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Evaluation Of In Vivo Analgesic Activity of Leaves of Cassia Absus Linn Different Model in Mice

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ABSTRACT

Cassia absus linn is erect annual plant, which belongs to family fabaceae at has not been investigated before.The present study aimed to explore the analgesic activity of dried ethanolic & methanolic extract of cassia absus linn using tail flick, hot plate, induced writhing models in mice.. Were employed for these purpose the results reveals that dose of Cassia absus Linn (150mg/kg and 200mg/kg in mice and 200mg/kg and 250mg/kg in rat) administered for P.O.The analgesic activity of Cassia absus Linn. It is concluded that Ethanolic and methanolic extracts of Cassia absus Linn exhibited good analgesic activity with methanolic extract, 200 mg/Kg being more analgesic than the standard drug, Diclofenac sodium (10 mg/kg). It reveals from current results that either increase in doses of current extract for evaluation of analgesic activity from leveas of Cassia absus Linn may results in introduction of better extract with more analgesic activity.

Key words :- cassia absus linn, analgesic activity , hot plate method

I. INTRODUCTION :-

An analgesic or pain killer is any member of the group of drug used to achieve analgesia, i.e. relief from pain.Analgesic drugs act in various ways on the peripheral and central nervous systems. They are distinct from anesthetics, which temporarily affect and in some instances completely eliminate sensation. Analgesics include Paracetamol (Known in North America as acetaminophen or simply APAP), the non-steroidal anti – inflammatory drugs (NSAIDs) such as the salicylats and opioid drugs such as morphine and oxycodone. When choosing analgesics, the severity and response to other medication determines the choice of agent; the World Health Organization pain ladder specifies mild analgesics as its first step. Analgesic choice is also determined by the type of pain: For neuropathic pain traditional analgesics are less effective, and there is often benefit from classes of drugs that are not normally considered analgesics, such as tricyclic antidepressants. **Cassia absus** is erect annual plant, which belongs to family fabaceae. The genus Chamaecrista also known as Cassia belongs to subtribe cassiinae. The leaves and seed of Cassia absus are most commonly used for therapeutic purposes though the roots has also been studied. The leaves are acrid and bitter. In past, seeds were used to treat eye diseases. Due to its use for eye diseases, it is called chakshu, chakusya (eye, in the sanakrit language). It is mainly distributed in India and Sri Lanka in wastelands up to 1500m. It is present in all tropical regions across the world. It is also found in the continents of Australia, Central America, and Africa.It is traditionally used for the treatment of hypertrnsion, irritable bowel syndrome, renal stones, conjunctivitis, trachoma, dacryocystitis, dysentery, bronchitis, asthma, cough, constipation, tumors, venereal ucer, hemorrhoids, leucoderma, and hepatic diseases. Recent research studies have shown that c.absus has antioxidant and antidiabetic properties. Investigations of c. absus have focused on its biological activities, including its antihypertensive, antibacterial, anti-fertility, antifungal, α-amylase inhibitory activity, trypsin inhibitory activity, anti-oxidant and reducing activities.it cassia absus linn hence I chosen this plant to screen the basic analgesic activity using animal models .

II. MATERIAL AND METHODS

2.1 Plant Material : The Leaves of Plant Cassia absus Linn were dried under shade for 10-15 days and then powdered with a mechanical grinder. The powder was passed through sieve no. 40 and stored in an airtight container for further use.

2.2. Preparation of Plant Extract: The solvents used for extraction were Ethanol (95%) and Methanol. The methanolic extract of the plant samples were prepared by soaking 600 gm. of dry powdered samples in 1200 ml. of different solvents (Ethanol, Methanol) for 12 hours. The extracts were filtered using Whatman filter paper No. 42

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(125mm) and the filtered extracts were stored in air tight dark bottles at room temperature.

2.3 Acute Toxicity Study :- The acute toxicity test was performed according to up-and-down method .Agroup ofmice (n = 6) were injected with cassia absus linn orally at a dose of 200, 250 mg/kg . The dose was increased as the animal survived at the smaller dose.The vehicle (DMSO + water) was used as a control and the animals were observed carefully during 24 h for any gross effect or mortality.

2.4 Animals : Albino mice (20-30 g) of either sex used in the present study will be procured from Institute of Animal Health & Veterinary Biological Rasalpura, Mhow (M.P.) India. All the protocols and the experiments will conduct in strict compliance according to ethical principles and guidelines provided by Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA).

2.5 Animal Experimental Design:

1. Hot Plate method in mice: Albino mice (18-24 g) used in the present study. The animals were fed with pellet diet and water ad libitum. All the animals were acclimatized for a week before use.**PROCEDURE**: The animals were weighed (18-24gm) and grouped into eight of six in each and normal basal reaction time was observed by repeating for 5 times. Group-4 to Group-5 received Ethanolic extract and Group-6 to Group-7 received Methanolic extract respectively at a dose of 150 mg/kg and 200 mg/kg body weight (p.o.). Group-3 received Diclofenec sodium (10 mg/kg, s.c.) and served as standard. Group-2 administrated 1% DMSO (Dimethyl Sulfoxide) in the dose of 10ml/kg body weight (p.o.) served as control, and Group – 1 given normal having no treatment. All animals were lowered onto the surface of a hot plate (50±1.0ºC) enclosed with cylindrical glass and the time for the animal to jump or lick the fore limp was noted as the reaction time (RT). Cut of time inthe absence of a response was 15 sec to prevent the animals from being burnt. The observations were made before and after administration of respective drugs at 30 min, 60 min, 120 min and 180 min.

Results of Analgesic activity for Hot Plate

Group	Treatment	Dose (mg/kg)	Basal reaction time (in seconds)	Reaction time (in sec) after administration of drugs at different time			
				30	60	120	180
I	Control	1% DMSO	4.1±0.1	3.8±019	4±0.13	4.1±0.14	3.4±0.14
II	Diclofenec Sodium	10 mg/kg	4.6±0.10	8.2±0.05	9±0.1	8.4±0.1	8.5±0.1
III	Ethanolic Extract	150 mg/Kg	4.5±0.14	5.8±0.1	5.4±0.14	5.3±0.16	5.5±0.11
IV	Ethanolic Extract	200 mg/Kg	4.3±0.14	5.4±0.16	5.2±0.11	5.2±0.35	5.3±0.05
V	Methanolic **extract**	150 mg/Kg	4.4±0.10	5.1±0.11	4.8±0.10	5.2±0.05	5.3±0.10
VI	Methanolic Extract	200 mg/Kg	4.9±0.10	7.6±0.14	9.7±0.11	9.8±0.30	10.8±0.14

All values are expressed in mean±SEM, n=6; * p<0.0001,**p<0001 and p<0.05 compare with control and indicates there is no significant difference between standard and test

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drug at p<0.05 significant level.

2.6. Tail Flick Method: For the tail flick method pain was induced by giving radiant heat on the tail of the mice5 cm away from the tip of the tail (using tail flick analgesic apparatus type 812, UGO BASILE_, Germany). Mice were held loosely in a towel during the test. Reaction time was recorded as the interval between exposing the tail to the light beam and the withdrawal of the tail. A cut-off time of 20 secs was imposed as a protection against tissue damage.

Results of Analgesic activity for Tail Immersion Test

Group	Treatment	Dose(mg/kg body wt.)	Basal reaction time	Reaction time (in sec) after administration of drugs at different time Minutes			
				30	60	90	120
I	Control	1% DMSO	4.3±0.18	4.8±0.22	4.9±0.22	4.2±0.21	5±0.26
II	Diclofenec sodium	10 mg/kg	4.8±020	5±0.22	5.1±0.22	4.9±0.22	5.3±0.22
III	Ethanolic extract	150 mg/kg	4.6±0.26	4.8±0.22	4.8±0.22	4.7±0.22	4.8±0.2
IV	Ethanolic extract	200 mg/kg	4.8±0.22	4.3±0.24	4.4±0.23	4.2±0.23	4.6±0.16
V	Methanolic extract	150 mg/kg	4.6±0.17	4.9±0.17	4.9±0.26	4.5±0.13	4.1±0.26
VI	Methanolic extract	200 mg/kg	4.7±0.17	3.9±0.13	4.8±0.31	4.2±0.17	4.2±0.26

All values are expressed in mean±SEM, n=6; * p<0.0001,**p<0001 and p<0.05 compare with control and indicates there is no significant difference between standard and test drug at p<0.05 significant level.

III. RESULT AND DISCUSION

The leaves of Cassia absus Linn belonging to family fabaceae is a widely growing plant Through out India. The plant has many valuable medicinal properties. The leaves and seed of Cassia absus are most commonly used for therapeutic purapeutic purposes. Preliminary phytochemical analysis of extract of leaves of the plant indicated the ethanol extract contains Alkaloids, flavonoids, carbohydrates, glycosides, proteins, phenols and steroids whereas methanol extract shows the presence of proteins, carbohydrates, flavonoids , glycosides and alkaloids. While evaluating analgesic activity of different extracts by hot plate method, it was observed that Diclofinac sodium showed significant analgesic effect at 30, 60,120 and 180 minutes, peak effect was observed at 120 minute. Normal 1% DMSO solution (group-1) did not have any significant change in basal reaction time. The different dose of methanolic extract of Cassia absus showed highly significant effect (P<0.05) at 30, 60, 120 and 180 minutes as compared with control group. During the search of analgesic effect of selected extracts of the plant by tail immersion method, it was observed that diclofenac sodium showed highly significant analgesic effect at 30, 60, 120 and 180 minutes. Peak effect was observed at 120 minute. Normal 1%DMSO (group-I) did not have any significant change in basal reaction time. Ethanolic extract at a dose of 150mg/kg and 200 mg/kg showed highly significant activity (P<0.05) at different time interval as compared to control group. The methanol extract at 150mg/kg and 200mg/kg was found to be highly significant (P<0.05) at 60, 120 and 180 minutes as compared to control group.

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REFERENCE :

[1]. https://en.wikipedia.org/wiki/Analgesic#mw-head.
[2]. Kirtikar K. R. and Basu B. D.: international book distributors book sellers and publisher 9/3 Rajpur road, (ist floor), Journal Indian Medicinal Plant, 2003, 2, 874.
[3]. Ahmada b,Ayesha Hassana : Photochemistry and Pharmacological potential of Cassia absus, Journal of Pharmacy and Pharmacology, 2017,1-5.
[4]. Pandita nancy, Vaidya Ashlesha: Pharmacognostic and Phytochemical studies of Cassia absus seed extracts, International Journal of Pharmacy and Pharmaceutical science, 2015, 8(1),325-332.
[5]. Shobhaben Pratapbhai: Patel School of Pharmacy and Technology Management, SVKM's NMIMS, Mumbai, Literature Review, Chapter 2, page 4-7.
[6]. Shobhaben Pratapbhai: Patel School of Pharmacy and Technology Management, SVKM's NMIMS, Mumbai, Results and Discussions, Chapter 5, page 104.
[7]. S. Ganapaty., P. S. Thomas: A review of phytochemical studies of Cassia species Department of Pharmaceutical Sciences, Andhra University, Visakhapatnam, Andhra Pradesh, International Journal of Pharmacy and life sciences, 2002,23,530.
[8]. Veerachari Usha and A.K. Bopaiah: Preliminary phyto-chemical evaluation of the leaf extract of five Cassia Species, Journal of Chemical and Pharmaceutical research, 2011,3(5),574-583.
[9]. P. Jayaraman, E. Sivaprakasam, V. Rajesh: Comparative analysis of antioxidant activity and phytochemical potential of Cassia absus Linn., Cassia auriculata linn. and Casssia fistula linn, Indian Journal of Drugs & Diseases, 2014,3(1),202.
[10]. Uma Shankar Mishra, P. N. Murthy and Sambit Kumar Parida : Analgesic and anti-inflammatory activities of Indian medicinal plant Ziziphus xylopyrus stem barks in experimental animal models, elixir Pharmacy, International Journal Pharmaceutical Sciences 2012,44,7265-7270.
[11]. Mun Fei Yam, Lee Fung Ang, Omar Ziad Ameer, Ibrahim Muhmmad Salman: Aniinflammatory ans Analgesic Effects of Elephantopus tomentosus Ethanolic Extract,journal Acupunct Meridian Student., 2009,2(4),280-287.