

DEMYSTIFYING KOMBUCHA

THE ANCIENT DRINK WITH
MODERN HEALTH BENEFITS

100% CERTIFIED ORGANIC
MOJO®
KOMBUCHA
LIVE SPARKLING PROBIOTIC





Kombucha is a delicious, refreshing, tea-based beverage that has been enjoyed by many around the globe since ancient times. Made by a traditional fermentation process that includes a colony of yeast and bacteria, kombucha contains probiotics, organic acids, vitamins and antioxidants. Researchers are starting to uncover its many health secrets, and I am delighted to present this report on the health benefits of not only kombucha, but the unique probiotic strain of bacteria our MOJO Kombucha contains - *Bacillus Coagulans* GBI-30 6086. MOJO Kombucha is a lower sugar sparkling drink - healthier and tastier than traditional soft drinks and a simple swap that can help Australians achieve better health.

I hope you enjoy reading this report and encourage you to try our MOJO Kombucha.

Cheers to your health!

**Anthony Crabb, co-founder
and CEO, MOJO Kombucha**

Kombucha is a fermented tea-based beverage with a number of nutrition and health benefits.

It's made using a traditional fermentation method involving a colony of yeasts and bacteria.

MOJO Kombucha contains a well-researched probiotic strain – *Bacillus Coagulans* GBI-30 6086. This probiotic has benefits for gut health and immune function.

MOJO Kombucha is a lower sugar, sparkling alternative to regular soft drinks.

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WHAT IS KOMBUCHA?

Kombucha is a sparkling, tangy, fermented black or green tea blend that contains probiotics, organic acids, amino acids, vitamins and polyphenol antioxidants thanks to its tea base.^{1, 2}

It begins as a sugar-tea solution before a living culture of bacteria and yeast transforms these ingredients through aerobic fermentation over 7-10 days into a functional health beverage. The combination of bacteria such as acetic acid bacteria and lactic acid bacteria as well as yeast is commonly known as

a 'SCOBY' (Symbiotic Colony of Bacteria and Yeast).

The yeast metabolises the sugar turning it into carbon dioxide, giving kombucha its distinctive effervescence, and trace amounts of alcohol. The bacteria turns the alcohol into organic acids such as acetic acid and glucuronic acid, giving kombucha its 'tang'. Some bacteria are able to produce microbial cellulose and this joins to become the biofilm found on the liquid surface¹ also known as "the mother".

Kombucha originated in north east China - Manchuria - about 220 B.C. where it was used for its detoxifying and energising properties. Trade

routes introduced kombucha to Japan and Russia and from there onto Europe and now around the world.^{2,3}

The final nutritional composition and taste of kombucha is dependent on the bacteria and yeast species, initial sugar and tea concentrations, oxygen and carbon dioxide levels, fermentation time, and temperature used.¹ While a traditional beverage with a long history of continuous human consumption, kombucha's recent popularity is driving new research to uncover its health secrets.



KOMBUCHA HEALTH BENEFITS

Surprisingly there is a lack of clinical studies for the benefits of kombucha in humans. Research in animal models and cell cultures however has found that kombucha has anti-microbial, antioxidant, and anti-inflammatory properties, and possibly anti-cancerous potential.¹ Studies in humans are necessary to confirm these effects but what has been uncovered so far is fascinating.

ANTI-MICROBIAL EFFECTS

Cell culture studies show kombucha is effective against common disease-causing bacteria: *Staphylococcus aureus*, *Escherichia coli* and *Salmonella enteritidis*,^{4, 5} as well as a number of others including *Listeria monocytogenes* and *Helicobacter pylori* (causes stomach ulcers).⁶

ANTIOXIDANT EFFECTS

As a fermented tea kombucha retains the tea's well-known polyphenol antioxidant activity⁷ and one such polyphenol – catechin – also has anti-microbial effects⁵. Kombucha also leads to a reduction in oxidative stress markers⁸ and has free radical scavenging abilities that varies with longer fermentation times.^{9, 10}

ANTI-INFLAMMATORY EFFECTS

Kombucha was found to aid gastric ulcer healing in mice due to its antioxidant and anti-inflammatory properties, as well as show a reduction in gastric acid production¹¹. Others found kombucha reduces markers of inflammation such as pro-inflammatory cytokines (TNF-alpha and IL-6).¹²

ANTI-CANCEROUS EFFECTS

Kombucha contains DSL (D-Saccharic acid-1,4-lactone) which may inhibit β -glucuronidase, an enzyme linked to cancer growth.¹³ Others have found kombucha inhibits cancer cell growth and reduces cancer cell motility,¹⁴ and that it helps maintain the chromosome integrity of cell cultures when exposed to radiation.¹⁵

PREGNANCY & CHILDREN

Homemade kombucha in general is not considered suitable for children and pregnant and lactating women due to residual alcohol levels and risk of contamination by pathogenic microorganisms. Kombucha made in lead glazed ceramic containers may also result in lead toxicity. However, commercially made kombucha produced in clean, safe facilities and where each batch is regularly tested for quality and alcohol, will be free of unwanted microorganisms and contain low levels of alcohol.

OTHER HEALTH EFFECTS

Kombucha also appears to suppress blood glucose levels in a rat model¹⁶ while delaying absorption of LDL cholesterol and boosting HDL cholesterol.^{16, 17} Improvements in these animal's liver and kidney function tests were also found.^{16, 17}

NUTRIENT COMPOSITION OF KOMBUCHA



Kombucha's nutrient composition will vary with each batch and is dependent on the type of bacteria and yeast present, the time and the temperature of fermentation process, the types of sugars used and the method of analysis. In general, kombuchas can contain:²

VITAMINS

A range of B group vitamins may be present such as Vitamin B1 (thiamine), B2 (riboflavin), B6 (pyridoxine) and B12 (cyanocobalamin) as well as Vitamin C (ascorbic acid). The longer the fermentation period the more vitamin C is produced, with a corresponding increase in sourness.

MINERALS

Minerals generated as a result of fermentation include trace amounts of: manganese, iron, nickel, copper, zinc and chromium. Others found the presence of fluoride, chloride, bromide, iodide, nitrate, phosphate and sulfate in the beverage.

ORGANIC ACIDS

Organic acids can include: acetic, gluconic, glucuronic, citric, L-lactic, malic, tartaric, malonic, oxalic, succinic, pyruvic and usnic acids. These organic acids reduce the pH of the drink and give kombucha its tangy flavour. The amount and type of organic acids is dependent on the fermentation time.

Organic acids are useful in vegetarian diets as they help release minerals such as iron and zinc from plant foods.

SUGARS

In general sugars may include the original sugar ingredient sucrose but glucose and fructose may also be present as bacteria can break sucrose down into these simpler sugars.

OTHER COMPOUNDS

Kombucha is a complex mixture of other nutrient compounds as well including: 14 amino acids, biogenic amines, proteins, purines, pigments, and small amounts of caffeine and alcohol, as well as tea polyphenols such as catechins.

WHY IS MOJO KOMBUCHA DIFFERENT?

MOJO Kombucha is produced in small batches and contains a unique, well researched, live probiotic strain - *Bacillus Coagulans* GBI-30 6086. The World Health Organization defines probiotics as “Live microorganisms which, when administered in adequate amounts, confer a health benefit on the host.”¹⁸

Bacillus Coagulans GBI-30 6086 is a lactic acid producing, spore forming probiotic strain generally regarded as safe and approved for human consumption by the US FDA since 2012.¹⁹ It is a unique probiotic as it has a protective spore like protein coat that helps it withstand the harsh conditions of the gastrointestinal tract, particularly stomach acid. For this reason, *Bacillus Coagulans* GBI-30 6086 can reach the intestines where it colonises. It's considered a transient probiotic however as it only takes up temporary residence²⁰ so regular consumption may be needed to achieve health effects. A number of health benefits has been uncovered for this probiotic strain particularly gastrointestinal disorders such as irritable bowel

syndrome as noted below.¹⁹ Many of the research studies use a probiotic count of 1 billion organisms; the amount found in a 330ml bottle of MOJO Kombucha.

Bacillus Coagulans GBI-30 6086 benefits: This probiotic appears to positively impact gut health, immune function, protein absorption and muscle recovery, and may have benefits for other health conditions such as arthritis.

GUT HEALTH

Systematic literature reviews have found probiotics can assist those with Irritable Bowel Syndrome (IBS) by improving overall symptoms such as abdominal pain, bloating, bowel motion frequency and consistency.^{21,22}

Daily consumption of *Bacillus Coagulans* GBI-30 6086 probiotic bacteria has also been found to improve symptoms of IBS. A small pilot, randomised clinical trial of 52 patients with diarrhoea predominant IBS took a daily *Bacillus Coagulans* GBI-30 6086 supplement for

8 weeks. Those taking the probiotic had significantly fewer bowel motions each day than those on the control.²³ Further studies found IBS patients taking the probiotic daily for 4 or 8 weeks had significantly less abdominal pain, intestinal gas and bloating compared to those that didn't have the probiotic.^{24, 25}

Others have found *Bacillus Coagulans* GBI-30 6086 positively affected gut bacteria in older people. In a cross over, randomised control trial of 36 people aged 65-80 years - a daily capsule of *Bacillus Coagulans* GBI 30-6086 (1 billion organisms) for 28 days resulted in significantly higher *Faecalibacterium prausnitzii* and *Bifidobacterium* gut bacteria compared to a control regime. In addition, there was an increase in production of anti-inflammatory cytokines.²⁶ The same research group also found this probiotic boosted other beneficial bacteria, as well as generated significantly higher levels of butyrate, acetate and propionate short chain fatty acids.²⁷

WHY IS MOJO KOMBUCHA DIFFERENT?

Animal studies have shown *Bacillus Coagulans* GBI-30 6086 improved *Clostridium difficile* induced colitis in mice while also improving stool consistency following antibiotics.^{28, 29} It's possible anti-inflammatory and immune boosting effects of this probiotic strain played a role in these gut health benefits.³⁰ In a model of digestion *Bacillus Coagulans* GBI-30 6086 helped lactose and fructose digestion which could be relevant to those having difficulties digesting these fermentable sugars.³¹

IMMUNE FUNCTION

Probiotics may affect the immune system by affecting immune system cells and their production of cytokines. Ten healthy men and women consumed one capsule of *Bacillus Coagulans* GBI -30 daily for 30 days. Bloods were taken and cells exposed to two viruses. The probiotic significantly increased T-cell production of TNF-alpha cytokines in response to adenovirus exposure and influenza A (H3N2 Texas strain) but not other influenza strains.³² Another study found similar results and saw an increase in

immune cell antigens.³³ This may be a new avenue for viral infection treatment. Inactivated bacillus coagulans also activated immune system cells, boosting antibodies and immune activating and anti-inflammatory cytokines. Interestingly a growth factor involved in post-injury and post-inflammation repair and regeneration was also increased.³⁴

PROTEIN ABSORPTION & MUSCLE RECOVERY

Could kombucha be the next level sports drink? A small study of 26 soldiers found those taking β -Hydroxy- β -methylbutyrate (HMB) and bacillus coagulans for 40 days reduced inflammation and maintained muscle integrity during intense military training compared to those taking a placebo.³⁵ This is supported by other studies that found this probiotic strain reduced exercise induced muscle damage helping to maintain performance while improving recovery and muscle soreness.³⁶ Twenty-nine recreational

athletes took casein and a *Bacillus Coagulans* GBI-30 capsule (1 billion organisms) daily for two weeks. These same measures were taken following a damaging exercise bout. One mechanism for this effect may be that this probiotic improves intestinal protein absorption and utilisation.³⁷ Interestingly bacillus coagulans GBI-30 also enhances amino acid bioavailability from plant proteins (pea, soy and rice) in a test tube model of digestion.³⁸ This may be beneficial to vegetarians.

OTHER HEALTH EFFECTS

Probiotics have been shown to help with inflammation associated with arthritis. Forty-five adult men and women with symptoms of rheumatoid arthritis were randomly assigned to receive *Bacillus Coagulans* GBI-30 6086 or placebo daily for 60 days in addition to their standard anti-arthritic medications. *Bacillus Coagulans* GBI-30 6086 improved their pain scores, mobility and reduced C reactive protein - an inflammation marker, making this probiotic strain a good adjunct therapy.³⁹



HOW TO SPOT A GOOD KOMBUCHA⁴⁰

YOUR CHECK-LIST:

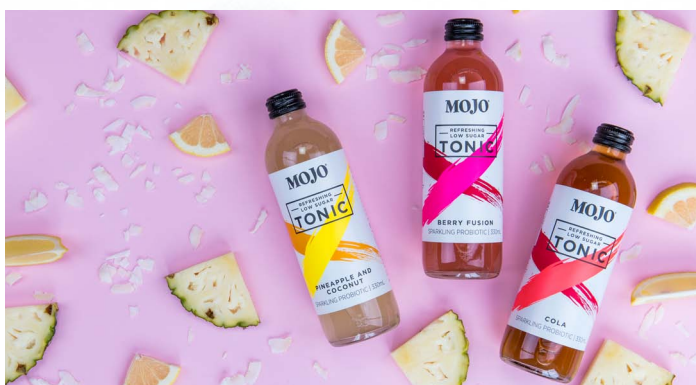
- Is the drink refrigerated? Cool temperatures keep the yeast & bacteria living while stopping the fermentation process.
- Has it been made from a SCOBY & not an extract? Does the drink have strands floating in it?
- Does it contain a well-researched probiotic?
- Is it made with organic raw sugar & free from processed sweeteners, such as stevia?
- Is the alcohol content labelled?
- Are outrageous health claims being made? Are they too good to be true?

MOJO have created a probiotic-brimming beverage for everyone, with three distinct ranges catering for all palates! Our products are the smarter swap for traditional soft drinks, stevia-free and sweetened naturally with organic fruit and spices.



MOJO Classic Kombucha is a traditionally brewed, sparkling fermented tea that packs a flavour punch, containing more than 1 billion colony forming units of a probiotic strain proven to support improved digestion, gut health and immunity. Our Classic range is true to traditional fermentation methods, batch brewed for maximum funky flavour and organic acids.

MOJO Crafted Kombucha is a low sugar, sparkling fermented tea that boasts more than 1 billion colony forming units per serve of a probiotic strain proven to support improved digestion, gut health and immunity. We've adapted our fermenting to bring you the best health benefits with less sugar and minimum tang, for a smoother, lighter refreshment still packed with powerful probiotics.



MOJO Tonic is the low sugar soft drink with super benefits. Blending organic coconut water, apple cider vinegar and proven probiotics with all natural ingredients and no sweeteners, this sparkling beverage is a nourishing alternative to traditional soft drinks. MOJO Tonic's subtle fruity flavours are easy on the palate yet super effective in the gut, for a sip that tastes good while doing you good!

MOJO CRAFTED KOMBUCHA NUTRITION INFORMATION

ENERGY

Kombucha is a naturally lower energy drink containing 48-58 kilojoules or about 13 calories per 100mL, making it a good alternative to other calorie-rich soft drinks.

SUGARS

MOJO Kombucha contains around 2grams of sugars per 100ml or around 6-7grams per 330ml bottle. Sugar is an integral part of the kombucha recipe as it feeds the bacteria and is metabolised as part of the fermentation process. MOJO has developed the perfect recipe with just the right amount of sugars making MOJO Kombucha a healthy, lower sugar, fizzy alternative to higher sugar soft drinks.

See Table 1, page 11

ALCOHOL

MOJO Kombucha contains a trace amount of alcohol due to the fermentation process – it's between 0.5% and 1.15% in compliance with the Australian New Zealand Food Standards and the State and Territory based legislation.⁴¹ MOJO Kombucha could be a good alternative for those wanting to reduce their alcohol intake and has a similar flavour profile to apple cider.

PROBIOTIC COUNT

Probiotic content per 330ml bottle: Bacillus coagulans GBI-30 6086 – 1 billion organisms.

CAFFEINE

The organic tea in MOJO Kombucha naturally contains caffeine, but much of it is degraded through the fermentation process.⁴³ There is 5mg of caffeine per 100mL of MOJO Kombucha – so approximately 16.5mg per 330mL bottle.

STORAGE

Keep MOJO Kombucha chilled at all times – the best conditions for yeast and bacteria and low temperatures stop the fermentation process. Once opened, MOJO Kombucha should be consumed within two days and kept in the fridge. From production unopened MOJO Kombucha has an 8-month shelf life. MOJO Kombucha can be found in chiller cabinets and never on shelf at ambient temperature. To find your local stockists visit www.mojobeverages.com.au/where-to-buy

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- **LOW SUGAR**
 - **GLUTEN FREE**
 - **VEGAN FRIENDLY**
 - **CERTIFIED ORGANIC**
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TABLE 1:

COMPARISON OF MOJO CRAFTED KOMBUCHA VARIETIES PER 100ML
WITH OTHER COMMON SOFT DRINKS

	NUTRIENTS			
	ENERGY	CARBOHYDRATES	SUGARS	GLUTEN
GINGER	56kJ	2.3g	1.9g	ND
PASSIONFRUIT	57kJ	2.1g	2.0g	ND
STRAWBERRY HIBISCUS	52kJ	2.0g	1.9g	ND
TURMERIC GINGER	48kJ	2.1g	1.9g	ND
LEMONADE	139kJ	8.6g	8.6g	0mg*
COLA	175kJ	10.9g	10.9g	0mg*
ORANGE JUICE (COMMERCIAL)	122kJ	6.1g	6.2g	0mg*
APPLE JUICE (COMMERCIAL)	127kJ	7.3g	7.3g	0mg*
LEMON ICED TEA (CHILLED, NO BRAND)	187kJ	11.5g	11.5g	0mg*
ENERGY DRINK (NO BRAND)	185kJ	11g	11g	0mg*
SPORTS DRINK (READY TO DRINK)	113kJ	7g	7g	0mg*

*Generic product assumed to be gluten free

Source: MOJO and Foodworks Xyris Software



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