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Coloncare Capsules - A Perfect Blend of 6 Probiotics & 2 Prebiotics to maintain healthy Gut Flora

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ABSTRACT

A probiotic is defined classically as a viable microbial dietary supplement that beneficially affects the host through its effects in the intestinal tract. This definition, however, was initially intended for use with animal feed products. For human nutrition, the following definition has been proposed. A live microbial food ingredient that is beneficial to health. A prebiotic is defined as "a nondigestible food ingredient that beneficially affects the host by selectively stimulating the growth and/or activity of one or a limited number of bacteria in the colon. The present paper Reviews the Role of Colon care capsules, a perfect blend of 2 prebiotics & 6 Probiotics to maintain healthy gut flora, developed by R&D cell of Lactonova Nutripharm Pvt Ltd. Hyderabad.

Keywords: Probiotic, Prebiotic, Synbiotic, Lactobacilli, Bifidobacteria, Inulin, Coloncare capsules

INTRODUCTION

A probiotic is a viable microbial dietary supplement that beneficially affects the host through its effects in the intestinal tract. Probiotics are widely used to prepare fermented dairy products such as yogurt or freeze-dried cultures. In the future, they may also be found in fermented vegetables and meats. Several health-related effects associated with the intake of probiotics, including alleviation of lactose intolerance and immune enhancement, have been reported in human studies. Some evidence suggests a role for probiotics in reducing the risk of rotavirus-induced diarrhea and colon cancer. Prebiotics are non-digestible food ingredients that benefit the host by selectively stimulating the growth or activity of one or a limited number of bacteria in the colon.

The combination of probiotics and prebiotics in a synbiotic might improve the survival of the bacteria crossing the upper part of the gastrointestinal tract, thereby enhancing their effects in the large bowel. In

addition, their effects might be additive or even synergistic.

Probiotics are live microorganisms thought to be beneficial to the host organism. According to the currently adopted definition by FAO/WHO, probiotics are: "Live microorganisms which when administered in adequate amounts confer a health benefit on the host" [1]. Lactic acid bacteria (LAB) and bifid bacteria are the most common types of microbes used as probiotics but certain yeasts and bacilli may also be helpful. Probiotics are commonly consumed as part of fermented foods with specially added active live cultures; such as in yogurt, soy yogurt, or as dietary supplements.

Etymologically, the term appears to be a composite of the Latin preposition *pro* ("for") and the Greek adjective *βιωτικός* (biotic), the latter deriving from the noun *βίος* (bios, "life"). [2]

At the start of the 20th century, probiotics were thought to beneficially affect the host by improving its intestinal microbial balance, thus

inhibiting pathogens and toxin producing bacteria [3]. Today, specific health effects are being investigated and documented including alleviation of chronic intestinal inflammatory diseases, [4] prevention and treatment of pathogen-induced diarrhea, [5] urogenital infections, [6] and atopic diseases.

The original observation of the positive role played by certain bacteria was first introduced by Russian scientist and Nobel laureate Élie Metchnikoff, who in the beginning of the 20th century suggested that it would be possible to modify the gut flora and to replace harmful microbes with useful microbes. Metchnikoff, at that time a professor at the Pasteur Institute in Paris, produced the notion that the aging process results from the activity of putrefactive (proteolytic) microbes producing toxic substances in the large bowel. Proteolytic bacteria such as clostridia, which are part of the normal gut flora, produce toxic substances including phenols, indols and ammonia from the digestion of proteins. According to Metchnikoff these compounds were responsible for what he called "intestinal auto-intoxication", which caused the physical changes associated with old age.

It was at that time known that milk fermented with lactic-acid bacteria inhibits the growth of proteolytic bacteria because of the low pH produced by the fermentation of lactose. Metchnikoff had also observed that certain rural populations in Europe, for example in Bulgaria and the Russian steppes who lived largely on milk fermented by lactic-acid bacteria were exceptionally long lived. Based on these facts, Metchnikoff proposed that consumption of fermented milk would "seed" the intestine with harmless lactic-acid bacteria and decrease the intestinal pH and that this would suppress the growth of proteolytic bacteria. Metchnikoff himself introduced in his diet sour milk fermented with the bacteria he called "Bulgarian Bacillus" and found his health benefited. Friends in Paris soon followed his example and physicians began prescribing the sour milk diet for their patients [8].

Bifidobacteria were first isolated from a breast-fed infant by Henry Tissier who also worked at the Pasteur Institute. The isolated bacterium named *Bacillus bifidus communis* [9] was later renamed to the genus *Bifidobacterium*. Tissier found that

bifidobacteria are dominant in the gut flora of breast-fed babies and he observed clinical benefits from treating diarrhea in infants with bifidobacteria. The claimed effect was bifidobacterial displacement of proteolytic bacteria causing the disease.

During an outbreak of shigellosis in 1917, German professor Alfred Nissle isolated a strain of *Escherichia coli* from the feces of a soldier who was not affected by the disease [10]. Methods of treating infectious diseases were needed at that time when antibiotics were not yet available, and Nissle used the *Escherichia coli* Nissle 1917 strain in acute gastrointestinal infectious salmonellosis and shigellosis.

In 1920, Rettger demonstrated that Metchnikoff's "Bulgarian Bacillus", later called *Lactobacillus delbrueckii subsp. bulgaricus*, could not live in the human intestine, [11] and the fermented food phenomena petered out. Metchnikoff's theory was disputable (at this stage), and people doubted his theory of longevity.

After Metchnikoff's death in 1916, the centre of activity moved to the United States. It was reasoned that bacteria originating from the gut were more likely to produce the desired effect in the gut, and in 1935 certain strains of *Lactobacillus acidophilus* were found to be very active when implanted in the human digestive tract [12]. Trials were carried out using this organism, and encouraging results were obtained especially in the relief of chronic constipation.

The term "probiotics" was first introduced in 1953 by Werner Kollath. Probiotics were defined as microbially derived factors that stimulate the growth of other microorganisms. In 1989 Roy Fuller suggested a definition of probiotics which has been widely used: "A live microbial feed supplement which beneficially affects the host animal by improving its intestinal microbial balance" [13]. Fuller's definition emphasizes the requirement of viability for probiotics and introduces the aspect of a beneficial effect on the host.

In the following decades intestinal lactic acid bacterial species with alleged health beneficial properties have been introduced as probiotics, including *Lactobacillus rhamnosus*, *Lactobacillus casei*, and *Lactobacillus johnsonii*. [14]

COMPOSITION OF COLONCARE CAPSULE



A perfect blend of 6 PROBIOTICS
(1.5 bn. cells) and 2 PREBIOTICS to
maintain healthy gut flora

PROBIOTICS

Lactobacillus Rhamnosus
Lactobacillus Paracasei
Lactobacillus Acidophilus
Lactobacillus Sporogenes
Bifidobacterium Longum
Saccharomyces Boulardii

PREBIOTICS

Inulin	100 mg
Fructo-oligosaccharides	200 mg

MODE OF ACTION

Lactobacillus rhamnosus

L. rhamnosus is said to be able to survive the highly acidic conditions of the human stomach, as well as the intestinal tract. It is also believed to be bile-stable. This makes the probiotic highly desirable in its ability to conquer intestinal ailments.

Lactobacillus paracasei

L. rhamnosus stimulates the production of antibodies and also assists in the process of phagocytosis, a means by which the body combats dangerous invasive bacteria.

Lactobacillus acidophilus

It is key to digestion of dairy products and produces vitamin K, which is essential to proper blood clotting and bone formation and repair.

Lactobacillus sporogenes

Lactobacillus is used for skin Disorders such as Fever Blisters, Cancersores, Eczema, Allergic Dermatitis, & Acne. It is also used for high Cholesterol, Lactose intolerance & to boost Immune System.

Bifidobacterium longum

It has long list of Health Benefits especially for our Colon.

Saccharomyces boulardi

It can stimulate our Immunity in response to pathogen Infections.

Pharmacological Action

Experiments into the benefits of probiotic therapies suggest a range of potentially beneficial medicinal uses for probiotics. For many of the potential benefits, research is limited and only preliminary results are available. It should be noted that the effects described are *not* general effects of probiotics. Recent research on the molecular biology and genomics of *Lactobacillus* has focused on the interaction with the immune system, anti-cancer potential, and potential as a biotherapeutic agent in cases of antibiotic-associated diarrhoea, travellers' diarrhoea, pediatric diarrhoea, inflammatory bowel disease and irritable bowel syndrome. [15]

Diarrhea

Infectious

Some probiotics have been shown to be beneficial in preventing and treating various forms of gastroenteritis. [17] They reduce both the duration of illness and the frequency of stools. [18] Fermented milk products (such as yogurt) also reduce the duration of symptoms. [19]

Antibiotic associated

Antibiotic-associated diarrhea (AAD) results from an imbalance in the colonic microbiota caused by antibiotic therapy. Microbiota alteration changes carbohydrate metabolism with decreased short-chain fatty acid absorption and an osmotic diarrhea as a result. Another consequence of antibiotic therapy leading to diarrhea is overgrowth of potentially pathogenic organisms such as *Clostridium difficile*. The Culturelle product contains the strain *Lactobacillus rhamnosus* LGG, which studies indicate may reduce the risk of antibiotic associated diarrhea, improve stool consistency during antibiotic therapy and enhance the immune response after vaccination [20].

Lactose intolerance

As lactic acid bacteria actively convert lactose into lactic acid, ingestion of certain

active strains may help lactose intolerant individuals tolerate more lactose than they would have otherwise.

Colon cancer

In laboratory investigations, some strains of LAB (*Lactobacillus bulgaricus*) have demonstrated anti-mutagenic effects thought to be due to their ability to bind with heterocyclic amines, which are carcinogenic substances formed in cooked meat. [30] Animal studies have demonstrated that some LAB can protect against colon cancer in rodents, though human data is limited and conflicting.^[31] Most human trials have found that the strains tested may exert anti-carcinogenic effects by decreasing the activity of an enzyme called β -glucuronidase which can generate carcinogens in the digestive system. Lower rates of colon cancer among higher consumers of fermented dairy products have been observed in one population study. [29]

Cholesterol

Animal studies have demonstrated the efficacy of a range of LAB to be able to lower serum cholesterol levels, presumably by breaking down bile in the gut, thus inhibiting its reabsorption (which enters the blood as cholesterol).

A meta-analysis that included five double blind trials examining the short term (2-8weeks) effects of probiotic yoghurt on serum cholesterol levels found an overall decrease of 8.5 mg/dL (0.22mmol/L) (~4% decrease) in total cholesterol concentration, and a decrease of 7.7 mg/dL (0.2mmol/L) (~5% decrease) in serum LDL concentration.

A slightly longer study evaluating the effect of probiotic yoghurt on twenty-nine subjects over six months found no statistically significant differences in total serum cholesterol or LDL values. However, the study did note a significant increase in serum HDL from, 50 mg/dL (1.28mmol/L) to 62 mg/dL (1.6mmol/L) following treatment. This corresponds to an improvement of LDL/HDL ratio from 3.24 to 2.48, with a 95% confidence interval of ± 0.33 . [29]

Blood pressure

Several small clinical trials have indicated that consumption of milk fermented with various strains of LAB may result in modest reductions in blood pressure. It is thought that this is due to the ACE inhibitor-like peptides produced during fermentation. [29]

Immune function and infections

LAB are thought to have several presumably beneficial effects on immune function. They may protect against pathogens by means of competitive inhibition (i.e., by competing for growth) and there is evidence to suggest that they may improve immune function by increasing the number of IgA-producing plasma cells, increasing or improving phagocytosis as well as increasing the proportion of T lymphocytes and Natural Killer cells. Clinical trials have demonstrated that probiotics may decrease the incidence of respiratory tract infections and dental caries in children. LAB foods and supplements have been shown to aid in the treatment and prevention of acute diarrhea, and in decreasing the severity and duration of rotavirus infections in children and travelers' diarrhea in adults. [37]

A 2010 study suggested that the anecdotal benefits of probiotic therapies as beneficial for preventing secondary infections, a common complication of antibiotic therapy, may be because keeping the immune system primed by eating foods enhanced with "good" bacteria may help counteract the negative effects of sickness and antibiotics. It was thought that antibiotics may turn the immune system "off" while probiotics turns it back on "idle", and more able to quickly react to new infections.

Helicobacter pylori

LAB are also thought to aid in the treatment of *Helicobacter pylori* infections (which cause peptic ulcers) in adults when used in combination with standard medical treatments.

Inflammation

LAB and supplements have been found to modulate inflammatory and hypersensitivity responses, an observation thought to be at least in part due to the regulation of cytokine function. Clinical studies suggest that they can prevent reoccurrences of inflammatory bowel disease in adults, as well as improve milk allergies. They are not effective for treating eczema, a persistent skin inflammation. How probiotics counteract immune system over activity remains unclear, but a potential mechanism is desensitization of T lymphocytes, an important component of the immune system, towards pro-inflammatory stimuli. [34]

Mineral absorption

It is hypothesized that probiotic lactobacilli may help correct malabsorption of trace minerals, found

particularly in those with diets high in phytyate content from whole grains, nuts, and legumes.

Bacterial growth under stress

In a study done to see the effects of stress on intestinal flora, rats that were fed probiotics had little occurrence of harmful bacteria latched onto their intestines compared to rats that were fed sterile water.

Clinical Research studies on Ingredients in Colicare capsule

A study in 2004 testing the immune system of students given either milk or Actimel over a 6 week exam period (3 weeks of studying, 3 weeks of exams) tested 19 different biomarkers. Of these 19 biomarkers only 2 were shown to be different between the two groups, increased production of lymphocytes and increased production of CD56 cells. The tests were not blind and show that certain probiotic strains may have no overall effect on the immune system or on its ability. [35]

A 2007 study at University College Cork in Ireland showed that a diet including milk fermented with *Lactobacillus* bacteria prevented *Salmonella* infection in pigs. [36]

The efficacy and safety of a daily dose of *Lactobacillus acidophilus* CL1285 in the prevention of AAD was demonstrated by Montreal's Maisonneuve-Rosemont Hospital, in a clinical study of hospitalized patients. [37].

Side effects

In some situations, such as where the person consuming probiotics is critically ill, probiotics could be harmful. In a therapeutic clinical trial conducted by the Dutch Pancreatitis Study Group, the consumption of a mixture of six probiotic bacteria increased the death rate of patients with predicted severe acute pancreatitis.

In a clinical trial conducted at the University of Western Australia, aimed at showing the effectiveness of probiotics in reducing childhood allergies, Dr Susan Prescott and her colleagues gave 178 children either a probiotic or a placebo for the first six months of their life. Those given the good bacteria were more likely to develop a sensitivity to allergens.

Some hospitals have reported treating lactobacillus septicaemia, which is a potentially fatal disease caused by the consumption of probiotics by people with lowered immune systems or who are already very ill.

Prebiotics are non-digestible food ingredients that stimulate the growth and/or activity of bacteria in the digestive system in ways claimed to be beneficial to health. They were first identified and named by Marcel Roberfroid in 1995. As a functional food component, prebiotics, like probiotics, are conceptually intermediate between foods and drugs. Depending on the jurisdiction, they typically receive an intermediate level of regulatory scrutiny, in particular of the health claims made concerning them.

"A prebiotic is a selectively fermented ingredient that allows specific changes, both in the composition and/or activity in the gastrointestinal micro flora that confers benefits upon host well-being and health."

Dosage

1-2 capsules a day.

Indications

- Bacterial vaginosis
- Recurrent urinary tract infections
- Diarrhea
- Bladder cancer
- Complications of antibiotic therapy
- Dysbacteriosis
- Rheumatoid arthritis
- Allergies/ eczema
- HIV/ compromised immunity
- Hepatic disease
- Maldigestion
- Neonatal enterocolitis
- Colon cancer
- Inflammatory bowel disease
- Irritable bowel disease

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