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Research on Marine derived Biomolecules in Cancer Management

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Abstract : Research into the pharmacological properties of marine natural products has led to the discovery of many potently active agents considered worthy of clinical application. Nature has been instrumental as a source of therapeutics. Since the oceans cover more than 70% of the earth surface and the marine environment is highly diverse, it is very much likely that marine organisms would be a wonderful source of biologically active molecules. Over the past decade, several new therapeutic agents derived from marine sources have entered preclinical and clinical trials. This field has expanded significantly as a result of improvements in the technology of deep-sea collection, extraction and large-scale production through aquaculture and synthesis. The collection of the marine therapeutics includes molecules with antibiotic, antiviral, antiphlastic, analgesic and anticancer activity. Various active anticancer agents are derived from plants and terrestrial microorganisms. The isolation of C-nucleosides from the Caribbean sponge, *Cryptotheca crypta*, four decades ago, provided the basis for the synthesis of Cytarabine, the first marine derived anticancer agent to be developed for clinical use. Cytarabine is currently used in the routine treatment of patients with leukemia and lymphoma. Gemcitabine, one of its fluorinated derivatives, has also been approved for use in patients with pancreatic, breast, bladder, and non-small-cell lung cancer. Traditional chemotherapeutic agents have a range of side effects like fatigue, gastrointestinal distress and depression of immune system which introduces the necessity of natural anticancer drug discovery. This review focuses on the latest studies and critical research in this field and evidences the immense potential of marine organisms as sources of bioactive peptides and other anticancer biomolecules.

Key Words : Marine source; aquaculture; therapeutic agents; bioactive peptides; anticancer biomolecules.

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