IJPSR (2010), Vol. 1, Issue 9 **(Research Article)**

INTERNATIONAL JOURNAL OF PHARMACEUTICAL SCIENCES AND RESEARCH

Received on 11 May, 2010; received in revised form 09 July, 2010; accepted 13 August, 2010

EFFECT OF *TRIDAX PROCUMBENS* ON PROTEIN CONTENTS OF VARIOUS ORGANS IN FEMALE ALBINO RATS

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Keywords:

Tridax procumbens,
Protein contents,
Liver,
Kidney,
Uterus,
Ovary

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ABSTRACT

The optimization of this study is biochemical effect of protein in Liver, Kidney, Uterus and Ovary of albino rats (*Sprague-dawley* strain) weighing about 200-250gm treated orally of ethanolic extract of plant *Tridax procumbens* at 300mg/kg body weight concentration for 3 and 5 days chronically. The result showed that both treated groups of rats are not showing very significant changes in protein content of Liver, Kidney, Uterus and Ovary of rats as compared to their control groups. Therefore, it is safe to use it against various ailments.

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INTRODUCTION: Herbal drugs are emerging as a leading area for new drug discovery and development, and are being looked at seriously for health problem. In recent years, focus on plant research has increased all over the world and a large body of evidence has been collected to show immense potential of medicinal plants and in various traditional systems. Almost all developed countries are switching towards green medicines. Medicinal plants and the active principles isolated from them are and will be of emmence importance to humanity in their fight against diseases due to less side effects. The purpose of this paper is to infer the ethnobotanical value of weeds i.e. *Tridax procumbens* and to develop a constructive approach towards weeds. It belongs to family "Asteraceae" and commonly known as "Ghamra". The plant has been found to contain various flavonoids, alkaloids, sterols, carotenoids and tannin etc [1].

It possesses various remarkable pharmacological activities such as antioxidant [2], antipyretics, immunomodulatory [3], anti-diabetic [4], anti-inflammatory, anti-bacterial, anti-diarrhoeal, anti-hepatotoxic [5], anti-inflammatory, analgesic [6] and hemostatic [7]. It has been also found to possess significant medicinal properties, which cure various types of disorders and ailments. Plant also acts as antiseptic, insecticidal and parasiticidal. Alcoholic extract of that plant is useful in Liver regeneration. It has been found to possess significant medicinal properties against Blood Pressure [8], Bronchial Catarrh, Malaria, Dysentery, Diarrhoea, Stomach-ache, Headache, Wound Healing [9]; it also prevents falling of Hairs and check Haemorrhage from cuts and bruises etc. Its flowers and leaves possess antiseptic, insecticidal and parasiticidal properties. The plant was also used to prepare 'Bringraj'; which is a reputed medicine in Ayurveda for Liver disorders [10]. Even alcoholic extract of plant is useful in Liver regeneration.

MATERIALS AND METHODS:

Plant Material Used: The fresh plant material (*Tridax procumbens*); Whole plant except root was collected from BU Campus, BHEL Campus and adjacent areas and dried in shade; then pulverized to obtain coarse powder.

Preparation of Extract: A ethanolic dose of crude material was prepared at a concentration of 300mg/Kg b.wt with the help of Soxhlet's and rotovapour apparatus and was given orally to rats.

Animal Used: Female Albino rats of *Sprague Dawley* strain weighing about 150-200gm were used for study. They were fed with standard rat pellated diet (Amrut, Feeds, Pranav Agro Industries LTD, Sangli) and water *ad-libitium* and maintained under hygienic standard laboratories condition; temperature maintained at 24-28˚C and relative humidity at 60-70%.

Chronic Toxicity Study: The experiment was initiated only after the approval of the animal Ethics Committee (IAEC/CPCSEA-716/02/9). An oral dose was administered to rats for 3 and 5 days duration chronically. Simultaneously control rats for each duration were given vehicle only to make the data valid.

Biochemical Studies- The animal was sacrificed after 24 hours of last treatment. Organs from the animal body were excised out on the day of autopsy, properly cleared of all the adhering muscles on the tissue and tissue homogenate at concentration of 25mg/ml was prepared and protein contents of Liver, Kidney, Uterus and Ovary were estimated according to method of Lowry *et al* (1951) [11].

Statistical Analysis- The data are presented as the Mean± S.E. Results were analyzed statistically using one- way Analysis of one way Variance (ANOVA) followed by Turkey's multiple comparison test. The minimum level of significance was set at $P < 0.05$.

OBSERVATIONS:

TABLE 1: AMOUNT OF PROTEIN CONTENTS IN VARIOUS ORGANS OF FEMALE ALBINO RATS

Protein Content (mg/100mg)	Duration (Chronically)		
Name of Organs	**Control**	**3 Days**	**5 Days**
Liver	19.1 ± 0.94	18.8 ± 0.82	16.1 ± 0.82*
Kidney	13.2 ± 0.67	13.5 ± 0.60	11.0 ± 0.60*
Uterus	12.4 ± 0.57	11.5 ± 0.58	10.5 ± 0.49*
Ovary	13.3 ± 0.68	12.8 ± 0.63	10.8 ± 0.43*

(Values expressed as Mean ± S.E, where n = 6); *Statistical analysis: P Vs respective control < 0.05

RESULTS:

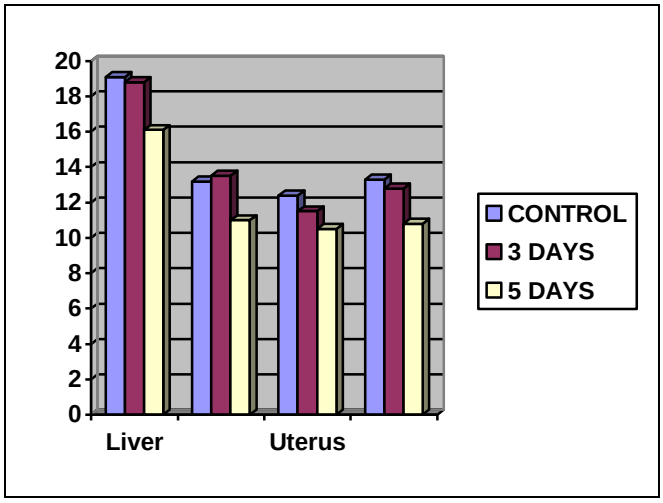

FIG. 1: SHOWING AMOUNT OF PROTEIN CONTENT AT DIFFERENT DURATIONS IN VARIOUS ORGANS OF FEMALE ALBINO RATS

DISCUSSION: Proteins are considered as the building blocks of the tissues. Numbers of toxicants of chemical or synthetic origin are known to decrease the protein contents through the process of degradation. As these compounds elicit a significant alteration in the physiological functions, it is expected that these changes are maintained through the transformation or degradation of new proteins. Plant extracts of medicinal values are known to decrease the total protein contents in vital as well as reproductive organs. Results of these studies showed that in treated groups of rats, have significant changes due to ethanolic extract of *Tridax procumbens* in protein content of Liver, Kidney, Uterus and Ovary of female albino rats, after 5 days of daily administration of dose at a concentration 300mg/kg b.wt as compared to their control groups. Similar reports were also given by Nair *et al* (1988) and Dogar *et al* (1988) with the ethanolic extract of *Strobilanthes heyneams* (leaves) and morphine hydrochloride; they reported significant decrease in protein contents in Liver and Kidney [12-13].

However, Dixit (1977) reported that extract of flowers of *Malvaviscus* depleted protein contents in Uterus and Vagina [14]. Even Mehta (1991) reported in *Datura metel* and Kushwaha (1992) reported that neem oil also causes significant depletion in protein contents in vital and female reproductive organs of rats [15, 16]. Therefore author's present study clearly indicates depletion in protein contents of vital and reproductive organs. However, a number of reports are also available about the increase in the protein contents due to administration of herbal drugs and extracts [17-18]. (Gupta *et al*, 1980 & Shukla *set al*, 1987). It is interesting to note that the decrease in protein contents is uniform in every organ. The administration of dose of *Tridax procumbens* may be involved in the degradation of proteins or it prevents the

formation of new proteins. As that plant does not possess any hormonal activity, it cannot be expected to alter the total protein contents in uterus. Therefore, it is assumed that there may be a common mechanism which decreases the protein contents in all the organs. Probably the administration of *Tridax procumbens* may alter certain key enzymes which are needed for protein synthesis. In the deficiency of these enzymes either new proteins are not formed or the existing proteins may undergo degradation.

CONCLUSION: Therefore, we conclude that *Tridax procumbens* plant is safe to use against various ailments and disorders.

ACKNOWLEDGEMENT: Authors are thankful to Head, Department of Zoology, B.U Campus, Jhansi for providing facilities for experimentation and RGNFs (UGC, New Delhi) for providing financial support for the work.

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