

Mini Review: Importance of Lactobacilli a Probiotics on Global Level

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ABSTRACT

Lactobacilli is one of the probiotics that may be isolated from cheese, vegetables, fruits, dairy and non-dairy products, fermented and raw milk, human stool culture, natural antimicrobial agent, kefir grains, feces of breast fed infants, lactating milk, cow, sheep, buffalo milk and yogurt, etc. This study is specifically connected to microbes present in air, water, soil, infectious diseases, microbial culturing, statistics, generation studies and microbial disorders.

Keywords: Lactobacilli, Probiotics, Supplements, Health benefits, Antimicrobial agent

INTRODUCTION

L. acidophilus has been referred to as a probiotics, defined as microorganisms that have a beneficial effect on the host. Lactobacillus has long been considered to be a component of the protective flora in the vagina. Recently, Lactobacillus species that produce hydrogen peroxide have been found in normal vaginal flora. Consequently, the therapeutic benefits of Lactobacillus products have been investigated in women with vaginal and urinary tract infections. Its value in treating lower urinary tract infections remains unclear. Acidophilus has also been used to treat sore mouth caused by Candida infections [1].

Probiotics

Probiotics terms derived from Greek words Pro (favor) and bios (life). Probiotics can be advantageous for its host by improving the microbial balance in the gut tract [2]. Probiotics are live, non-pathogenic bacteria preparations that beneficially exert health effects on their host when ingested in adequate amounts [3].

Various Lactic Acid Bacteria (LAB), particularly strains of Lactobacillus recognized as security microorganisms and numbers of products containing LAB have been shown to have healthy functions [4].

Valuable effects deliberated by Lactobacilli include the inhibition of pathogenic organisms such as Salmonella, Shigella and Helicobacter. Furthermore, Lactobacilli have been associated with various other health benefits, e.g. the reduction of lactose intolerance and increased immune response. A beneficial role for Lactobacilli has also been obscure in colon cancer [5].

Probiotics are followers of the commensally bacteria in the GIT tract of human and animals. A great number of lactic acid bacteria were extracted from various traditional naturally fermented foods [6,7]. After birth, breast milk is the best food for baby because it justifies all the nutritional needs for them during months. Also breast milk protects the newly born against many infectious diseases. This effect appears a result of the action of some breast milk components, like, immunoglobulin's different antimicrobial compounds, immune component cells [8] and also breast milk contains probiotic substances which influences the growth of the beneficial bacteria neonate gut [8,9]. In a general view human breast milk contains fat, protein, carbohydrate, minerals and bacteria. When it comes to the microbiological point of breast milk, it is really an important factor in the initiation, development and of course composition of the neonatal gut micro flora since it source of microorganisms to the infant gut for several weeks after birth [10]. It is estimated that an infant ingests 1×10^5 - 1×10^7 commensal bacteria if the infant consumes approximately 800 ml breast milk per day [9-11]. However, if the bacteria with the capability to provide health benefits such as protection the host from pathogenic bacteria were

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isolated from human milk, they would be considered most attractive probiotic organisms [9,12].

RESULTS

Lactobacilli selection as probiotics for the cure of diseases

Bio-therapeutic agents: Lactobacilli have been used as bio therapeutic agents in humans such as: prevention of antibiotic-associated diarrhea, treatment of vaginitis, diarrhea, urinary tract infections (UTIs), immune system stimulation, cholesterol decrease, lactose malabsorption and anti-mutagenic effects. As Cheplin and Rettger [13], Alm et al. [14] and Graf [15] have favorably encouraged the use of acidophilus milk for the treatment of constipation whereas Bogdanov [16], Reddy et al. [17], Goldin and Garbach [18] and Rowland and Grasso [19] found that *L. bulgaricus* produced substances which were active against tumor

development. The anti-carcinogenic properties of Lactobacilli fall into three categories: (a) the inhibition of tumor cells; (b) the suppression of bacteria which are responsible for the release of carcinogens from innocuous complexes; and (c) the destruction of carcinogens.

Feeding yoghurt, skimmed and Fermented milk to humans produced lower blood cholesterol concentrations illustrated by Mann [20], Nair and Mann [21], Grunewald [22] and Gilliland et al. [23] whereas Vaginal Lactobacilli or bifidobacteria protect the human female urogenital tract from pathogen colonization, thus contributing to the prevention of genitourinary tract infections and playing a role in the maintenance of a healthy state proposed by McCarthy et al. [24], Lidbeck and Nord [25] and Morishita [26]. The figure summarizes the bio therapeutic agents of Lactobacilli given in **Figure 1**.

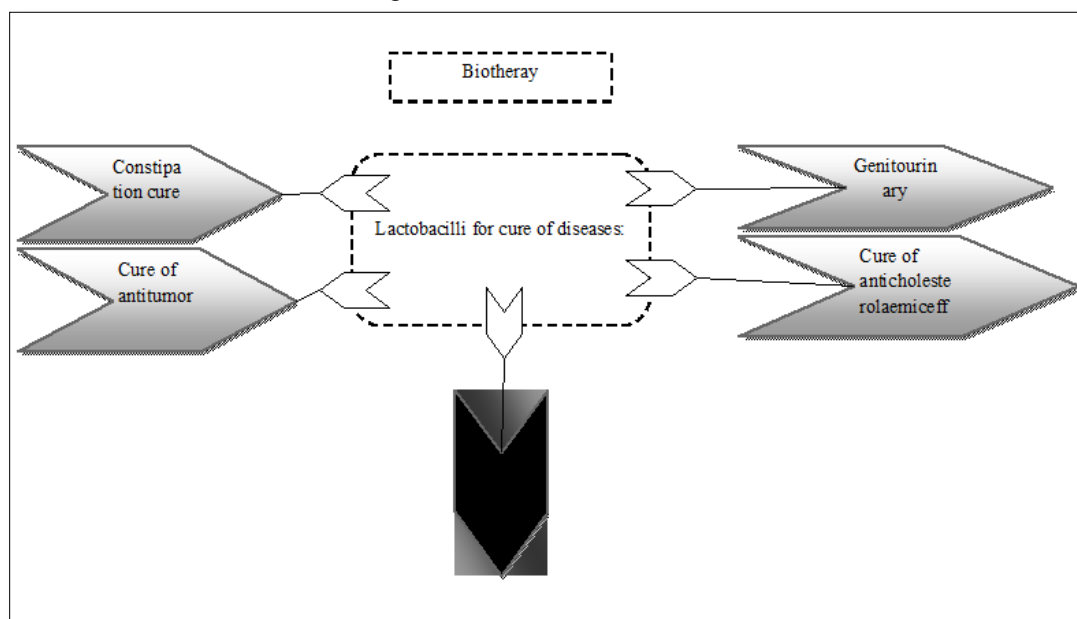


Figure 1. Bio-therapeutic agents.

Lactobacilli strains and products: Some Lactobacillus species are used in industry for the production of yogurt, beer, sauerkraut, pickles, cider, kimchi, cocoa, cheese, kefir and other fermented foods, as well as animal feeds. The antibacterial and antifungal activity of Lactobacillus species rely on production of bacteriocins and low molecular weight compounds that inhibits these microorganisms [27].

Sourdough bread is made either spontaneously, by taking advantage of the bacteria naturally present in flour or by using a “starter culture”, which is a symbiotic culture of

yeast and lactic acid bacteria growing in a water and flour medium. The bacteria metabolize sugars into lactic acid, which lowers the pH of their environment, creating a signature “sourness” associated with yogurt, sauerkraut, etc. The genus Lactobacillus currently contains over 180 species and some of the important strains are *L. acetotolerans*, *L. acidifarinae*, *L. acidipiscis*, *L. acidophilus*, *L. agilis*, *L. algidus*, *L. alimentarius*, *L. amylolyticus*, *L. amylophilus*, *L. amylophilus*, *L. amylophilus*, *L. amylophilus*, etc. [27] as shown in **Figure 2**.



Figure 2. Lactobacilli strains and products.

DISCUSSION

Safety for human beings

Lactobacilli are commonly used in the production of probiotics. When the gut flora develops after birth, as the Lactobacilli increase, other component of the flora decrease [28] similar was in the case of pigs when supplemented Lactobacilli in their food *E. coli* decreases in stomach [29]. Experiments with chicks have proved the effect of Lactobacilli on *E. coli* [30].

Probiotic Lactobacilli are suitable for infants and children. Several studies have shown that products that contain Lactobacilli and Bifidobacteria are well tolerated in this age group [31-33]. Recently, there have been several documented cases of fungemia associated with a *Saccharomyces cerevisiae* (*Saccharomyces boulardii*) probiotic due to contamination of indwelling catheters [34]. Antibiotic therapy and dietary carbohydrates appear to be the most important predisposing factors [35] as given in **Figure 3**.

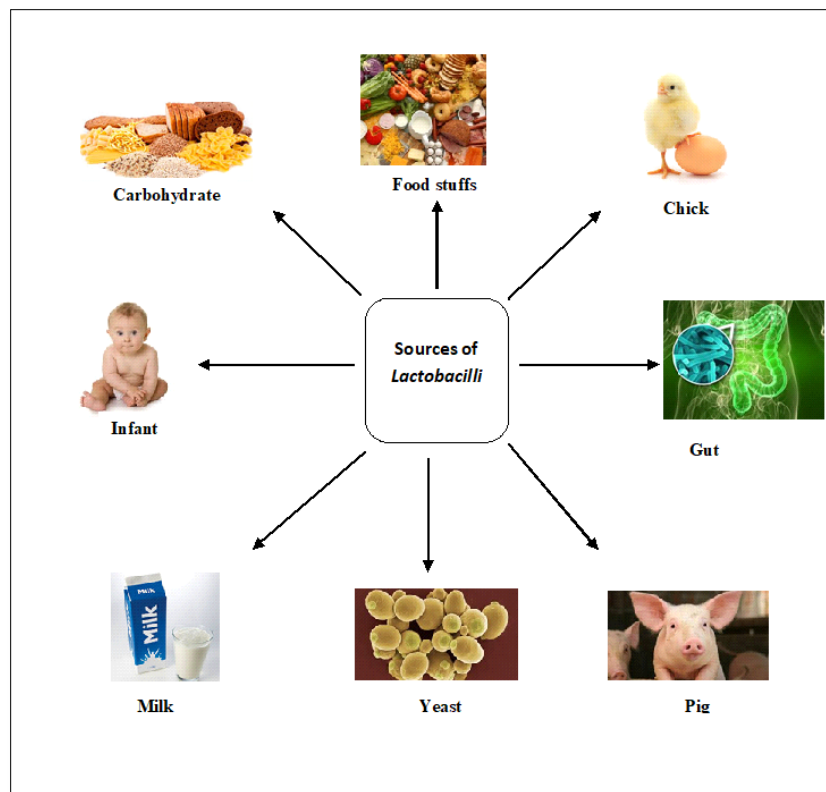


Figure 3. Safety for human beings.

FUTURE PERSPECTIVES

Probiotic are in the early stages of use. Future developments will attempt to discover more effective strains to bring together the ability to survive in the gut with the ability to produce the metabolites which are responsible for the probiotic effect. Recent work by McCarthy et al. [24] suggests that the techniques are available. They showed that *L. acidophilus* isolated from pigs could be genetically transformed to enable them to colonize the mouse gastric epithelium. In my suggestion Lactobacilli isolated from fermented sugarcane may be helpful for regulating the liver enzymes. They will also be helpful for lowering bilirubin level of dehydrated patients.

Probiotics as bio therapeutic agents have already been started and in the coming future it is conceivable that they will become effective tools in the treatment of different disorders like increased and decreased cholesterol level, oral, vaginitis, diarrhea, urinary tract infections (UTIs), immune system stimulation, etc.

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