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# Anticancer activity of *Streptomyces cacaoi* subsp *cacaoi*.M20 against Breast Cancer (MCF-7) Cell Lines

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**Abstract** : Increased use of chemotherapeutic drugs and their undesirable side effects on humans is an adverse impact in the medical world. This initiated the increased demand for novel antitumor drugs that are active against untreatable tumors with fewer side effects, and with the greater therapeutic efficiency. Mangrove actinomycetes have attracted great attention and offer the prospective to produce compounds with antitumor and other pharmacological activities. The actinomycete isolate M20 was isolated by dry heat (70 °C) pre-treatment method on Starch casein agar media from the soil sample that was collected nearer to the root region of the mangrove *Avicennia marina* from the back water area, Ariyankuppam, Puducherry (UT). Among the 25 isolates, the isolate M20 had broad spectrum antimicrobial activity against tested pathogens. Physiological, biochemical and molecular characterization was done for M20. It was identified as *Streptomyces cacaoi* subsp. *cacaoi*M20 by the 16S RNA sequencing technique. The presence of anticancer property of partially purified compound fraction of isolate M20 was tested against breast cancer (MCF-7) cell lines using MTT assay. Partially purified compound fraction had ability to control the breast cancer cell lines moderately at the concentration of compound 200µg/ml (IC<sub>50</sub>value) and showed 50.1 % inhibition of MCF-7 cell lines with 49.9% cell viability. This shows that the isolate M20-*Streptomyces cacaoi* subsp. *Cacaoi* has anticancerous activity against breast cancer (MCF-7) cell lines.

**Keywords** : breast cancer (MCF-7) cell lines, *Streptomyces cacaoi* subsp. *cacaoi*, Mangrove actinomycetes.

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