

Table S1. Effect of different plant extracts on probiotic yogurt.

Reference	Probiotic Bacteria	Substrate	Bioactive Compound	Plant Extract	Mechanism of action	Results
[106]	<i>Lactobacillus acidophilus</i> , <i>Streptococcus thermophilus</i> , <i>Bifidobacterium bifidum</i>	Whole milk powder reconstituted in aqueous extract of fennel seeds	Phenolic components	Fennel seeds	The phenolic compounds in fennel seeds have antioxidant, antimicrobial, and protective properties against passage through the digestive tract.	The increase in the total phenolic content and antioxidant activity of yogurt. Reduction of titratable acidity and increase of the pH of yogurt. The viability of probiotic bacteria reduced during storage but remained at the recommended levels for health effects (At least 10 ⁶ CFU/mL).
[113]	<i>Lactobacillus acidophilus</i> , <i>Streptococcus thermophilus</i> , <i>Bifidobacterium bifidum</i>	Milk	Peptides Angiotensin-converting enzyme (ACE) inhibitors, bradykinin enhancers; antivirals; anti-inflammatory enzymes, antithrombotic; Antioxidants	Not applicable	The ACE-inhibiting peptides in yogurt help reduce blood pressure by preventing the conversion of angiotensin I to angiotensin II. Yogurt's antiviral peptides have activity against various viruses, including SARS-CoV-2. Anti-inflammatory lipids help reduce inflammation and protect against tissue damage. Antithrombotic peptides in yogurt help prevent blood clots. Yogurt's antioxidant peptides help protect cells from damage caused by free radicals.	Observational studies have suggested that people who consume fermented milk are less likely to develop severe COVID-19.
[107]	<i>Lactocaseibacillus rhamnosus</i> GG KCTC 12202 BP, <i>Lactiplantibacillus plantarum</i> KU15003, <i>Lactiplantibacillus plantarum</i> KU15031, <i>Lactiplantibacillus plantarum</i> NK181, <i>Lactobacillus delbrueckii</i> KU200171	Milk	ACE inhibitors and antioxidants	Not applicable	ACE inhibitor peptides help lower blood pressure by preventing the conversion of angiotensin I to angiotensin II.	Yogurts prepared with <i>L. plantarum</i> NK181 and <i>L. delbrueckii</i> KU200171 showed high antioxidant and inhibitory activity of ACE.

[147]	<i>Saccharomyces boulardii</i>	Milk	Phenolic compounds and volatile compounds Inulin	---	Fermentation of milk by LAB and <i>S. boulardii</i> produces bioactive substances and volatile compounds that increase consumer acceptability. Inulin acts as a prebiotic, supporting the growth of beneficial bacteria in the gut.	Symbiotic yogurt containing inulin and <i>S. boulardii</i> exhibited higher antioxidant activity than control. Symbiotic yogurt showed a greater number and variety of volatile compounds.
[148]	<i>Lactobacillus plantarum</i> e <i>Bifidobacterium animalis</i> subsp. <i>Lactis</i>	Cow, sheep, goat, and camel milk		<i>Prangos ferulaceae</i> e <i>Carum copticum</i>	The extracts of <i>Prangos ferulaceae</i> and <i>Carum copticum</i> have antimicrobial and antioxidant properties, as well as protect probiotic bacteria against the passage through the GIT.	Adding <i>Prangos ferulaceae</i> and <i>Carum copticum</i> extracts to yogurt significantly improved <i>L. plantarum</i> and <i>B. Animalis</i> subsp. <i>lactis</i> . The lactic acid content of the yogurt samples treated with <i>Prangos ferulaceae</i> was also significantly higher than that of the controls. Sensory analysis determined that yogurt samples supplemented with <i>Prangos ferulaceae</i> were preferred over plain yogurt.
[114]	<i>Lactobacillus acidophilus</i> e <i>Streptococcus thermophilus</i>	Milk	Anthocyanins	Roselle (<i>Hibiscus sabdariffa</i>)	Anthocyanins have anti-inflammatory and antioxidant properties that help boost the immune system.	Yogurt fortified with rosella extract significantly increased macrophage phagocytic activity, lymphocyte proliferation, and IL-10 and IL-14 secretion.
[108]	<i>Bifidobacterium longum</i> e <i>Lactobacillus casei</i>	Milk	Allicin (garlic), thymol (thyme), menthol (mint) and eugenol (basil)	Garlic, thyme, mint and basil	Allicin has antimicrobial and antioxidant properties. Thymol has antimicrobial and anti-inflammatory properties. Menthol has anti-inflammatory and cooling properties. Eugenol has antimicrobial and antioxidant properties.	Yogurt containing thyme and mint extract showed higher viability of <i>Bifidobacterium longum</i> and <i>Lactobacillus casei</i> , respectively. Yogurt containing garlic extract was the most preferred on the first day of storage, while control yogurt was the most preferred on the 14th day of storage.
[109]		Skimmed Liquid	Phenolic components	Palm oil and oak casca (<i>Quercus crassifolia</i>)	Phenolic compounds have antioxidant and anti-inflammatory properties.	Yogurt enriched with palm vegetable oil and nanoencapsulated phenolic extract of oak bark showed lactic acid bacteria count of 3.01×10^6 CFU/mL, lower syneresis (7.34%), higher viscosity (341 cP) and good sensory perception.
[115]	Not specified	Milk	Phenolic compounds	Folha de algel (<i>Artemisia herba-alba</i>)	Phenolic compounds have antioxidant and antimicrobial properties.	The fortification of yogurt with alger leaf extract (ALE) at 0.1 and 0.2 g/100 mL significantly improved its physical, nutritional, antioxidant and sensory qualities. ALE increased the acidity, lactic acid bacteria count (LAB), water holding capacity (CRA), viscosity, a^* and b^* values, elasticity, total phenolic content (TPC), antioxidant activity, and sensory attributes of yogurt. However, it reduced yogurt's pH, syneresis, L^* value, hardness, gumminess, adhesion, and thiobarbituric acid (TBARS).

[110]	<i>Streptococcus thermophilus</i> and <i>Lactobacillus delbrueckii</i> subsp. <i>bulgaricus</i> , low viscosity type <i>Lactobacillus plantarum</i> MC5	Milk	Exopolissaccharides (EPS)	Not applicable	<i>Lactobacillus plantarum</i> MC5 produces EPS, which has rheological and water-retaining properties that improve the texture of yogurt. EPS also has antioxidant and anti-inflammatory properties.	Yogurt supplemented with <i>Lactobacillus plantarum</i> MC5 showed higher EPS content, improved rheological properties (apparent viscosity, consistency, cohesion), and higher antioxidant activity.
[111]	<i>Bifidobacterium longum</i> ATCC15707, <i>Streptococcus thermophilus</i> e <i>Lactobacillus delbrueckii</i> subsp. <i>bulgaricus</i>	Milk	Rosemary Extract	Alecrim (<i>Rosmarinus officinalis</i> L.)	Rosemary extract has antioxidant, antimicrobial, and anti-inflammatory properties.	Yogurt fortified with rosemary extract and probiotic bacteria showed higher antioxidant capacity.
[149]	<i>Streptococcus thermophilus</i> and <i>Lactobacillus delbrueckii</i> subsp. <i>bulgaricus</i>	Milk	Phenolic compounds	Date pulp (Ambara, Majdool, Sagai and Sukkari)	Phenolic compounds have antioxidant and anti-inflammatory properties.	The incorporation of date pulp extracts into yogurt significantly increased the total phenolic content (TPC), the anti-radical activity of DPPH.
[112]	<i>Bifidobacterium bifidum</i>	Milk	Phenolic compounds	Poejo (<i>Mentha pulegium</i> L.)	Phenolic compounds have antioxidant and antimicrobial properties.	Microencapsulated pennyroyal extract (PE) in yogurt significantly increased its antioxidant properties, probiotic bacteria viability, and sensory attributes.
[116]	<i>Lactobacillus bulgaricus</i> and <i>Streptococcus thermophilus</i> (Delvo®Tec, MPC 63 × 1U, GlocalFoods, Brazil	Milk	Polyphenols	Yerba mate (<i>Ilex paraguariensis</i>)	Polyphenolic compounds.	Yerba mate extract microencapsulated in solid lipid particles (SLPs) of beeswax significantly improved its antioxidant properties and protected the viability of lactic acid bacteria in yogurt, not interfering with the sensory acceptability and purchase intention of yogurt.
[150]	commercial lactic cultures Nu-trish <i>Lactobacillus casei</i> 431 from	Milk	Phenolic compounds, flavonoids, and carotenoids	Tumbo Fruit Polpa (<i>Passiflora tripartita</i> Kunth)	Phenolic compounds, flavonoids, and carotenoids have antioxidant and anti-inflammatory properties.	Probiotic yogurt with tumbo pulp showed high antioxidant capacity (DPPH●, ABTS+●), high content of phenolic compounds, flavonoids, and carotenoids, and High viability of lactic acid bacteria (3.4×10^8 CFU/g).

						Chr. Hansen (Denmark), Dri-Set yogurt 438 and Dri-Set Bioflora ABY 424 from Vivolac Cultures Corporation (USA) were used for milk inoculation
[117]	<i>Lactobacillus brevis</i> B7	Milk	Ginsenosides	Ginseng hydroponic (<i>Panax ginseng</i>)	Ginsenosides have antioxidant, anti-inflammatory, and immunomodulatory properties.	Co-fermentation of yogurt with <i>Lactobacillus brevis</i> B7 and hydroponic ginseng significantly increased antioxidant activity and gene expression levels of the immune-related factors TNF- α and iNOS in RAW 264.7 cells.
[118]	<i>Lactocaseibacillus casei</i> (431®), <i>Lactocaseibacillus rhamnosus</i> (LGG®) e <i>Bifidobacterium subsp. lactis</i> (Bb-12®)	Milk	Phenolic compounds	Mango peel (<i>Mangifera indica</i> L.) and banana peel (<i>Musa acuminata</i> Colla)	Sources of phenolic compounds and prebiotics.	Adding mango peel powder (MPP) and banana peel powder (BPP) to yogurt significantly increased total phenolic content and antioxidant activity.
[119]	<i>Streptococcus thermophilus</i> e <i>Lactobacillus delbrueckii</i> subsp. <i>bulgaricus</i> .	Milk	Polyphenols	Valerian (<i>Valeriana officinalis</i> L.), sálvia (<i>Salvia officinalis</i> L.), chamomile (<i>Matricaria chamomilla</i> L.), esteva (<i>Cistus</i> L.), linden flower (<i>Tilia</i> L.), tanchagem de ribwort (<i>Plantago lanceolata</i> L.), marshmallow plant (<i>Althaea</i> L.)	Polyphenols have antioxidant and anti-inflammatory properties.	Adding plant extracts to fermented dairy beverages did not inhibit the growth of lactic acid bacteria (LAB) at concentrations of up to 2% by weight. However, higher concentrations (>2% by weight) may gradually inhibit fermentation. The microorganisms remained viable during in vitro digestion. Plant extracts have antioxidant properties, which can increase the nutritional quality of yogurts.

[151]	<i>Lactobacillus casei</i> and <i>Lactobacillus gasseri</i>	Camel milk	Dietary Fiber	Banana peel (<i>Musa acuminata</i>)	Dietary fiber has several health benefits, including improving gut health, reducing inflammation, and boosting the immune system. It can also help reduce syneresis	Adding banana peel fiber to camel milk yogurt significantly increased viscosity and the survival of probiotic bacteria. Adding banana peel fiber also significantly decreased the following: pH, Hydration Surface tension, Overall acceptability, and Color Flavor.
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