Chapter 3

Rational of Project
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Based on the literature survey it is observed that

➢ The stem bark of *Zanthoxylum alatum* contains phenolic compounds and alkaloids and these phytoconstituents from other plants has been reported to have anticancer activity (Zupko et al., 2009; Rayanil et al., 2011).

➢ Also, phenolics and alkaloids are the potent radical terminators that helps in reducing the risk of cancer. Some studies have shown the positive correlation of the increased dietary intake of natural antioxidants with the reduced cancer mortality, as well as with longer life expectancy (Halliwell, 2007; Rios et al., 2009).

➢ The plant has also been used traditionally in the treatment of tumors (Kritikar and Basu, 1983; Usmanghani et al., 1997; Duke et al., 2002).

➢ In spite of significant advancements in all the modern methods, the expenses and the side effects of synthetic drug continue to limit their applicability at large. Ayurvedic herbal therapy offers an effective solution as plants have less side effects, less toxicity and also less expensive. Over 60% of currently used anti-cancer agents are derived in one way or the other from natural sources including plants, marine organisms and microorganisms. Plant derived compounds have played an important role in the development of several clinically useful anticancer drugs.

Hence, the present work has been designed to screen the stem bark for its cytotoxic potential against various cancer cell lines and to isolate cytotoxic active compounds. Till date no such work is reported on *Zanthoxylum alatum*. 