 International Standard Serial Number (ISSN): 2319-8141
International Journal of Universal Pharmacy and Bio Sciences 7(6): November-December 2018
INTERNATIONAL JOURNAL OF UNIVERSAL PHARMACY AND BIO SCIENCES
*IMPACT FACTOR 4.018****
*ICV 6.16****
Pharmaceutical Sciences **Research Article……!!!**

ANTI-INFLAMMATORY ACTIVITY OF ETHANOLIC LEAF EXTRACT OF *CARDOPSPERMUM HALICACABUM* LEAF

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KEYWORDS:

Noni, Nutraceutical, Therapeutic, Pharmacological.

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ABSTRACT

Inflammation is a part of the complex biological response of vascular tissues to harmful stamens, such as pathogens, damaged cells or irritants. It is characterized by redness, swollen joints, joint pain, its stiffness and loss of joint function. Inflammation is currently treated by NSAIDS. Unfortunately these drugs cause increased risk of blood clot resulting in heart attacks and strokes. Therefore, the developments of potent anti-inflammatory drugs from the natural products are now under considerations. Natural product are rich source of discovery of new drugs because of their chemical diversity. A Natural product from medicinal plants plays a major role to cure many disease associates with inflammation.

INTRODUCTION:

Unlike modern allopathic drugs which are single active components that target one specific pathway, herbal medicines work in a way that depends on an orchestral approach. A plant contains a multiple of different molecules that act synergistically on targeted elements of the complex cellular pathway (1, 2).

Medicinal plants have been source of wide variety of biologically active compounds for many centuries and used extensively as crude material or as pure compounds for treating various disease conditions [3, 4]. The use of herbal medicines becoming popular due to toxicity and side-effects of allopathic medicines. Medicinal plants play an important role in the development of potent therapeutic agents. There are over 1.5 million practitioners of traditional medicinal system using medicinal plants in preventive, promotional and curative applications [5]. India with its biggest repository of medicinal plants in the world may maintain an important position in the production of raw materials either directly for crude drugs or as the bioactive compounds in the formulation of pharmaceuticals and cosmetics etc [6].

MATERIALS AND METHODS:

The experiment was carried out by male wister albino rats weighting (150-175g) and were procured form the small animals breeding station, mannuthy, kerala, india. The animals were housed under standard conditions of temperature (23 ± 1^0C), trlssyibr humifity (55 ± 1^0 C), 12 h/ 12 h light/dark cycle and fed with standard pellet diet (Pranav Agro Industries Ltd., Sangli, India) and water *ad libitum.* Animals described as tested were deprived of food for atleast 18 h. and allowed free access to water. All the experimental procedures and protocols used in the study were received by the institutional animal ethics committee (Reg.No.ML-EA-CPCSEA/01-2013/05) and were in accordance with the guidelines of the CPCSEA.

SAMPLE PREPARATION:

Coarse powder form the shade dried plant material was exhaustiely extracted with ethanol to yield a dark greenish semisolid residue. The dried extract was dissolved in distilled water right before use.

EXPERIMENTAL DESIGN:

GROUP-I : Served as a control which received vehicle (1% CMC, 1ml kg^{-1} , P.O.) only.

GROUP-II : Served as negative control(only carrageenan)

GROUP-III : Served as standard which received indomethacin(10 mg kg-1, P.O.).

GROUP-IV : Served as test sample which recceived ethanolic leaf extract of 200 mg kg-1 P.O of *Cardiospermum halicacabum.*

GROUP –V : Served as test sample which received ethanolic leaf extract of 400 mg kg-1 P.O. of *Cardiospermum halicacabum.*

CARRAGEENAN-INDUCED PAW EDEMA IN RATS:

Group II and Group I received control vehicle orally. Group III received indomethacin (10 mg kg^{-1} PO) and group IV and V animals received the proteases (1.1%) along with plant extract cassia auriculata 200mg and 400mg respectively. After 30min, the rats were challenged with subcutaneous injection of 0.1ml of 1% w/v solution of carrageenan into the sub planter region of left paw. The paw was marked with ink at the level of lateral malleolus and immersed in mercury up to the mark.

The paw volume used measured at 1,2,3,4,5 and 6h after carrageenan injection using digital plethysmometer. The difference between initial and sub sequent reading gave the actual edeama volume.

RESULTS AND DISCUSSION:

Plants have played a significant role in human health care since the ancient times. Traditional plants exerts great role in discovery of new drugs. Majority of human population worldwide is getting affected by inflammation related disorders (8). It is believed that current analgesia inducing drugs such as opiates and NSAIDS are not useful in all causes, because of their side effects like GIT irritation liver dysfunction and much more (9). There are number of immune-suppressing agents have been developed based on their Cox-1 inhibition mechanism, but they cause severe side effects on long term administration. So selective inhibitors of Cox-2 were developed to avoid side effects of Cox-1 inhibitors (10). (Table-1).

Table 1: Anti inflammatory activity ethanolic leaf extract of *Cardiospermum halicacabum*[a]

Hours	Control	Standard		*Cardiospermum halicacabum*			
				200mg kg^{-1}b.w.p.o		400mg kg^{-1}b.w.p.o	
		Mean	% Inhibition	Mean	% Inhibition	Mean	% Inhibition
1	0.680^{e} ± 0.11062073	0.3583333^{a}± 0.2138613	47.30	0.648333^{f}± 0.23402	4.66	0.546667^{d}± 0.1743177	19.61
2	1.000^{d}± 0.139714	0.3433333^{b}± 0.2752938	65.67	0.938333^{d}± 0.303343	6.17	0.6466666^{a}± 0.23788	35.33
3	0.988333^{f}± 0.2426864	0.2533333^{c}± 0.2009643	74.37	0.908333^{e}± 0.1268729	8.09	0.558333^{c}± 0.12124664	43.51
4	1.421667^{b}± 0.2133933	0.120^{d}± 0.1479189	91.56	1.281667^{a}± 0.2011384	9.85	0.5683333^{b} ± 0.1595515	60.02
5	1.421667^{a}± 0.3286588	0.07166667^{e}± 0.06369197	94.96	1.258333^{b}± 0.1491867	11.49	0.4383333^{e}± 0.1509194	67.76
6	1.121667^{c}± 0.244983	0.03333333^{f}± 0.02503331	97.03	0.9766667^{c}± 0.2667333	12.93	0.316667^{f}± 0.1672922	71.77

[a]Values are expressed as mean ± SD for 6 animals (n=6) significant at $p<0.05$ level.

One Way ANOVA followed by Duncan's Multiple Range Test.

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