

Bacteriocins: An Efficacious Approach to Cancer Treatment

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Abstract—Cancer is known as one of the most deadly disease in today's world. Cancerous cells lost the normal cell growth control mechanism and thus gives rise to clones of cell that expand to considerable size forming tumor or neoplasm. Cancer treatment follows the therapies like chemotherapy, surgery and radiation. Chemotherapeutic drugs which are specific to the cancer cells are not able to distinguish between healthy and infected cells as a result the healthy cells severely damaged. In addition to this the cancer cells also become resistant to chemotherapy. Thus the need for new anti-cancer therapies is increasing day by day. With the introduction of peptide therapeutics, scientists have revealed about bacteriocins as an anticancer agent. Anticancer properties of bacteriocins were way back discovered in 70s from crude preparation, which was lethal to mammalian cells. They ribosomally synthesize cationic peptides that are produced by almost all groups of bacteria. Bacteriocins have been suggested as a potent anti-neoplastic agent. Bacteriocins show similarity to commonly used anti-neoplastic drugs such as quinolones. They had shown activity against various cancer cell lines, such as MDA-MB-human adenocarcinoma, K-562-human chronic myelogenous leukemia, mammary gland, bone marrow. Some bacteriocins having anticancer properties are clicking, pediocin, microcin, pyocin, azurin. Bacteriocins can specifically penetrate human cancer cells and induce apoptosis. They have the potential to inhibit cancer cells from its growth and viability. Bacteriocins will be toxic against various cancer cell lines and can be utilized as future anti-cancer drug. This review article will provide comprehensive information about anticancerous properties of various bacteriocins.

Keywords: cancer, anti-cancer, bacteriocin, neoplasm, apoptosis.