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WHAT IS THE BEST WISHES TO PARTICIPATE IN YOUR CONVENIENCE FOOD DIGESTIBILITY AND QUALITY WITH SPECIAL FOCUS ON PUBLIC HEALTH?

Fahim Shaltout*

Food Control, Faculty of Veterinary Medicine,Benha University, Egypt.

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***Corresponding author:**
Fahim Shaltout*
Food Control, Faculty of Veterinary Medicine,Benha University, Egypt.
fahim.shaltout@fvtm.bu.edu.eg
fahimshaltout@hotmail.com

ABSTRACT

The peoples are a unique host of heterogeneous and vivacious group of microorganisms together forms the peoples -microbiome superorganism types. The peoples gut serves as a home to over one hundred to one thousand microbial species types primarily modulate the gut condition of the host and play a major effect in peoples. The spectacular symbiotic relationship has attracted extensive investigation in the field types. The microorganisms play key effects in defense effect, eupepsia along in addition to catabolism and anabolism, and affect brain-gut responses types. The emergence of microbial in addition to resistance and the tolerance to existing conventional drugs and antibiotics has lowered the drug efficacies on harmful microorganisms. The nano-encapsulated multiplex supplements appear to be high cost and inconvenient. low-cost, receptive and intrinsic approach to achieve health uses is vital in the present era types. The replacement in addition to the food probiotics, the food prebiotics, and the food synbiotics has shown promising results against the various enteric harmful microorganisms due to the unique ability to compete in addition to the harmful microorganisms for adhesion sites, to alienate the harmful microorganisms or to enhance, modulate and adjust the host's immune response by initiating the activation of certain genes in and outside the host gut. The food Probiotics could adjust fat storage and enhance gut angiogenesis. The investigations focus on underline the possible useful effect of the food probiotics for the peoples and the medical importance and for the good lifestyle types.

KEYWORDS: food probiotics, food prebiotics, food synbiotics, good lifestyle, peoples –microbiome.

INTRODUCTION

The food Probiotic is a new era, denotation for life and its use under name bacterial association in addition to useful effects on the peoples and animal health. The food probiotics are products of the floral and the microbial diversity in the peoples overcome the harmful microorganisms in addition to the useful ones. Microorganisms level of certain type of the bacterial species in the people stool of the infected diarrhea in young children's, lower in relation to healthy young children. The oral ingestion of the living microorganisms to the peoples in addition to diarrhea, help restore a healthy gut flora types. The food probiotic was put forward including a viable mono or mixed culture of the bacterial types used to both animals and peoples, affects the host usefully by improving the characters of the indigenous flora types. The food probiotic cultures along in addition to substantial health importance upon consumption types. The ecological consideration of the gut flora is important to understand the relevance in the peoples, as well as the probiotic food products types concept importance. Everyone has a unique stamp of over one hundred to one thousand microbial species in the gut in the peoples. The Bacterial cells comprise half of the wet weight of colonic material and the numbers exceed by tenfold the number of tissue cells forming the peoples body. The stomach contains 10^3 various bacterial species, and the total microbial population of the colon comprises of about 10^{11} to10^{12} cfu/g. The Bacterial colonization of the gut begins at birth when newborns are first exposed to a contaminated condition of the peoples. The Bacteria transforms over the lifespan, depending on a complex and dynamic interplay between the diet, genome, and lifestyle of the host, as well as antibiotic use. The gut

microbiota composition include lower in the Bacteroidetes/ Firmicutes ratio and lower in the *bifidobacteria* bacteria in people aged > 60 years, around the time that the immune system begins to lower. The composition of the core gut microorganisms is considered to be essentially stable inside the adulthood time. The useful usage of gut microorganisms, are colonization resistance or the protection effect is an important action used by the indigenous gut bacteria to maintain the presence and confer niche protection against freshly ingested microorganisms, including the harmful microorganisms. It could be assumed that manipulation of the gut microorganisms to improve the relative numbers of useful bacteria affects the immune effect, the food digestion, the metabolism, and the brain-gut communication action. The changes in the diversity cause many diseases and diseases, for conventional treatment provide low efficacy mainly due to the emergence of antibiotic-resistant and tolerant the harmful microorganisms. The increasing of drug delivery system to the target sites by using the nano-encapsulated multiplex supplements are a possible solution, although, such approaches appear to be cost- efficient, and inconvenient for common use. The low-cost, receptive and intrinsic means to improve host health has become a critical issue in the present era. The food probiotics are supplement to the host microorganisms and provide protection against various enteric harmful microorganisms. The food Probiotics enhance the gut protection effect; the ability to compete in addition to the harmful microbiota for adhesion to the gut and improve the colonization method. The food Probiotics enhance modulate and adjust the host's immune response by initiating the activation of certain genes of localized host tissues. The gut hormone release and adjust the brain characters by bidirectional neuronal impulses, including part of the gut–brain axis action so mush. The food Probiotics plays important effect in inducing gut angiogenesis by vascular endothelial growth factor receptor impulses that, in turn, adjust acute and chronic inflammation in gut mucosal tissue caused by the progression of the inflammatory intestinal disease types. The food Probiotics have physiological activities that contribute to the health of the condition of the peoples regulating microorganisms and are helpful in combating overweight and obesity so mush. The food probiotics have considerable potential in nutritional and clinical use, the implementation of the food probiotics into the peoples, the nutrition and adjust the abnormalities types. The investigations emphasize the possible importance of the food probiotics for improving the peoples, the nutrition optimization and adjustment of the metabolic diseases or the abnormal actions types.[1,2,3,4,5,6 and 7]

The food probiotics, the food prebiotics, the food postbiotics and the food synbiotics

The food probiotics, the food prebiotics, and the food synbiotics, are microbe or a group of microorganisms inhabits the gut and nourishes the host body are ingested as preparations in addition to active cultures and contain bacteria, including the lactobacilli bacteria, the lactococci bacteria or the bifidobacteria bacteria could be isolated from the conditions surrounding the peoples. The food probiotics are considered as key enhancers to the peoples, investigating the culture conditions and the viability of the food probiotic microbial species during the processing and the storage; the sensitivity to low the pH values, the gastric fluid, the bile, pancreatic and the gut fluids and the gut or the respiratory mucus; the adherence to the isolated tissues or the cell cultures and the interactions in addition to other harmful microorganisms types.[8,9,10,11,12,13 and 14]

The Food Postbiotics

The bacterial products, in the absence of the life microorganisms have the similar effects on impulses pathways and protection effect. The food postbiotics are defined as dead bacterial products or the metabolic byproducts from the food probiotic microorganisms that have biologic effect in the host body. The food postbiotics include bacterial metabolic byproducts including the bacteriocins, the organic acids, the ethanol, the diacetyl, the acetaldehydes and the hydrogen peroxide, certain heat-dead food probiotics could retain important bacterial structures exert biological effect in the host body. The metabolic products have a broad inhibitory character toward the harmful microorganisms and could replace the antibiotics types. The food Postbiotics are the useful and resistance to hydrolysis by the body enzymes of mammals including the dead bacterial products or the metabolic byproducts from the food probiotics types. The food postbiotics could improve the protection effect against species as the *Saccharomyces boulardii*, and improve angiogenesis *in vitro* and *in vivo* in epithelial tissues by activation of α2β1 integrin collagen receptors types. The bacterial species of the Bifidobacterium breve bacteria, the Bifidobacterium lactis bacteria, the Bifidobacterium infantis bacteria, the Bacteroides fragilis bacteria, the *Lactobacillus* bacteria, the *Escherichia coli* and the Faecalibacterium prausnitzii bacterial types.[15,16,17,18,19,20 and 21]

The Food Prebiotics

The food prebiotics are certain food nutrients that modify the gut microorganisms although not easily digested by the peoples but have a selective effect in enhancement of growth or effect of useful bacterial species in the gut microorganisms. The food prebiotics includes the bifidogenic have the characters

of the insulin, the oligofructose, and the fructo-oligosaccharides compounds synthetically given from sucrose, as well as the galactose-containing and xylose-containing oligosaccharides compounds kinds. [22,23,24,25,26,27 and 28] The fermentation of carbohydrates represents a major source of energy for epithelial tissues in the colon and food prebiotics could readily adequate the needs due to the fermentation by gut microbiota, including the bifidobacteria bacteria. The bifidobacteria, many other gut microorganisms that play important effect in fermenting the non-digestible food oligosaccharides compounds kinds in the food, the food Prebiotics could obtained naturally from sources as the vegetables, the fruits, and the grains ingested in the daily life span. The food Prebiotics not only serve as an energy source but have many health importance as decreasing the prevalence and duration of diarrhea, providing relief from inflammation and other clinical signs accompanied in addition to gut diseases, and exerting protective effects to prevent colon cancer kinds.[29,30,31,32,33,34 and 35] The food Prebiotics are important in improving the bioavailability and uptake of minerals in the food, decreasing of some risk factors for cardiovascular disease, and enhancing satiety and weight loss conditions.[36,37,38,39,40,41 and 42]

The Food Synbiotics

The advancement in microbial investigation has led to formation of the food synbiotics is a fusion of the food probiotics and the food prebiotics products and helps in improving the survival and the implantation of active microbial dietary supplements in the gut of the peoples. The collaborative importance are more efficient enhanced when both the food probiotic and food prebiotic act together in the living system body. The food symbiotic relationship between the food prebiotics and the food probiotics form important effect in peoples the active foods products kinds containing the food synbiotics has enhanced due to the up to date data on the importance to the peoples, the disease prevention and therapy of diseases. The advancement of the health- enhancing foods products kinds, the selection of the cultures appearing an enhance ability to colonize in the peoples gut; they could digest the forms of the food prebiotics kinds. The various usefully effects of the food probiotics, the food prebiotics, and the food synbiotics are much more efficient than the unitary used.[43,44,45,46,47,48 and 49]

The Clinical importance of the food probiotics and its potential uses

The use of the food probiotics for the clinical health importance is a fascinating area of investigation that the present era has yet to explore. Some of the elite characters of the food probiotics kinds, including the anti- harmful effect, the anti-diabetic, the anti-obesity, the anti-inflammatory, the anti-cancer, the anti-allergic, and the angiogenic activities and the effect on the brain and the central nervous system of the body. The Anti- harmful effect of the food probiotics kinds has useful effects due to unlike classic antibiotics, disturbance or change in the composition of the complex population of the gut microbiota is inhibited by the anti- harmful effect of the food probiotics or a probiotic mixture against harmful microorganisms in the peoples. The effect of the food probiotics on the survival of the Salmonella enterica*, the Serovar typhimurium* bacteria and the *Clostridium difficile* bacteria in an *in vitro* model and revealed the food probiotics inhibit the harmful microorganisms by the release of the short-chain fatty acids , including the acetic, the propionic, the butyric and the lactic acids. The short-chain fatty acids help to maintain an appropriate pH in the colonic lumen is imperative in the expression of numerous bacterial enzymes and in metabolism of foreign compounds and carcinogens in the gut, the variety of the anti- harmful compounds kinds, as the bacteriocins, the ethanol, the organic acids, the diacetyl, the acetaldehydes, the hydrogen peroxide (the H_2O_2) and the peptides are given by the food probiotics kinds. The peptides and the bacteriocins, increasing the membrane permeability of the target tissues leads to the depolarization of the membrane potential and, ultimately, cell death of the body. The release of the H_2O_2 by the bacterial groups causes the oxidation of sulfhydryl groups, causing the breakdown of number of body enzymes cause the peroxidation of membrane lipids tissues, thus, increasing membrane permeability of the harmful microorganism and consequently, cell death of the body of the peoples (50,51,52,53,54,55 and 56). The compounds act by decreasing the pH by the organic acids as the lactic and the acetic acids also. The release of the anti- harmful bioactive compounds that directly affect the harmful microorganisms, the food probiotics enhance the host anti- harmful defense pathways in the peoples, including improving or activating the pathway included in the release of defensins that are cationic anti-microbial peptides given in in many cell kinds including the Paneth cells in the crypts of the small intestine and the intestinal epithelial tissues of the peoples, the food probiotics exert the anti- harmful effect is by competing for the harmful binding and receptor sites for the present food nutrients and growth inside the peoples.[57,58,59 ,60,61,63 and 64]

The Urogenital health care

Over one billion women around the world affected with non-sexually transmitted urogenital diseases, including bacterial vaginosis, urinary tract diseases and many other yeas tdiseases to the peoples. The species typically accompanied in addition to the BV

include the Gardnerella vaginalis, the Ureaplasma urealyticum, and the Mycoplasma hominis Sexually transmitted diseases are important cause of morbidity in the world, he two bacterial STDs in some advancement countries in the world are the Gonorrhea and the Chlamydia are caused by the Neisseria gonorrhoeae and the Chlamydia trachomatis, respectively. The harmful microorganisms becoming resistance to the present treatment in the world. The advancement of the treatment in the advanced active supplements, as the useful microorganisms that act against the harmful microorganisms.[65,66,67,68,69,70 and 71] The association between the abnormal vaginal microorganisms and the incidence of urinary tract disease, bout fifty various species inhabiting the vagina, including the Lactobacillus bacteria species, the Lactobacillus brevis bacteria, the *Lactobacillus casei* bacteria, the *Lactobacillus vaginalis* bacteria, the *Lactobacillus delbrueckii* bacteria, the *Lactobacillus salivarius* bacteria, the *Lactobacillus reuteri* bacteria, and the *Lactobacillus rhamnosus* bacteria that are the main regulators of the micro- condition of the vagina. The imbalance in the microbial composition greatly affect the health of the micro condition of the vagina, potentially leading to compromised state of bacterial vaginosis in the world. The compromised states in the world could reassured by balancing the number of the *Lactobacillus* bacteria species. by the replacement of the food probiotics kinds.[72,73,74,75,76,77 and 78]

The Anti-diabetic activities of the food probiotics

The International Diabetes Federation (IDF) of Southeast Asian countries in the world, 425 million people have diabetes disease worldwide including 78 million people in the Southeast Asian countries in the world. The number is expected to rise to 629 million by 2045 if nothing is done. The bimolecular and pharmacological investigators have made progress in understanding the importance of food synbiotics in curing the disease. The large-scale 16 S rRNA gene sequencing, quantitative real-time PCR and fluorescent *in situ* hybridization, the connection between the composition of the gut microbiota and metabolic diseases, as obesity and diabetes disease, improving the useful microbial by the use of the food probiotics is expected to play an important effect in neutralization of the disease Gram-negative bacteroidetes and the Gram-positive firmicutes are two bacterial phyla that dominant the micro condition of the gut of the peoples.[79,80,81,82,83,84,85 and 86] The obesity is accompanied in addition to enhanced bacteroidetes over time, concurrent in addition to lower in firmicutes peoples in addition to kind-2 diabetes disease have lower in numbers of firmicutes species as the bacteroidetes/ firmicutes ratio has enhanced, positively correlates in addition to plasma glucose level. The advancement of auto-immune diseases, including kind-1 diabetes disease, changes in the microbiome improve invasion of the opportunistic harmful microorganisms resistant to oxidative stress and could lower in sulfates and depressing the growth of butyrate-producing bacteria.[87,88,89,90,91,92 and 93]

Control of kind-2 diabetes disease by modulating gut hormones including gastric inhibitory polypeptide and glucagon-like peptide-1, by the food probiotic and the food prebiotic use is advanced convincing system. The hormones play an important effect in glucose homeostasis cause neutralizing the disease caused by peripheral insulin resistance or failure of the ß-cells to give insulin. The investigation is focused on release of food prebiotics, including the arabinoxylan and the arabinoxylan oligosaccharides compounds show promising cause counteracting related metabolic diseases, due to both carbohydrates are bind to adiposity lower.[94,95,96,97,98,99 and 100)

The Anti-obesity effect of the food probiotics

The obesity is the abnormal or excessive fat accumulation whish is directly impairs health is bind to an improve in the present energy, sedentariness and a greater control of ambient temperature, causing an imbalance in energy intake and expenditure, the transplantation of the gut microorganisms from obese mice animals into germ-free mice animal could replicate the obese phenotype and are efficient at extracting energy from the food products kinds and enhance the lipogenesis process. The food Probiotics have physiological activities that contribute to the health of the condition of the host regulating microorganisms; the weight loss is facilitated by thermogenic and lipolytic responses by improving the sympathetic nervous system. The food Probiotic microbial species includes Lactobacillus gasseri BNR17 bacteria have characters of depressing the improve in adipocyte tissue that are the main source of the leptin and the adiponectin and the thereby, limiting the leptin secretion . Other food probiotic microorganisms including the *L. casei* bacteria the Lactobacillus acidophilus bacteria and the Bifidobacterium longum bacteria have hypocholesterolemic effects.[101,102,103,104,105,106 and 107)

The Anti-inflammatory effect of the food probiotics

The Crohn's disease (CD) and ulcerative colitis (UC) are among the chronic inflammatory diseases of the gut and are called the inflammatory intestinal disease. CD could affect any part of the gut as the mucosa, submucosa, and serosa, and the inflammation could spread to the whole gut. In contrast, UC characteristically includes the large intestine; the mucosa and the submucosa of the colon investigation has shown that an imbalance in the gut microbiota plays an important

pathophysiological effect in the positive adjustment of the inflammatory intestinal disease. The disease could possibly be altered by replacement in addition to the food probiotics, the food prebiotics, and the food synbiotics . The inflammatory intestinal disease is being accompanied in addition to impaired release of the short-chain fatty acids, especially, the acetate, the butyrate, and the propionate. The short-chain fatty acids play a key effect in maintaining colonic homeostasis in the body.[108,109,110,111,112,113 and 114) The food probiotics have anti-inflammatory effects and improve the propulsive colonic effect. The replacement in addition to indigestible carbohydrates and fiber (food prebiotic) alone, or in combination in addition to the food probiotics to improve the produced short-chain fatty acids could be useful therapeutic approaches. advanced genetically engineered food probiotic bacterial species that are could give in and discharge immunomodulators, including interleukin-10, trefoil factors (compact proteins co-expressed in addition to mucins in the gut, or lipoteichoic acid (a major constituent of the cell wall of Gram-positive bacteria that effect the host immune system, causing the restoration of the level of protective commensal bacterial species. The *Lactobacillus*, the *Bifidobacterium*, the Enterobacter and the *E. coli* are used probiotics in the foods products kinds. The microorganisms or genetically modified should be advanced to counteract the inflammatory gut disease.[115,116,117,118, 119, 120 and 121]

The Anti-cancer effect of the food probiotics

The natural sources that have anti-carcinogenic effects, including the food probiotics receive prime focus from clinical nutritionists, investigators, and industrialists to act in a synergistic method to decrease the disease and advance an efficient treatment in addition to minimal or no side-effects kinds. The food probiotic microbial species including the Lactobacillus fermentum bacteria, are highly potent in suppressing colorectal cancer tissues and enhance epithelial tissues growth normally by giving the ferulic acid kinds.[122,123,124,125,126,127 and 128] The character was compared in addition to other food probiotics namely the *L. acidophilus* bacteria and the *L. rhamnosus* bacteria were previously characterized in addition to –tumorigenic effect. The two food probiotic microbial species the *L. acidophilus* bacteria and the *L. casei* bacteria are found to show pronounced cytotoxic activities, in addition to *in vitro* anti-proliferative effect against the two colorectal cancer cell lines kinds. The food probiotics play an important effect in neutralizing cancer, the investigations is limited only to *in vitro* tests kinds. The anti-cancer potential of the food probiotics should be proven *in vivo* models and precede towards animal and clinical studies kinds.[129, 130, 131, 132,133,134 and 135]

The Anti-allergic effect of the food probiotics

The increasing prevalence of the allergic diseases caused by immune diseases is a serious economic and social burden worldwide in the world. Comprehending the fundamental molecular mode of action that form to cause the allergic diseases, also treatment approaches is vital for the follow-up and prevention of the diseases. The food probiotics effects in the protection and control of the allergic diseases had advanced the understanding of the cause and prevention techniques. The Lactobacillus plantarum bacteria, the potential to prevent the food allergy-accompanied diseases in addition to the giving of the interleukin-12 and the interferon-γ in the host kinds. The *L. plantarum* bacteria alleviate the allergic clinical signs and lower in the levels of the total immunoglobulin E, the ovalbumin-specific immunoglobulin E, and the histamine in the sera of the ovalbumin-sensitized mice animal. In the spleen tissue of the mice animals, the *L. plantarum* is important to the secretions of the interferon-γ and the interleukin-4 are important for alleviating the allergic clinical signs.[136,137, 138, 139 ,140,141 and 142]

The Angiogenic effect of the food probiotics

The angiogenic control includes the orchestrated series of the cellular events , vessels arise from the pre-existing ones by enhancing recruitment of the inflammatory tissues and producing the cytokines, the matrix-degrading body enzymes kinds, and the chemokines in the body. The non- adjusted angiogenesis has a prominent effect on the peoples, including the cancer kinds, the diabetic retinopathy action, and the inflammatory intestinal disease action. The useful probiotic yeast kinds, the *S. boulardii*, protect against the gut injury and the inflammation kinds. The potential mode of actions of the food probiotics in the angiogenesis process mode of action include change in inflammatory cytokine profiles, down- adjustment of pro-inflammatory cascades or induction of regulatory strain-specific technique, the epithelial protection effect enhanced, lower in visceral hypersensitivity, the spinal afferent traffic, and the stress response.[143,144,145,146,147,148 and 149]

The Effect of the food probiotics on the brain and the central nervous system

The colonization of the microbiota in the gut is well-accompanied in addition to both the gut and gut diseases of the peoples. The investigations devote towards elucidating the effect of the gut microbiota on the brain and the central nervous system of the peoples. The "microbiota-gut-brain axis" is an interactive, bi-directional communication established by the exchange of regulatory impulses between the gut and the brain and the central nervous system of the peoples. The gut microbiota affects the people's brain advancement effect of the peoples. In young

children in addition to autism spectrum disease, a daily dose of the *L. plantarum* WCFS1 led to an improvement in the school documents and attitude towards food products kinds, lower psychological distress in a randomized trial including healthy peoples treated in addition to oral ingestion of the Lactobacillus helveticus bacteria and the *B. longum* bacteria kinds. The lower in anxiety clinical signs by oral ingestion of the *L. casei* bacteria strain Shirota to peoples have chronic fatigue syndrome of the peoples. The improvement in the *Lactobacillus* bacteria and the *Bifidobacteria* bacteria levels, the intestinal activities were under investigations.[150,151,152,153,154,155 and 156] The lower in anxiety is due to improving intestinal effect of the peoples. Autism spectrum and attention-deficit/hyper effect diseases in young children could be inhibited by the *L. rhamnosus* oral ingestion to the mother at four four weeks from expected delivery. Many gut bacteria synthesize to neuroactive compounds similar to those given in the host brain. The peoples gut derived microbial species of the *L. brevis* bacteria and *Bifidobacterium dentium* bacteria were mentioned to give a large amounts of γ-aminobutyric acid, a brain neurotransmitter that helps the peoples to suppress anxiety and depression kinds. Uses of a multispecies probiotic containing the *L. brevis* , *B. lactis* , the *L. acidophilus* , the Bifidobacterium bifidum, the *L. salivarius* , the *L. casei* , and the Lactococcus lactis to the peoples revealed lower in the cognitive re effect to sad mood kinds. The food Probiotic studies including peoples have anxiety and clinical depression are lacking and needs more time and act to validate the effect. The Oral intake of the *L. acidophilus* assist peoples to adjust the mood towards rewards and addictive characters kinds.[157,158,159, 160,161,162 and 163]

The importance of the food probiotics

To avoid the protection related to the successful oral ingestion and minimal side effects many forms of the food probiotics are present and are in use in large amount kinds.[160,161,162,163,164 and 165]

The Recent advancements and use the food prebiotics

The food probiotics, the food prebiotics is explored for the use in the various fields of practical science kinds including the food nutrients and the supplements. The food prebiotics are a collection of nutritionally enriched compounds grouped together in addition to the efficiency to improve the growth and sustenance of useful gut microorganism's kinds. The food prebiotics is those compounds that are non-digestible food and could modulate the sustenance of health- enhancing guts bacteria.

The complexity and the usability of the non-digestible food compounds has enhanced to a greater extent due to of the advancement of various omic tools including the proteomics, the genomics, the metabolomics, the transcriptomics kinds. The investigations based on the various modes of synthesis have become the current focus of the present era kinds.[165,166,167,168,169,170 and 171] The food products kinds industries of the present years needs simple, sustainable, cost- efficient and high efficient methods for large-scale release and use. Food prebiotic oligosaccharides compounds could be obtained from food products kinds; otherwise, could be synthesized chemically or enzymatically from disaccharides or other substrates as well as by hydrolysis of the polysaccharides compounds. The food prebiotics of natural origin have already been evaluated for the usefully effect kinds. The Enzymes (the β-galactosidase, the fructosyltransferase etc.) from various sources including microorganisms and plants are being utilized for the synthesis in the body. The Enzymes are modified to adjust regioselectivity and improve the yield of reaction improves the glycodiversification and the quality of the products attained kinds.[172,173,174,175,176,177 and 178] The emergence of genetically engineered microorganisms cause boosting the release of oligosaccharides compounds by fermentation process for large-scale industrial release of the host. Due to the tangible association of the food prebiotics oligosaccharides compounds in addition to the gut microbiome as well as maintenance and restoration of the microbial homeostasis is again keenly accompanied in addition to positive health outcome of the host, the investigations related to food prebiotics are given much emphasis in the investigations kinds. The food prebiotic compounds are food-grade substances from useful short-chain fatty acid could be given due to degradation by microorganisms including the *bifidobacteria* bacteria and *lactobacilli* bacteria inside the host appeal for the utilization including the food nutrient supplements kinds. The biomedical importance not only covers gut system but systems located away. The Recent investigations many rat models have demonstrated calcium absorption kinds, retention bone density and strength are enhanced due to the intake of the galacto-oligosaccharides compounds specifically kinds. The peoples gut microorganisms affect the expression of gamma-aminobutyric acid receptor in the brain, food prebiotics including fructo- oligosaccharides compounds and the galacto-oligosaccharides compound is likely to exploit the connection to tune the brain-derived neurotrophic factors, the D-serine, and other synaptic proteins including the synaptophysin and the N-methyl-D-aspartate receptor subunit. The food prebiotics including the oligofructose, the β-fructan, the oligofructose/ inulin mix have immunomodulatory importance in the case of the harmful attack, the atopic dermatitis, to

prevent the allergens action, the chronic inflammation and up- adjusted responses against the vaccinations kinds.[179,180,181,182,183,184 and 185] The usefulness of the non-digestible food compounds have emerged for a variety of skin related-conditions. Improve water retention and prevention of erythema was showed in a hairless mice animal's skin on the galacto-oligosaccharides compounds replacement kinds. The investigations prove that skin's protection characters are enhanced by the improving dermal expression of cell adhesion and matrix formation markers CD44, and kind 1 collagen on the galacto-oligosaccharides compounds treatment Again, the Galacto-oligosaccharides compound alone or in addition to the *B. breve* is found to impede water and keratin depletion effectuated by the phenolic compounds kinds . The Food prebiotics are explored for the importance in the treatment of various kinds of disease and diseases kinds.[186,187, 188, 189, 190,191 and 192]

CONCLUSION

The food Probiotics have important active attributes that could be adequate of the nutritional and clinical studies needs kinds. The microorganisms have positive responses to clinical treatment against many diseases and diseases, including diarrhea accompanied in addition to the rotavirus, the IBS and the food allergies kinds. The contribution of the food probiotics in treatment and prevention of the diabetes disease, the obesity, the cancer and the diseases related to the harmful microorganisms is an exciting and rapidly advancing the investigations kinds. The dietary probiotic replacement includes the milk products but the food probiotics could incorporated into the non-milk fermented food products kinds, act as an alternative source in the process of examination of the probiotic microbial species kinds. The clinical and nutritional investigations are successful in exposing some remarkable activities of particular food probiotic microbial species especially in adjustment of the energy in the various catabolic and the anabolic activities, acid and bile tolerance, could adhere to gut epithelial tissues, to combat against harmful microorganisms, along in addition to certain other characters, as the safety- improving characters, serviceability including diet and useful replacement for the peoples. The evaluation of the microbial species of the food probiotics and the using in biomedical/clinical investigations, paving direction for exploration and exploitation the food probiotics focus on improving the people's nutrition.

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