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Anticancer activity of endophytic fungi associated with *Potentilla fulgens* L.; An ethnomedicinal plant of Northeast India

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According to latest world cancer statistics, approximately 14.1 million new cancer cases and 8.2 million cancer-related deaths occurred in 2012. In developing countries, oral cancer among males and cervical and breast cancers among females are the main causes of mortality. Available drugs in cancer chemotherapy are expensive and development of drug resistance is a common phenomenon. Therefore, finding natural and low cost drugs against various types of cancers is becoming an important challenge. Natural products are very promising source of alter native medicines. Endophytic fungi have been found to be a good reservoir of bioreactive compounds and can have the potentiality to compensate the need of a novel low cost anticancer drug. In this study, two endophytic fungal isolates belonging to *Aspergillus niger* namely PFR1 and PFR6 were isolated from the roots of *Potentilla fulgens* L., an ethno-medicinal plant of Northeast India. Two breast cancer cell lines MCF7 (ER+) and MDA MB 231 (ER-), cervical cancer cell line HeLa and epidermal oral cancer cell line KB were used in this study to evaluate anti cancer properties of these two extracts. Cytotoxic effects were evaluated through MTT and colony formation assay. PFR6 showed a better cytotoxic effect than PFR1. Morphological changes were also examined under microscope until 96 h. Hoechst staining was performed to examine nuclear degradation of cells. Prominent morphological alterations were observed after treatment and nuclear breakdown was evident. Further study is going on to understand the mechanisms of action and identify the active compound of these extracts.

Biography

Ansuman Chattopadhyay completed his PhD at the age of 26 years from North Eastern Hill University, Shillong, India and as UICC Fellow visited Institute of Parhology, Munich, Germany. He is presently working as Associate Professor of Zoology, in Visva Bharati University, Santiniketan, West Bengal, India. He has published more than 20 research papers in reputed journals and engaged in screening fungal metabolites and green silver nano particles for anticancer properties. His area of research also covers radiation biology, fluoride and arsenic toxicity and mechanisms of programmed cell death. He has also authored book and contributed book chapters in national and internationally edited books.

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