

Investigating the role and development of probiotic and prebiotic products in Iran: A review article

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ABSTRACT

Introduction: Probiotics are living microorganisms whose administration in sufficient quantities improves the health of their host. Probiotics are naturally found in fermented or supplemental foods. Prebiotics are non-digestible foods that play an important role in the growth and proliferation of bacteria in the gut.

Methods: This is a review study using multiple sources on the application and role of probiotics and prebiotics in human health through library and internet search and using probiotic, prebiotic keywords and their role in human health. , Bacteriobactylobacter and bifidobacter have been carried out in Persian and English on pubmed, sid, science direct, medline, scopous and iranmedex sites.

Results: Epidemiological studies have shown that the use of probiotic and prebiotic by preserving normal intestinal microflora and controlling pathogenic microorganisms reduce the risk of cancer, improve heart health and lower blood pressure and lower cholesterol, improve liver disease. Strengthening the immune system, reducing menopausal symptoms, improving digestive and urinary health, anti-inflammatory, antimicrobial and antiviral effects, lowering blood pressure, reducing the risk of osteoporosis and preventing weight gain and obesity. Probiotic dairy products around the world, especially Iran, comprise a large portion of the probiotic industry, which has been highly welcomed by the general public. Conclusion: Nowadays probiotic and prebiotic products have a special place in the world because of their therapeutic properties and beneficial effects on health and their production is highly appreciated in the world. They generally prevent many diseases and prolong human life.

1. Introduction

In general, probiotics are said to be living microorganisms in some foods that are not pathogens and, if used in balanced amounts, have a significant impact on the health of the host (Fuller, 1989). The history of this product dates back 100 years. Probiotics were first introduced by a Russian scientist in the early twentieth century that by using certain microbes they improve the status of the human gut microbial flora and can be beneficial to human health and prolong life (Food and Agriculture Organization, 2002). In 1989, a scientist named Fuller introduced the first definition of probiotics (Fuller, 1989) and called probiotics a dietary supplement and generally acknowledged that it was an oral supplement containing live germs that had beneficial effects on balance. The intestinal microbial flora can be present (Catharine et al, 2014).

Another definition put forward by the World Health Organization (WHO) and the Food and Agriculture Organization (FAO) is that "living organisms that, when consumed in sufficient quantities, will have beneficial effects on host health" (Guandalini et al, 2000). The most important of these effects is the reduction of non-communicable diseases, in other words, the strengthening of the immune system, which is why the production process of these products has grown by 4.3% annually worldwide.

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Probiotic

The word probiotic is derived from the Latin prefix "Pro" and the ancient Greek word "bios", which means "for life". The human intestinal flora contains a variety of bacteria. Many of these bacteria are useful for optimal digestion of food. A group of these bacteria known as probiotic bacteria, in addition to helping the digestive tract, produce complex molecules and compounds such as vitamins and various antibiotics that are beneficial to the body. The source of probiotic bacteria are dairy and fruits. (Food and Agriculture Organization, 2002, Chapman et al, 2011) In addition, probiotic microorganisms are divided into groups of bacteria, fungi and yeast. Probiotics are usually strains of *Lactobacillus* and *Bifidobacterium* bacteria that produce lactic acid. However, strains of *Enterococcus*, *Streptococcus*, *Bacillus coagulans* and *Escherichia coli* are also used for this purpose. The yeasts *Saccharomyces cerevisiae*, *Saccharomyces boulardii* and *Candida intolis* also have probiotic properties.

The beneficial effects of probiotics on human health:

Reduce lactose resistance

Prevent cancer of the colon, colon, liver and breast.

Reduction of blood cholesterol and absorption from the intestine

Reduce blood pressure.

Improving and strengthening the immune system and preventing infections.

Treatment and prevention of acute diarrhea.

Reduce intestinal inflammation.

Reduce food allergies or eczema in children.

Improve the absorption of minerals and vitamins.

Improve symptoms of irritable bowel syndrome and colitis

Prevent the growth and proliferation of harmful bacteria

Treatment and prevention of vaginal yeast infections, antibiotic-related diarrhea, oral aphthous, dental caries, vaginitis, athlete's foot, fungal infections, thrush (oral candidiasis).

Improve digestive action and absorb food.

Help to build vitamins B and K.

Probiotics also affect the metabolism of the host, producing enzymes or expression of genes whose production enhances optimal intake of carbohydrates, especially digestible types and fats in the intestine. These bacteria have a direct effect on the function and life of other microorganisms in the gut and mainly promote the beneficial bacteria in the gut.

Prebiotic

In fact, it is a non-digestible food that helps the growth of beneficial bacteria in the gut and affects the health of the host. The best sources of prebiotics include oligosaccharides in vegetables, grains, legumes, chicory, pickled potatoes, soybeans and wheat bran.

Symbiotic

Synbiotics are a combination of probiotics and prebiotics. Various studies today have shown that synbiotics may be useful in the prevention or treatment of allergic diseases.

How to use probiotic products:

It should be noted that probiotic bacteria only live for a week to 10 days. The nutritional label should always be considered for purchasing these products to make sure there are at least one million probiotic bacteria per milliliter or g of that product. If the concentration of bacteria A probiotic is a product below this level, it is not recommended. Also, probiotic microorganisms are destroyed by heat and have no other probiotic properties. Probiotic yogurts must be stored in the refrigerator until the last moment of consumption, and should not be placed in the kitchen or exposed to sunlight or heat. It is always advisable to consume 200 to 500 ml of yogurt on a regular basis so that these microorganisms can exert beneficial effects on the host body.

The purpose of this study is to investigate the role and effects of probiotic and prebiotic products in Iran (de Vrese et al, 2005; Metchnikoff, 1907; Nemcová, 1997).

2. Method

The aim of this study was to investigate the role of probiotic and prebiotic products in Iran, their role in Iranian industry and their effects on human health in the years 2011-2011. Pubmed, medline, scopus, scid, science direct, iranmedex and googlescholar databases were used to access the articles. In order to gather the information needed initially, the articles contained in the text Probiotic, Prebiotic, Synbiotic, Their Role in Human Health, Bacterioblastobacter and Bifidobacter, and the National Documentary Probiotics and Foods Development The Persian and English versions were either alone or in combination with the words Iran and the world. They were searched in the mentioned databases, which totaled 100 articles. Finally, the 40 articles that were most appropriate in terms of topic coverage with emphasis on different subject areas were evaluated in this study (Mattila-Sandholm et al, 1999; Dunne, 2001; Salminen et al, 1998).

3. Results

Various studies have been conducted on the benefits of probiotic and prebiotic products on human health. The United States, Britain and Italy had the

largest share of probiotic production in the world from 1995 to 2013. Among the Asian countries, India has the largest share, and Japan is next. Many studies have been done in Iran in the field of probiotics, prebiotic and synbiotic. Which is in the top 20 international.

Interventions to develop the industry for these products are always on the rise. In Iran, the most important steps in this regard are the establishment of a probiotic scientific association and ultra-beneficial foods (Saarela et al , 2000; Snyderman , 2008; Sanders , 1998). The main goals of the association include raising awareness and recognition of probiotic and ultra-beneficial foods at the public level, professionals and craftsmen, providing facilities to localize probiotic industrial production and ultra-beneficial foods in the country, working with relevant organizations to enhance quality control and Standardize trans-beneficial foods, standardize probiotic status and trans-beneficial foods in the country, establish international communication, establish a probiotic industry liaison center, present major plans for probiotic and trans-beneficial foods, and form an effective national and international network. Probiotics and foods are super beneficial (Kopp-Hoolihan, 2001; Gibson et al,1995).

In addition, according to the National Standards Institute, 15 standards for probiotic products are currently being developed in the country and three more are being developed. However, the development of four standards (probiotic microorganisms for counting and identifying *Lactobacillus casei* and paraquas, plantrom, probiotic feed characteristics and probiotic bacteria counting and flowcytometer counts in the country is desperately needed.

In general, the popularity and use of probiotic products is widespread in the world today, with more than 90 probiotic products containing *Lactobacillus acidophilus* being produced worldwide.

Probiotic products are available in a variety of commercial forms such as probiotic dairy products (yogurt, yogurt, ice cream and cheese), as baby food supplements, or as cereal drinks, juices, and candy products.

It should be noted that the number of probiotic products in the world is also increasing.

In Iran, yogurt, yogurt, malt, gaz, pasta, bread, snacks, chocolates, animal feed and probiotic puffs are also produced. In addition, it should be noted that dairy products are the most common probiotic products available around the world and their consumption is increasing with increasing public awareness of these products, with Iran being no exception. Is not. Forecasts suggest demand for probiotic dairy products will reach \$ 32.2 billion or € 24.1 billion in 2018 (Roberfroid et al, 2010; Mahanet al, 2012).

The market for these products is expected to grow 6.8% annually in 2018. The market for these products in Asia and then Europe also has the largest share.

In Iran, according to the reports of the Association of Probiotics and Extravagant Foods by 1399, consumption of probiotic products and Extravagant foods in the country will be tripled and 40% of the market in Outlook 1404 will be allocated to these products.

In general, the goals in Iran in this regard include increasing the awareness, attitude and performance of people towards these products, which have been successful in achieving these goals through studies (van de Pol et al, 2011; Gill & Guarner,2004; Pandey et al, 2015) .

4.Conclusion

These products have a special place in the world due to their therapeutic properties and beneficial effects on health and their production is done in different ways around the world. In addition, sales and popularity of these products are on the rise worldwide, and Iran is no exception. In general, the use of milk and its products for the production of probiotic products in Iran and around the world is particularly desirable. In addition, the consumption of these products is increasing due to the increasing awareness of the public, and as a result, the general health of the community is improving with the use of probiotic products (Cho& Blaser, 2012; Dror, 2016; Razmpooshet al , 2015; Beserra & Bruna , 2014).

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