

## Studies on *in vitro* cytotoxicity of *Ficus hispida* leaves

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*Ficus hispida* Linn. is explored for its *in vitro* cytotoxicity against oral (KB) and colon (COLO 205) human cancer cell lines. Three extracts (alcoholic, hydro-alcoholic and aqueous) and four fractions (n-hexane, chloroform, n-butanol and aqueous) from the leaves were prepared and were evaluated using sulforhodamine B assay at 10, 30 and 100 µg/ml. The growth inhibition demonstrated by all extracts and fractions were in dose dependent manner. The alcoholic extract was most active followed by aqueous and 50% aqueous-alcoholic extract. Further on the evaluation of fractions, n-butanol fraction was highly significant among the four fractions of alcoholic extract against both oral and colon cancer cell lines.

Key words : *Ficus hispida*, Cytotoxicity, SRB assay, KB human cancer cell lines

### INTRODUCTION

Plants have been used as folkloric sources of medicinal agents since the beginning of mankind. As the age of modern medicine, single pure drugs emerged, and plant-derived active principles, their semi-synthetic and synthetic analogs have served as a major route to new pharmaceuticals. It is already estimated that 122 drugs from 94 plant species have been discovered through ethnobotanical leads (Fabricant and Farnsworth, 2001). Plants commonly used in traditional medicine are assumed to be safe due to their long usage in the treatment of diseases according to knowledge accumulated over centuries.

*Ficus hispida* Linn. (Family-Moraceae) is well known medicinal plant, growing in damp and shady areas and found throughout India. Almost all parts of the plant are used in Indian folklore medicine for the treatment of various ailments like leucoderma, skin diseases, jaundice and as anti-poisonous. The methanolic extract of leaves had showed anti-diarrhoeal (Mandal *et al.*, 2002), anti-inflammatory (Vishnoi and Jha, 2004) activity. The plant is reported for its hepatoprotective activity in rats (Mandal *et al.*, 2000) and antioxidant potential against cyclophosphamide induced abnormalities in rat liver (Shanmugarajan and Devki, 2008). This paper describes cytotoxic screening results of the leaves from *F. hispida* against oral human cancer cell lines.

### MATERIALS AND METHODS

#### **Plant collection:**

Leaves of *Ficus hispida*. Linn was collected from the campus of Indian Institute Intergrative medicine (IIIM) in the month of December and was authenticated at source by taxonomist of the institute. A voucher specimen has been deposited at the herbarium of the Institute vide IIIM collection No.50301, Acc. No.20049.

#### **Preparation of plant extracts and fractions:**

The authenticated and freshly collected leaves were chopped and dried under shade. Three extracts of the plant material were made with 95% alcohol, alcohol-water (1:1) and water using repeated solvent extraction procedure. For the alcoholic extract, dried powdered plant material was extracted in Soxhlet extractor with 95% alcohol and concentrated to dryness under reduced pressure. Hydro-alcoholic extract was prepared by percolating another lot of dried plant material with hydro-alcohol (1:1) and then concentrating it to dryness. For the preparation of aqueous extract, the dried powdered plant material was heated with distilled water on steam bath for 2 hours, the supernatant was decanted and filtered through celite powder and pooled extract was concentrated on rotavapour and dried by lyophilizer. The alcoholic extract was fractionated sequentially with n-hexane, chloroform, n-butanol and water. The dried alcoholic extract was macerated with n-hexane. The combined solvent portion was evaporated under reduced pressure to yield hexane fraction. The residue was further macerated with chloroform and combined organic layer