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INVITRO ANTICANCER ACTIVITY OF AQUEOUS EXTRACTS OF LEAF AND STEM *OF VITEX NEGUNDO* LINN

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ABSTRACT

Vitex negundo Linn was evaluated for *in vitro* anti cancer activity using Dalton's Iymphoma ascites cells and Ehrlich ascites carcinoma cells. Its stem and leaf aqueous extractst (200 µg/ml) showed 32% and15% of anti cancer activity using DLA method. Stem& leaf aqueous extracts (200µg/ml) showed 29%and 10% using EAC method

KEYWORDS: *Vitex negundo* Linn *In vitro* anti cancer activity, DLA method, and EAC method.

INTRODUCTION

Vitex negundo belongs to the family Verbenaceae grows as tree with thin grey bark.This plant is widely distributed and also has many pharmacological actions. In tamil it is called as Nirkundi and vellai nochi,in English five leaved chaste tree in hindi and sanskirt it is called as Nirkundi. All the parts especially its leaves contain number of secondary metabolites such as alkaloids, phenols, flavanoides, glycosides, tannins and terpenes because of the richness in phytochemicals. This plant is attributed to posses a number of therapeutic uses antimicrobial, anti-inflammatory, astringent, bronchodilator, CNS depressant, diuretic anticancer and hepato protective etc. It is also used as repellent, insecticide and larvicidal; leaf extract is employed as nervine tonic tranquilizer, and vermifuge.

MATERIALS AND METHODS

The leaf and stem of *Vitex negundo* were collected from the Tamil nadu agriculture university, Coimbotore and the plant was authenticated by department of botany. The leaf and stem of *Vitex negundo* were taken and dried at room temperature and powdered and extracted by hot maceration method.

IN VITRO CYTOTOXICITY STUDY

The leaf and stem aqueous extracts of *Vitex negundo* were studied for short term *invitro* cytotoxicity using Dalton's lymphoma ascites cells (DLA) and Ehrilich ascites carcinoma cells (EAC)was subjected to short term *in vitro* cyto toxicity studies. The tumor cells aspirated from the peritoneal cavity of tumor bearing mice, washed thrice with phosphate buffered saline (PBS) or normal saline (0.9% NACL). The cell viability was determined by tryphan blue exclusion method. Viable cell suspension (1 x 10^6 cells in 0.1ml) was added to tubes containing various concentration (10,20,50,100 and 200 µg/ml of aqueous extract and the volume was made up to 1 ml using PBS control tubes contained only cell susupension. These assay mixtures were incubated for 3 hours at 37°c. Further cell suspension was mixed with 0.1 ml of tryphan blue 1% and kept for 2 to 3 minutes and loaded on a haemocytometer. The number of stained and unstained cells were counted and percentage of cell death was calculated as shown below.

$$\textbf{\% of cell death} = \frac{\text{Dead cells (blue)}}{\text{live cells (transparent) + dead cells}} \times 100$$

Table 1: (DLA method).

Aqueous extract(µgm/ml)	%cell death DLA	
	STEM	LEAF
200	32	15
100	16	6
50	8	2
20	4	0
10	0	0

Table 2: (EAC method).

Aqueous extract(µgm/ml)	%cell death EAC	
	STEM	LEAF
200	29	10
100	15	5
50	7	2
20	0	0
10	0	0

RESULTS AND DISCUSSION

The leaf and stem aqueous extracts of *Vitex negundo* showed the presence of alkaloids carbohydrates, flavonoids, tannins, and mucilage, The leaf and stem aqueous extracts showed mild anticancer activity.In EAC method at a drug concentration of 200µgm the stem and leaf showed 29%and 10%.In DLA method the stem and leaf showed 32%and 15% at a drug concentration of 200µgm when the drug concentration increases the percentage of cell death also increases .The study showed aqueous extracts of *Vitex negundo* leaves and stem have anti cancer activity. This study will be helpful to develop a noval plant based anti cancer drug.

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