

Intestinal Support

Many health professionals consider Candida albicans to be one of the greatest health challenges to people of industrialized nations. Reasons for this include the excessive use of sugar, processed carbohydrates, alcohol, pharmaceutical antibiotics, ingestion of meat and poultry treated with antibiotics, the chlorination of drinking water. exposure to pesticides, herbicides, various chemicals and toxic metals, and certain hormonal treatments such as birth control pills and cortisone products. Candida albicans is an opportunistic pathogen causing therapeutic problems for many individuals with compromised immune systems. As long as the amount of candida is kept in check, the toxins produced are only mildly irritating. However, when conditions are favorable, the yeast can proliferate very quickly. Some of the most common effects associated with candida overgrowth include fatigue, diarrhea, depression, anxiety, indigestion, diminished libido, frequent bladder and ear infections, and for women frequent vaginal infections and menstrual related symptoms.

Whole-istic Solutions Intestinal

Support contains a proprietary blend of botanicals, probiotics and enzymes to provide support for the intestinal tract, thus discouraging the colonization of Candida, while naturally strengthening the immune system.



Amount per serving		% D1	
Whole-istic proprietary enzyme blend Cellulase (30,000 CU), hemicellulase (12,750 HCU), beta-glucanase (60 BGU), protease AM (6 AP), protease 6.0 (3,000 HUT)	328 mg		
Whole-istic proprietary problotic bliend Bifdobacterium kongum (750 mil c.t.u.), Lactobacillus acidophilus (4.5 bil c.f.u.), L. bulgaricus (600 mil c.f.u.) Streptococcus thermophilus (1.5 bil c.f.u.)	203 mg		
Pau d'Arco	150 mg		
Caprylic acid	120 mg		
Fructo-oligosaccharides	120 mg		
Olive leaf ext.	90 mg	•	
Grapetruit (seed) ext.	45 mg		

Daily value not established

Other ingredients: Vegetable celluiose, rice bran, and water

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ENZYMES

Cellulase is actually a complex consisting of three distinct enzymes that together convert cellulose (one of the basic components of cell walls) to glucose. It is theorized that *Candida's* cell wall is partially composed of cellulose making it vulnerable to cellulase. The cell would be disrupted and the yeast would die. On the other hand, Cellulase does not appear to disrupt the ability of Bifidobacteria to produce active biotocin (the antibiotic used by probiotics to kill pathogens).

Hemicellulase is added to hydrolyze hemicellulose, which is known to hinder effective digestion and absorption of nutrients. Hemicelluloses are polysaccharides, which bear some structural and chemical relationship to celluloses and starches. They bind digestive enzymes and decrease the rate of nutrient absorption. Hemicellulase functions to hydrolyze the interior glucosidic bonds of hemicelluloses (such as galactomannoglucans, beta glucans, pentosans, and various gums), vielding polysaccharides of lower molecular weight. It is theorized that, in addition to having a structural cell wall composed of cellulose, Candida's fibrous factors can also be vulnerable to hemicellulase. allowing Candida's cell wall to be more quickly and completely digested.

Beta-glucanase is added to assist in breaking down the beta-glucan portion of the Candida cell wall. This enzyme acts specifically on the interior 1,4-betaglucosidic bonds of beta-glucans containing mixed 1,3- and 1,4- bonds. Together, the beta-glucanase, cellulase, hemicellulase and proteases function to destabilize the Candida as well as hinder its attachment to the epithelial layer.

Protease - Many researchers theorize that *Candida albicans* adheres to the host epithelium by a mannoprotein ligand. It has also been deduced that adherence of Candida to cell surfaces may be inhibited by the action of proteolytic enzymes. Therefore this formula contains two broad spectrum proteases. It is thought that these proteases may damage the protein component of the Candida cell wall, leading to its destabilization.

Proteases are able to dissolve almost all proteins as long as they are not components of living cells. Normal living cells are protected by an inhibitor mechanism, but the protein covering of viruses does not show any of the characteristics of life. Studies have found that this protein cover of the viruses can be dissolved or at least inactivated by proteolytic activity which leads to a loss of viral infectivity. Therefore, the elevation of the proteolytic enzymes in the blood and plasma represents an efficient means to control viral infections. This type of therapy has been found to inhibit the infectivity of several types of viruses in man including six different influenza Type A viruses and cold viruses.

Proteases can also break down undigested protein, cellular debris and toxins in the blood, sparing the immune system from this task. For example, protease breaks down undigested dietary





protein that enters the blood through openings made in the intestinal wall by toxins and mycelia of candida. This spares the blood's lymphocytes the task of cleansing the blood, allowing the immune system to concentrate its full action on controlling the invasion of candida and other organisms.

BOTANICALS

Pau d'Arco (Tabebuia impetiginosa) is a tree that is native to Central and South America. The inner bark is the part used medicinally. The bark contains from 2 to 7% lapachol, a naphthoguinone derivative. Research performed at the Naval Medical Research Institute in Bethesda, MD has demonstrated that dietary intake of lapachol is protective against penetration and infection of the deadly parasite, Schistosoma Mansoni. Studies in the 1970's showed evidence of lapachol's ability to fight mouse lymphocytic leukemia. Though there is no direct evidence, the anecdotal evidence for the anti-candida properties of Pau d'Arco is substantial, lending itself to gain acceptance as a good anti-fungal for intestinal problems.

<u>Caprylic acid</u> is a naturally occurring fatty acid derived from coconut. It has been shown to have fungicidal properties, thus providing protection from *Candida* yeast, a fungal organism.

Olive Leaf Extract (Olea europea) The leaves of the olive plant have been shown to have significant antimicrobial action, and are effective against many strong strains of fungi (which includes yeasts such as *Candida*), viruses and

bacteria. Olive leaf extract has been shown effective in inhibiting the HIV virus, herpes viruses, and all flu viruses. It is applicable in any chronic infection situation. It has been used since the times of the ancient Greeks to cleanse wounds. Olive leaf has been used for centuries to treat wounds, hemorrhoids, to cleanse the liver, to reduce fever, and as a general antiseptic. Some modern uses for olive leaf extract include treating chronic fatigue, fibromyalgia, coughs, psoriasis, malaria, prostate difficulties, and parasites. It also treats things such as athlete's foot, botulism, encephalitis, lice, hepatitis, pneumonia, bladder infections, warts, and a long list of other afflictions. Oleuropein is the active constituent that seems to be responsible for olive leaf's vast healing powers, as it eliminates the viruses, fungi, bacteria and other parasites that cause disease. It has been shown in laboratory studies to be a very effective antioxidant that assists in recovering from arteriosclerosis, as well as enabling damaged tissue to better utilize vitamin E. Olive contains at least three other antioxidants: hydroxytyrosol, vanillic acid, and verbascoside.

Grapefruit-Seed Extract (*Citrus paradisi*) Recent studies indicate that grapefruit-seed extract is effective against more than 800 bacterial and viral strains, 100 strains of fungus, and a large number of single and multicelled parasites. It has been used with excellent results in patients with chronic intestinal candidiasis.

In vitro, with the aid of scanning transmission electron microscopy, it was revealed that grapefruit-seed extract disrupts the bacterial membrane and liberates the cytoplasmic contents within 15 minutes after contact.







Other protective plant chemicals found in grapefruit-seed include phenolic acid (which inhibits the formation of cancercausing nitrosamines), limonoids, terpenes, and monoterpenes (which induce the production of enzymes that help prevent cancer), and bioflavonoids, which inhibit the action of hormones that promote tumor growth.

PREBIOTICS

Prebiotics consist of special nutritive factors, called fructooligosaccharides (FOS), which are not metabolized by the human system but instead provide nutritive support to the natural flora of the intestines. Frutafit® Inulin IQ (FOS) is one of the best known prebiotics. It has been included as a fructooligosaccharide source to help support the growth of beneficial microorganisms. Due to the nature of the human digestive tract, the availability of food for microorganisms in the large intestine is guite limited. Therefore, the input of fermentable carbohydrates into the colon is of great importance to colonic metabolism. Supplementing FOS, which is fermentable by the Bifidobacteria, can greatly increase the metabolic activity in the colon. Studies have shown that FOS supplementation can significantly increase the population of Bifidobacteria in the colon, help relieve constipation, improve blood lipids in hyperlipidemia and reduce production of intestinal putrefactive substances. In addition, FOS has been shown to strongly inhibit growth of the pathogenic bacteria Clostridium perfringens.

PROBIOTICS

Probiotics are naturally found in the mouth, lower intestine and vagina of healthy individuals; these microorganisms help defend the body against invading pathogenic bacteria. Probiotics contribute to gastrointestinal health by providing a tonifying and health-promoting activity. Because probiotic flora act as a barrier to the mucosa of the intestinal tract. produce natural microbicides, and compete with pathogens for both space and nutrients, it is reasonable to conclude that probiotics should be very useful adjuncts in the treatment and prevention of both viral and bacterial infections of the digestive tract.

They produce lactic acid and keep the colon environment slightly acidic to aid in preventing the growth of harmful organisms. In addition, Lactobacilli are known to produce several antibiotic compounds to further inhibit the growth of pathogenic organisms. Due to the prevalence of broad-spectrum antibiotic treatment (which kills the beneficial organisms as well as harmful bacteria), many people are lacking healthy intestinal flora. Supplemental replenishment of probiotics quickly returns the flora balances to normal. Supplementation with probiotics supports overall good health. Specifically, in the management of candidiasis, probiotics such as those listed below are beneficial in the promotion of a proper intestinal environment as well as aiding in postantibiotic therapy. They are also effective in the treatment of vaginal yeast infections, and urinary tract infections. Some of the benefits of some select individual probiotics are outlined below.



Lactobacillis acidophilus produces lactic acid, which creates an acidic environment that is unfriendly to some harmful bacteria. Their by-products, called bacteriscins, can manifest antimicrobial properties and inhibit the growth of some pathogens. The lactobacilli, as well as bifidobacterium also help minimize the symptoms of dairy intolerance.

Lactobacillus acidophilus is known to thwart the growth of pathogenic microorganisms, including *Candida albicans*, by producing both lactic acid and antibiotic compounds. Other lactic bacteria produced by L. acidophilus act to block the receptors or adhesion sites of pathogens, creating a barrier against infectious organisms. They also prevent production of toxic amines by putrefactive bacteria, thus helping to prevent and treat hepatic encephalopathy.

Lactobacillus acidophilus and Bifidobacterium longum have also been shown in human clinical studies to reduce the levels of some colonic enzymes (such as ß-glucuronidase) which are implicated in the conversion of procarcinogens to carcinogens.

Bifidobacterium longum inhibit the growth of pathogenic organisms. In particular, research shows that nitrite-producing organisms are specifically inhibited by this probiotic.

L. bulgaricus is transient in the human intestine, yet important as it passes through, creating the acidic environment helpful in inhibiting harmful bacteria (such as e. coli) and other microorganisms.

L. bulgaricus works alongside the other lactic bacteria in producing small amounts of hydrogen peroxide and lactic acid, thereby creating a more acidic environment, inhibitory to undesirable microorganisms. Several investigators, who have studied anti-tumoral activity and production of immunity, have reported an increase in immunity by lactic bacteria.

Another benefit of probiotics is their ability to regulate bowel movements and halt diarrhea.

Streptococcus thermophilus aids in lactose digestion, reducing intestinal discomfort and the diarrhea associated with lactase deficiency.

Probiotics contribute to gastrointestinal health by providing a toning and healthpromoting activity. They have also been shown to prevent side effects associated with antibiotic treatment and eliminate bad breath due to intestinal imbalances.





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