ANTHELMINTIC ACTIVITY OF LEAVES OF *JATROPHA CIRCUS* LINN. AND *VITEX NEGUNDO* LINN.

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Summary

Aqueous extracts of leaves of *Jatropha curcus* Linn. and *Vitex negundo* Linn. were evaluated for anthelmintic activity on adult Indian earthworms *Pheretima Posthuma*, using piperzaine citrate as reference standard. The results indicated that leaves of *Jatropha curcus* Linn. was more significant than that of leaves of *Vitex negundo* Linn.

Keywords: - *Jatropha curcus*, *Vitex negundo* and anthelmintic.

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Introduction

The leaves of *Jatropha curcas* Linn belonging to the family Euphorbiaceae is a large shrub, 3-4 m high, native of tropical America, occurring throughout India and In Andaman and Islands known as Jangalierandi in Hindi [1]. Apigenin, vitexin and isovitexin. α amyrin, stigmasterol, stigmastenes along with two new flavonoids founds in leaves and twigs of *Jatropha curcas* Linn. [2]. Three Deoxypreussomerins, Palmarumycins CPI, JC1and JC2 have been isolated from stem of *Jatropha curcas* Linn. [3]. It is successful local remedy for scabies, eczema and ringworm [4].

The plant *Vitex negundo* Linn. (Verbenaceae) is a beautiful tree which is an erect, large aromatic shrub with quadrangular branchlets and distributed through out the greater part of India at warmer zones specially Bengal, Maharashtra, and Tamilnadu, usually 4.5 meters in height [5]. It is well known as 'Nirgundi' in Marathi [6].The leaves of *Vitex negundo* Linn. have been reported for antibacterial, analgesic and anticonvulsant activities [7].However, so for no study has been reported to evaluation of anthelmentic activity

Material and Methods

Plant material

The leaves of *Jatropha curcas* Linn. and *Vitex negundo* Linn. have been collected from the local area of Nandurbar (Maharashtra). This plant is authentifying by Dr. Santosh Tayade, Dept. of Botany, Art's, Science and Commerce College, Lonkheda, Shahada, Dist-Nandurbar (MS).

Preparation of extract

Collected leaves were dried and crushed to a coarse powder and extracted with macerated with water. Extract was dried over anhydrous sodium sulphate and solvent was removed in vacuum at 40°C by using rotary evaporator (Rotavapour Buchii, Switzerland)**.** The aqueous extract was subjected to preliminary phytochemical testing for the presence of different chemical classes of compounds [8].

Worms Collection and Authentication

Indian earthworm *Pheritima posthuma* (Annelida) were collected from the water logged areas of soils Indian earthworms are identified at Department of Zoology, P.S.G.V.P. Mandal's, Shahada, Maharashtra.

Anthelmintic activity

The Anthelmintic assay was carried as per the method of Ajaiyeoba *et al*. with necessary modifications [9]. The assay was performed on adult Indian earthworm *Pheritima posthuma*, due to its anatomical and physiological resemblance with the intestinal round worm parasite of human being [10, 11]. Because of easy availability, earthworms have been used widely for initial evaluation of anthelmentic compounds *in vitro* [12]. 50 ml. of formulation containing different concentrations of crude aqueous extract (10, 25, 50 and 100 mg/ml in distilled water) were prepared and 6 worms of same type were placed in it. Time for paralysis was noted when no movement of any sort could be observed except when the worms were shaken vigorously. Time for death of worms were recorded after ascertaining that worms neither moved when shaken vigorously nor when dipped in warm water (50^0C). Piperazine citrate (10 mg/ml) was used as reference standard while distilled water as control.

Statistical Analysis [13, 14]

The data presented as Mean ± SEM. The activities of both the leaves extracts were compared with the control. All the extracts showed significantly higher duration of paralysis and death. Values of $P<0.001$ were considered statistically significant.

Results and Conclusions

Indigenous drug system can be a source of variety of new drugs, can provide to eliminate worms, but their claimed reputation has to be verified on scientific basis. From Table 1 and 2, both the leaves of *Jatropha curcas* Linn. and Vitex *negundo* Linn. shows good anthelmintic activity. But when we compared both the results, the leaves of *Jatropha curcas* Linn. gives more potent anthelmintic activity than that of leaves of Vitex *negundo* Linn. Further study regarding isolation and characterization of active principles are responsible for activity and establishment of possible mechanisms of action are currently under progress.

Table No-1 Anthelmintic activity of aqueous extract of *Jatropha curcas* Linn. Leaves

Test Substance	Concentration in mg/ml	Time taken for Paralysis (P) and Death (D) of worms in minute	
		Pheritima posthuma	
		P	D
Vehicle	-	-	-
Aqueous extract	25	54.6 ± 0.50*	64.04 ± 0.57*
Aqueous extract	50	32.6 ± 0.43**	50.72 ± 0.44**
Aqueous extract	100	16.2 ± 0.37 ***	27.92 ± 0.19 ***
Piperazine citrate	10	21.56 ± 0.34***	48.70 ± 0.78***

All values are Mean ± SEM; n=6 in each group. Values are significantly different from reference standard (Piperazine citrate) *p<0.05; **p<0.01; ***p<0.001

Table No-2 Anthelmintic activity of aqueous extract of *Vitex negundo* Linn. Leaves

Test Substance	Concentration in mg/ml	Time taken for Paralysis (P) and Death (D) of worms in minute	
		Pheritima posthuma	
		P	D
Vehicle	-	-	-
Aqueous extract	25	62.50 ± 0.67*	98.38 ± 0.0.43**
Aqueous extract	50	48.33 ± 0.42**	61.05 ± 0.0.56**
Aqueous extract	100	17.50 ± 0.43 ***	37.17 ± 0.0.45***
Piperazine citrate	10	21.56 ± 0.34***	48.70 ± 0.78***

All values are Mean ± SEM; n=6 in each group. Values are significantly different from reference standard (Piperazine citrate) *p<0.05; **p<0.01; ***p<0.001

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