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BOOK OF ABSTRACTS

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Exploring the microbial diversity of kombucha

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Abstract: *Kombucha is a unique fermented beverage made from a blend of brewed tea, typically black or green, sugar, and a Symbiotic Culture of Bacteria and Yeast (SCOBY). This concoction undergoes a fermentation process, during which the SCOBY consumes the sugar and transforms the tea into a tangy, slightly effervescent, and lightly carbonated beverage. The result is a drink with a complex tangy, slightly effervescent, and lightly carbonated beverage. The origins of kombucha are shrouded in mystery and folklore. Although its exact birthplace remains uncertain, it is widely believed to have originated in East Asia, possibly in China or Japan, over 2,000 years ago. Over time, it spread to various parts of the world, including Russia, Europe, and eventually the United States. Its enduring popularity and mystique have led to a rich tapestry of legends and stories surrounding its discovery and consumption throughout history. Recently, it has also gained popularity in Morocco and is locally produced for example in Marrakech.*

One of the most compelling aspects of kombucha is its potential health benefits. Due to its fermentation process, kombucha is teeming with probiotics, beneficial live bacteria that can support gut health and digestion. It also contains various vitamins, minerals, and antioxidants, which may contribute to overall well-being. Additionally, some enthusiasts claim that kombucha can aid in detoxification, boost the immune system, and provide an energy lift without the disadvantages associated with caffeinated beverages.

To investigate the microbial diversity of a Portuguese brand of Kombucha, we conducted a metagenomics analysis of the SCOBY, the starter culture, and the final product. The hypervariable V3V4a region of the 16S rRNA gene was used for bacterial metagenomics, while the rRNA ITS1b intergenic region was used for yeasts metagenomics.

*The most abundant bacterial species in the SCOBY was *Komagataeibacter xylinus*, while *Lactobacillus nagelii* was predominant in the starter and in some final products. Strains from the *Bacillus coagulans* group dominated in other final products. Regarding yeasts, *Saccharomyces cerevisiae* was predominant in both the starter and the SCOBY.*

As kombucha continues to gain popularity nowadays, researchers are exploring its potential health advantages and uncovering the strains and mechanisms behind its beneficial effects.

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