Preface

The present thesis entitled “Anti-Proliferative activity of Natural Products against Different Cancer Cell Lines through Induction of Apoptosis” comprises the work done by the author in Division of Pharmacology, Department of Pharmaceutical Technology, Jadavpur University, Kolkata for the degree of Doctor of Philosophy in Pharmacy.

Natural products remain a prolific source for the discovery of new drugs and drug leads even from Vedic period. Recent data suggests that 80% drug molecules are natural products or natural compound inspired. Plants not only continue to retain their historical significance as important sources of new drugs but also are extremely useful as sources of lead compounds for structural modification and optimization that can be employed as specific probes in biochemical studies. For these reasons, biologically active constituents of plants have served as sources of inspiration for generations of medicines.

India is the gold-mine of wide variety of traditional herbal medicines. Indian natural products, particularly those from traditional medicinal plants which are reported in the classic texts like Ayurveda and Charak Samhita, have contributed towards this ‘boom’ in drug discovery. Taxol, vinblastine, vincristine, podophyllotoxin and camptothecin are very powerful drugs for the treatment of cancer. Several other plants, which are used in the traditional medicine for cancer, remain unexplored. The incidence of cancer in India is rising steadily. If the mechanism of action of plant constituents can be established, may generate non-toxic anticancer drug(s), which can be manufacture low cost medicine for the beneficial effect to people of India.

The plants Castanopsis indica (Roxb. ex Lindl.) A.DC (Family- Fagaceae) and Anthocephalus cadamba (Roxb.) Miq. (Family- Rubiaceae) were selected for the present study and its deals with plant extract and isolated chemical constituent for their anticancer activity against different cancer cell lines model as well as the mechanistic studies were determined through induction of apoptosis assay method. The thesis covered the above mentioned studies in a logical sequence with related references annexed to each chapter. Implementation of this research work will allow extension of laboratory based knowledge to develop less toxic natural compounds like phytomolecules that can potentially be effective in cancer therapy.

Mr. Narayan Dolai