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Journal of Annals of Experimental Biology, 2022, 10 (4):59

(http://www.scholarsresearchlibrary.com)

ISSN: 2348-1935

Probiotics May Play a Role in the Microbiota, and Illnesses, Including the Potential Prevention and Treatment of Cancer

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***Received:** 11 July, 2022, Manuscript no. aeb-22- 81918**; Editor assigned:** 13 July, 2022, Pre QC no aeb-22- 81918 (PQ)**; Reviewed:** 22 July, 2022, QC no aeb-22- 81918 (Q)**; Revised:** 24 July, 2022, Manuscript no. aeb-22- 81918 (R)**; Published:** 29 July, 2022*

ABSTRACT

Probiotics are living, non-pathogenic bacteria that have been shown to be advantageous to their host. They are crucial in the prevention and treatment of both infectious and non-infectious disorders. Finding ways to lessen the negative effects of chemotherapy is crucial because cancer is the leading cause of mortality in the world. The ability of probiotics to treat and recover from various cancers through the production of secondary metabolites is one of their important properties. The effects of several probiotic species on the therapy of cancer have been studied up to this point. In order to utilise these essential bacteria in treating many neoplastic disorders, this review investigates the association between probiotics and the treatment of various diseases, such as cancer.

Keywords: Probiotics, Cancer

INTRODUCTION

The word "probiotic" has a Greek source that means "for life." They are nonpathogenic bacteria that not only prevent the establishment of pathogenic germs but also can balance the nutritional and immunological content of the host body. The type and dosage of probiotics can be affected by a wide range of variables, including age, nutrition, pancreatic enzyme levels, intestinal lumen conditions, stress, drug use, and way of life. Numerous research have discovered how probiotics can reduce blood cholesterol levels, regulate allergies, and modulate the immune system. Additionally, it has been demonstrated that they play a role in pathological disorders such gastroenteritis, ulcerative colitis, pouchitis, crohn's disease, urinary tract infections, and vaginitis. They also seem to have a huge potential for both preventing and treating cancer.

Their metabolic processes are what play a key role in this process. Additionally, it would be intriguing to learn how they prevent cancer. Among these mechanisms are the control of the composition and activity of the intestinal microbiota, the attachment and degradation of carcinogens in the intestinal lumen, the production of anticarcinogens, the modulation of the immune system, the inhibition of cell proliferation, and the induction of apoptosis in neoplastic cells.

Dissolved bioactive substances made by probiotics are crucial in preventing the proliferation of tumor cells. Additionally, gastrointestinal microbial products (such as butyrate, indoles, and bile acids) control how the host immune system participates in the development of cancer. Dietary fiber is fermented by anaerobic bacteria to produce short chain fatty acids (SCFA), such as acetate, n-propionate, and n-butyrate. The link between nutrition, the host microbiota, and energy metabolism is made through SCFAs. According to some estimates, SCFAs supply around 10% of our daily energy. Studies have shown that 62% of the propionate given to mice is used to create glucose. In the absence of propionate, this mechanism produces the 69% of required glucose as well as cholesterol and palmitate from substrates like butyrate and acetate. These findings underscore the critical role that probiotic-produced SCFAs play in the metabolism of glucose, cholesterol, and lipids.

CONCLUSION

Probiotics are a group of microorganisms that are primarily found in the digestive system. Two important strains with notable antibacterial and anticancer properties are Lactobacilli and Bifidobacterium. As a result, dietary components, the availability of probiotics, and their metabolic processes are significant environmental factors in the development of cancer. However, biological complexity serves as a roadblock to a complete understanding of the several mechanisms through which host microbial conditions may influence clinical states. Studies conducted now and in the future will aid in overcoming these obstacles and advancing the use of probiotics as a more natural and disruptive cancer treatment.