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ANALYSIS AND SCRUTINY ON BEETROOT EXTRACT PREVENTS AND FIGHT AGAINST CARCINOGENIC AGENTS

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Abstract:

Cancer patients are susceptible to a variety of adverse effects. Insomnia, breathing difficulties, weight loss, fatigue, depression, brain and nervous system disorders, and cognitive impairments are only a few of the symptoms. This is a relatively frequent symptom that might last for months or even years after treatment is completed. It has the potential to shorten a person's lifespan and lower their quality of life. Functional foods have long been associated to improved human performance and health, and are hence recommended for cancer patients' diets. The primary goal of this review is to analyze the nutritional makeup of beets, as well as their potential for chemoprevention and cancer treatment, with a focus on prostate cancer. Red beets (*Beta vulgaris* L.) have antioxidant, neurostimulant, and anti-inflammatory properties. The natural chemical betalains and flavonoids found in beetroot are used to treat a variety of malignancies, including prostate cancer, which is one of the most common causes of morbidity and mortality.

Keywords:

Beetroot, Cancer, Betanins, Prostate cancer, Cardiovascular health.

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INTRODUCTION:

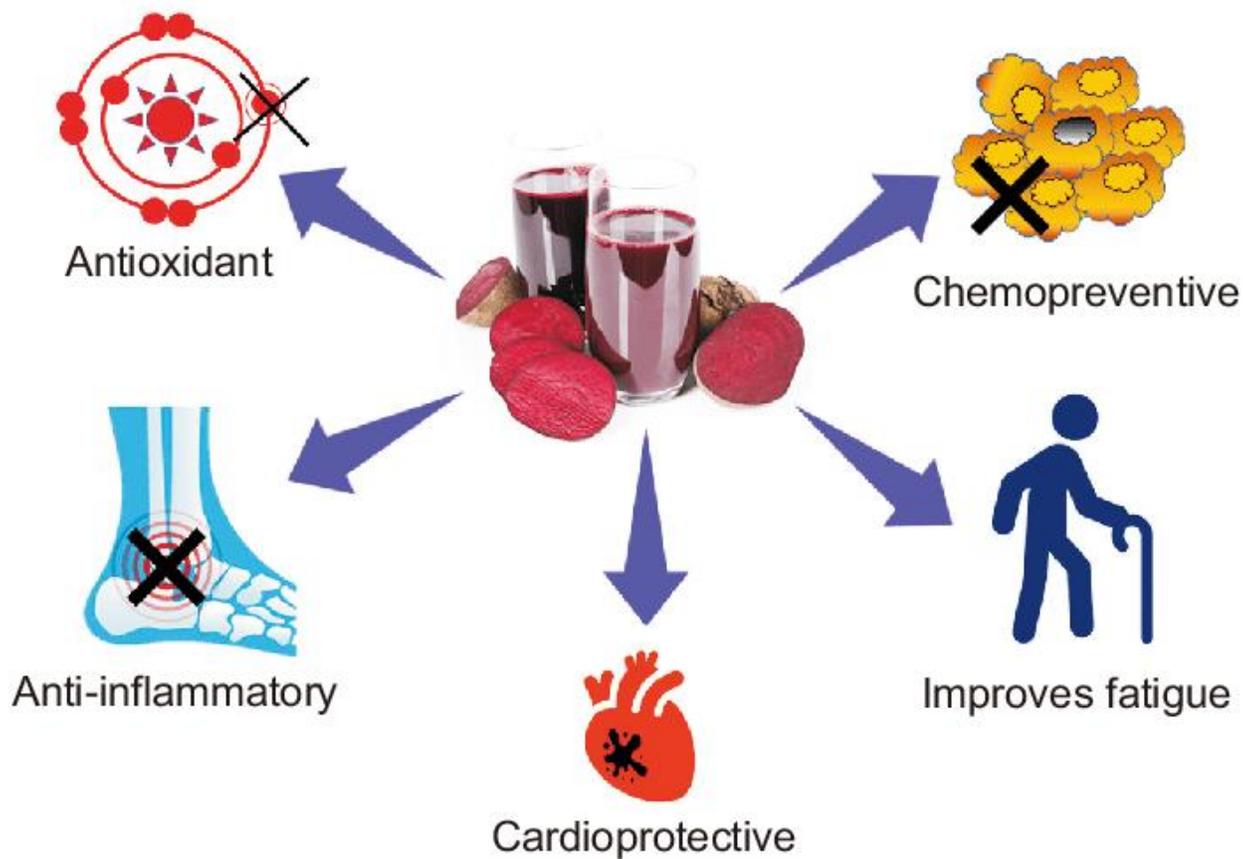
In the last decade, research on red beet has exploded. It contains a healthy balance of important elements such as carbohydrates, fat, protein, minerals, and vitamins. Bioactive substances such as betanins and flavonoids are found in it. Breast, prostate, and colorectal cancers are all treated with betanins. Betanins are heat, PH light, and oxygen sensitive. It will result in poor processing and storage stability. Ascorbic acid, carotenoids, phenolic acid, and flavonoids are abundant in beetroot. It also contains betanins, a type of extremely bioactive pigments. Beetroot is

well-known for its antioxidant properties and is commonly used to treat a range of diseases, including cardiovascular disease, anaemia, sexual weakness, and bladder stones. Betanin and Betalain, two red pigments present in red beets, have been demonstrated to promote cytotoxicity in a variety of cancer cell lines, both alone and in conjunction with chemotherapy treatment. Several earlier studies have also indicated that beetroot is an essential source of natural antioxidant. Beetroot acts against oxidative damages stimulated by beetroot feeding may likely safeguard against liver damage. Beetroot helps in maintaining lean body mass during chemotherapy.

BACKGROUND INFORMATION:

Betaine is an important methyl donor. The most common source of betanin is beet juice extract. Beetroot has a betanin content of 300 to 600 mg/kg. Cancer cell growth and viability were greatly reduced by betanin concentrate. Beetroot has been shown to help decrease the progression of active cancers in the body. Flavonoids have a 15-carbon skeleton, which is made up of two phenyl rings and a heterocyclic ring. Flavonoids have a lot of antioxidant activity, thus they can assist your body fight against contaminants. Flavonoids have been shown to have positive effects on hormone-dependent cancers in observational studies and clinical trials (breast and prostate). Betacyanins and beetroot extracts have been widely researched in vitro and in vivo. Betacyanins are a family of chemicals with antioxidant and radical scavenging properties. The presence of betacyanins in beetroot extracts and betanin pigments can reduce the unpleasant side effects of chemotherapy, which is necessary for practical use. Beetroot is an important food to eat for good health, and it has a lot of potential for chemoprevention and managing fatigue and other chemotherapy side effects in cancer patients. Geosmin, a volatile bicyclic alcoholic molecule, gives it a distinct earthy mushy scent and flavour.

Functional properties of beetroot



Courtesy: Researchgate.net: [Beetroot as a Potential Functional Food for Cancer Chemoprevention, a Narrative Review](#) Mar 2021]

CONCLUSION:

Micronutrients and bioactive components abound in beetroot. Beetroot extracts and betanin pigments have been shown to be useful in reducing experimentally induced cancer in a number of Because of the abundance of bioactive chemicals found in red beetroot, chemoprevention trials employing a diet supplemented with beet powder or root chips in carcinogen-treated animals could be beneficial. The clinical application of beetroot in the management of fatigue and/or the management of the unpleasant side effects of chemotherapy is unavoidable. Beetroot supplementation and cancer patients should definitely be studied in epidemiological and randomised clinical trials The majority of in vitro and in vivo investigations have yielded positive results; nevertheless, the molecular mechanisms behind beetroot's chemopreventive and chemoprotective actions are still unknown. Despite recent clinical trials demonstrating that beetroot supplementation increases human performance, translational studies on beetroot and its functional effects in controlling fatigue or other symptoms in cancer patients are still absent.

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