results were not statistically significant. Both products “Biotics” and “7 Bacterii lactice” had comparable effects. No side effects were reported after taking these probiotics.

#### 4. Conclusions

Treatment of IBS is still a challenge for clinicians. However, probiotics may be an option for relieving at least some symptoms of IBS. Our study focused on patients with constipation predominant IBS, has shown that some major symptoms such as: abdominal pain, bowel habit disturbances, flatulence were significantly improved after taken probiotics.

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