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Probiotics and anti-cancer pharmabiotics

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Introduction

Colorectal cancer (CRC) is a common epithelial neoplasia across the globe, with about 1.2 million newly diagnosed cases and over 600,000 mortalities annually (Kumar et al, 2013). There are several pidemiological evidences supporting a protective role of probiotic bacteria as biotherapeutics against cancer. This paper summarizes the latest identified anti-tumor pharmabiotics from different species of LAB.

Nanoparticles

Enzyms

Takeshi et al, (2007) - several cytokines -L. Casei, L. Acidophilus, L.fermentum, L.pllantarum, L. rhamnosus and L, reuteri

Verma and Shulka, (2013) - L. rhamnosus GG and L.acidophilus

Antioxidants

Haskard et al. (2000) - L. rhamnosus, L. acidophilus, B. longum

Park et al. (2007) - *L. gasseri*

Chalova et al. (2008) - *B*. adoleascentis, B. breve

> Caldini et al. (2005) - L. confuses

In recent years many nanoparticles have been used to reduce radiation demages in biological systems (Schweitzer et al., 2010). Melanincovered covered nanoparticles for protection of bone marrow during radiation thrapy of cansser. Radiat Oncol Biol Phys, 78, 1494-1502.). The most significant nanoparticles used for radiation protection are silver (Ag) and cerium oxide (CeO2) and The therapeutic values of nanoparticles are due to their free radical scav- enging properties. Among LAB various spices of lactobacillus strains synthesis silver nanoparticles (Abdollahi et al., 2015).

anti-cancer pharmabiotics

Bacteriocins

Paiva et al, (2012) - Nicin - La. lactis - Effective at concentrations above IC₅₀ against CRC

Joo et al, (2012) - Nicin - L. lactis against cell cancer by DNA fragmentation and reduced cell

Riedl et al, (2011) - plantaricin A - L. Plantarum C11 - by exposure of phosphatidylserine on the surface of various types of cancer cells

short chain fatty acids

Ewaschuk et al, (2006) - L. acidophilus, L. bulgaricus, L. casei, L. plantarum, B. breve, B. infantis, B. longum, and S. thermophilus - against CRC

Thirabunyanon et al., (2013) - P. pentosaceus FP3, L. salivarius FP25, L. salivarius FP35, and E. faecium -agands CRC

Verma and Shulka, (2013) – L. casei, L. plantarum, L. bulgaricus, and L. acidophilus – B. longum, B. breve, and B. infantis) and S. thermophiles

Conclusion

Recent advances in probiotics anti-cancer activities offer a better understanding of mechanisms of several cancer carcinogenesis and provide insights into the produce of potential anti-cancer pharmabiotics. For advance studies isolation, formulations and industrialization of anti-cancer bioactive dietary metabolites as nanoparticulate systems can be considered among researchers and clinicians associated with gut microbiota as potential of nanoparticles to enhance their bioavailability for targeted colon cancer therapy.

Refrences

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