The Torch
Vol. 2 (37)

Non-dairy probiotic beetroot juice for health enrichment

Mitali V Shetty

Unprecedented climate changes and expanding population is a rising concern towards the provision of sustainable nutritional food for all. This has led to the open-handed acceptance of fortified functional foods and increased intake of probiotics. It has also given a nod to research involving genetically modified crops and the search for powerhouse ingredients to fight impending infections. Such research towards finding sustainable nutrition has shed light on the multifaceted usefulness of beetroot as a superfood. Despite its humble appearance, beetroot (Beta vulgaris) enables the body to lower the blood pressure by at least 5 mm Hg upon regular consumption, as per studies, and reduces inflammation, while also helping in the harvest of healthy oral microbiota. Being a good source of the tyrosine-derived water-soluble pigment betalain, it helps maintain the good liver condition and contains several antioxidants like vitamin-A, iron and vitamin B6. These antioxidants decrease the oxidative metabolic processes that lead to the onset of degenerative diseases like cancer, cardiovascular-related diseases and inflammation. Betalains are sensitive to environmental conditions like heat, moisture content, phytochemical conditions, varying oxygen levels and extremely low or high pH. However, they maintain their inherent properties between the pH ranges of approximately 3 to 7, proving beetroot to be a stable medium for the production of probiotics. Beyond the optimum pH range, betalains undergo degradation with subsequent change in colour which can be detected through mass spectrophotometric analysis.

Containing natural nitrate-rich properties, beetroot helps increase brain and cognitive functions and improves overall physical performance by regulating efficient blood circulation. Nitrate rich foods are stored by the body in our muscles, similar to how glycogen is stored as an energy reserve. The nitrates consumed are converted to nitric oxide through a range of metabolic processes. Beets, celery, spinach and similar fruits and vegetables have a great potential to act as future functional foods. Beets being rich in folates (vitamin B9) have showcased possibilities to help reduce the risk of schizophrenia, dementia and depression, pertaining to which beetroot-rich diets are prescribed to anaemic patients to help in healthy red blood cell formation. Folic acid, a component in beetroot, is known to prevent the risk of neural and spine damage and is being fortified into several prenatal supplements or vitamin pills especially for consumption by immunodeficient patients and lactating women. Beetroots have a high potential for serving as probiotics and their premeditated fermentation counteracts their consisted sugars, making them take on the role of a probiotic powerhouse. Being a fibre-rich root vegetable, it adds bulk to the stool and maintains healthy interaction with gut bacteria. The development of beetroot juice as a miniaturised cellular microbiome with active good metabolism-enhancing bacteria, and enzymes exuding functional properties are best suited for industrial applications. Meanwhile, cyclic research continues to screen and identify new compounds with similar biochemical characteristics.

Keywords: Beetroot, Microbiome, Betalain, Non-dairy probiotic

Citation:
Mitali V Shetty. Non-dairy probiotic beetroot juice for health enrichment. The Torch. 2021. 2(37). Available from: https://www.styvalley.com/pub/magazines/torch/read/non-dairy-probiotic-beetroot-juice-for-health-enrichment.