

Kombucha Research Paper

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The name Kombucha has its origins from the Japanese words "Cha" = "Tea" and "Konbu" = a dried brown seaweed used in the manufacture of tea in Japan. The "mushroom" is a symbiont of a yeast nesting with a matrix of polysaccharides produced by a bacterium, Xylinium. Traditionally, Kombucha has been used in convents in Bohemia, Eastern Prussia, but the numerous other names for ancestral beverages show that it likely also has an Asian origin (China, Manchuria, Russia). In Asian countries and Russia, when consumed as a beverage, it helps to facilitate digestion, stimulate the memory and soothe migraines.

KOMBUCHA OR THE "LONG-LIFE MUSHROOM" DERIVES ITS NAME FROM ITS APPEARANCE AND FEEL.

Today, Kombucha tea is of renewed interest and five million Americans have become adepts. Kombucha is rich with vitamins, usnic acid, which is endowed with antibiotic activity, glucuronic acid with detoxifying properties, tannins and gallates with antioxidant properties, and the presence of a ferment in suspension. Similar to yogurt, the beverage is a living biological and probiotic drink that restores balance to the gut microbiome. Although newly used in cosmetics, Kombucha when applied topically can help to achieve a youthful complexion as a result of its anti-glycation activity, and re-densifying effect on the adipocyte population.



Kombucha, or black tea ferment, is the product of the fermentation of sweet black tea by the symbiosis of two microorganisms. Fermented tea is black tea which has undergone fermentation. The process of fermentation transforms sugars which ensures a purer ingredient without the presence of undesirable byproducts that are common in standard extractions.

The exact method of extraction of Kombucha that Three Ships sources is proprietary information.

ANTIOXIDANTS, SUCH AS KOMBUCHA, ARE MOLECULES THAT NEUTRALIZE FREE RADICALS

As the skin ages, freshness and radiance of the skin fades. Among the exogenous factors that contribute to aging skin, the glycation of proteins also occurs. The non-enzymatic process involves the irreversible binding of sugar residues to the amines of proteins. The phenomenon results in the cross-linking of collagen (i.e. the structural protein of skin). The irreversible modification of proteins results in a loss of suppleness of the cutaneous network, which breaks down the homogeneity of the skin's surface and its ability to reflect light.

Moreover, glycation results in more marked epidermal coloration in the elderly, compared to young subjects, independent of sunlight exposure. Glycation of SOD and catalase, soluble protective antioxidant proteins, also occurs which results in a loss of the proteins' protective functionality. Kombucha, however, was found to inhibit the glycation reaction and therefore smooth the microdepressionary network of the skin.

Tissues also sag as skin ages, and this is due to a decrease in the thickness of the epidermis and a decrease in the proteins and glycosaminoglycans of the extracellular matrix. More recently, adipocyte infiltrates (i.e. autologous grafting of cells taken from the thighs or abdomen) in the dermis has allowed for the correction of the deficiencies and firming of the skin to restore volume. Kombucha, however, was found to increase the adipocyte population in the skin and restore volume in deficient zones.

SCIENTIFIC STUDY

Kombucha's Antioxidant properties

The free radical theory, first proposed in 1954, postulates that aging is caused by free radical reactions. These reactions are irreversible and may be a result of environment, disease, and intrinsic aging. The theory suggests that an individual's lifespan can be increased by slowing the rate of initiation of random free radical reactions. A free radical is a chemical species possessing an unpaired electron. Reactive oxygen species are a type of free radicals that contain oxygen. Oxidative stress occurs when there is an imbalance between the generation of free radicals and the activity of antioxidant defense. Too much oxidative stress can result in cell damage; hence, the generation of too many free radicals can be harmful. Intracellular mechanisms can often reduce the damaging effects of free radicals; however, with age, endogenous antioxidative mechanisms may not work as effectively and oxidative stress is a more likely occurrence.

Antioxidants, such as Kombucha, are molecules that neutralize free radicals, caused by extrinsic and intrinsic aging, by accepting or donating electrons. Antioxidants can directly react with free radicals by delocalizing the unpaired electron, or inhibit the activity of free radicals by generating enzymes (e.g. NAD(P)H) that provide an important defense against free radicals. As the name suggests, antioxidants prevent oxidative stress thereby reducing collagen degradation and reducing the appearance of fine lines and wrinkles.

All in all, the findings suggest that the Kombucha natural ferment, also known as "long-life mushroom beverage," is rich in a variety of substances with detoxifying and antioxidant properties and numerous vitamins. Through clinical studies, it was found that topical application of kombucha resulted in a marked antiglycation effect, cell differentiation promoting effect on adipocytes, freshness in complexion, and restoration of matter to the skin. Overall, color, radiance, and clarity of the skin significantly improved. The kombucha formula used is natural, GMO-free, vegan, and organic.