Preface

The present thesis entitled “Anticancer evaluation and molecular mechanism of phytomolecule against cancer cell line” 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.

The application of medicinal plants in therapeutic management of different disease has increased enormously over the last two decades. The untapped wealth of the plant kingdom has become a target for the search of new drugs and lead compounds by drug companies and research institutes. About 80% of the world population still relies on the traditional medicine system largely of botanical origin.

Indian traditional system of medicine is prescribing plant extractives in therapy dates back to antiquity. All the major system of medicine, such as Ayurvedic, Unani and Homeopathy are mainly based on the drugs from the plant origin. Low toxicity, easy availability of herbal products, usage to practitioners at all times and an inherent faith, mainly in rural areas and complement desire of large sector of the population to use medicine plants for therapeutics purpose, constitutes the back bone of Indian traditional system. On the basis of importance of herbal research, one plant have been selected which is well used traditionally used for various diseases and disorders in Sikkim and Nepal.

In the present study leave of Zanthoxylum alatum was selected for isolation, pharmacological evaluation and molecular mechanism of anticancer activity has been done with various models.

Before the pharmacological evaluation, LD₅₀ of extracts has been determined, to fix the dose levels for pharmacological activities. The plant extract was also evaluated for its anticancer activity with the induction of apoptosis. Finally, anticancer activity of isolated molecule was evaluated. Thus the thesis covered the above mentioned studies in a logical sequence with related references annexed to each chapter. In conclusion the detailed study has been linked up in a manner to justify the relation of the work to establish the anticancer actions especially in the induction of apoptosis.

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