



Research Article

EVALUATION OF ANTI ULCER ACTIVITY OF *OLDENLANDIA CORYMBOSA* (L)

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ABSTRACT

The aim of the research is to find out new anti ulcer drugs from indigenous plant which are potent and nontoxic or minimal toxic and to investigate the anti ulcer activity of *Oldenlandia Corymbosa* (L). The powder of *Oldenlandia Corymbosa* (L) was successively Extracted with Ethyl alcohol and Aqueous .The preliminary phytochemical test were done and the LD50 values for both alcohol and aqueous extract determined. The anti ulcer activity of the alcoholic (200 mg / kg. p.o.) and aqueous Extract (400 mg / kg. p.o.) were assessed in Aspirin induced gastric ulcer.

Keywords: Whole plant, Ethyl alcohol, Aspirin, Lansoprazole

INTRODUCTION

Herbal medicine is the oldest form of healthcare known to Mankind herbs has been used by all cultures throughout history. It was an integral part of the development of modern civilization ¹. Primitive men observed and appreciated the great diversity of plants available to him. The *Oldenlandia Corymbosa* (L) is annual, 7.5 to 38 cm stem terete, numerous slender, erect ascending or spreading glabrous or pubescent. Leaves sub sessile 2.4 to 5 cm by 1.5 to 4 cm, linear or linear lanceolate, acute often with revolute margins, stipule short, membranous truncate, with a few short bristles ^{2,3}. *Oldenlandia Corymbosa* (L) contain oleanolic acid, ursolic acid and gamma-sitosterol alkaloids, tannins, and flavonoids. The air dried plant contains 0.12 %, alkaloids bifloron and biflorin. It contains 13.55% inorganic ash that is responsible for its cooling effect ^{4,5}. The plant has been traditionally used as cooling medicine in treatment of fever caused by deranged bile also

used in viral infections, cancer, acne, skin ailments, hepatitis, eye diseases and bleeding ^{6,7}. It also show bitter, acrid, cooling, febrifugal, pectoral, anthelmintic diuretic, depurative, diaphoretic, expectorant, digestive and has stomachic properties ⁸. Hence present study was aimed to investigate the anti ulcer activity of plant extract of *Oldenlandia Corymbosa* (L) on Aspirin induced gastric ulcer in wistar rat.

MATERIAL AND METHODS

Drugs and chemicals: Lansoprazole was obtained from Unichem laboratories Limited, the kits for all biochemical estimation were purchased from R.S.Enterprises, Jaipur, India. The solvent and chemicals used were of analytical grade. The Whole plant of *Oldenlandia Corymbosa* (L) were collected from the Yarcuad, hills from Tamilnadu in month of November. The plant was identified & authenticated by Dr.Marimuthu. The whole plant of *Oldenlandia Corymbosa* (L)

were shaded dried at room temperature and then powdered with a mechanical grinder. The powder was passed through sieve no.40 and stored in an air tight container for further use .The solvent used Petroleum ether (60-80 c), Alcohol 95% w/v and distilled water for decoction. The Petroleum ether extract was obtained using soxhlet apparatus. Alcoholic extract was obtained with ethyl alcohol 95% w/v for 18 hrs using soxhlet apparatus. The aqueous extract was prepared with the The aqueous extract was prepared with the remaining mass by maceration process for 7 days. The extract was dried at 55 °C in a water bath. The Percentage yield of alcoholic and aqueous extract were 8.8% and 12.2 % respectively. (Table no. 1).

Acute Toxicity Study

Acute oral toxicity of alcoholic and aqueous extract were determined using nulliparous, non-pregnant female mice. The animals were fasted for 3 hours before experiment and were administered a single dose of extract dissolved in 2% w/v tween 80 and observed for mortality upto 48 hours . Based on short term toxicity the dose of next animal was determined as per OECD guideline ⁽¹⁰⁾. All the animals are also observed for long tern toxicity.

Experimental Protocol

Test compound

The alcoholic & Aqueous extract of *Oldenlandia Corymbosa (L)* Whole plant respectively (200mg/kg &400mg/kg body weight) and standard drug Lansoprazole (8 mg/kg P.O) were used. The following chemicals were obtained from the indicated commercial.

Experimental Setup

Wistar rats (150-200 gm) used in the present studies were procured from listed suppliers of Sri Venkateshwara Enterprises, Bangalore, India. The animals were fed with standard pellet diet (Hindustan lever Ltd. Bangalore) and water *ab libitum*. All the animals were acclimatized for a week before use. The alcoholic & aqueous extract of *Oldenlandia Corymbosa (L)* was dissolved in gum acacia. The rats were divided into four groups of 6 animals in each

Group I : Aspirin (250 mg/kg) + 2% gum acacia w/v

Group II : Lansoprazole (8 gm/ kg p.o) for 5days + Aspirin

Group III : Alcoholic extract of *Oldenlandia Corymbosa (L)* (200mg/kg p.o) + Aspirin (250 mg/kg)

Group IV : Aqueous extract of *Oldenlandia Corymbosa (L)* (400mg/kg p.o) + Aspirin (250 mg/kg).

ASSESSMENT OF ANTI ULCER ACTIVITY

Drug treatment has been done before 45 minutes of ulcerogen . The animal were deprived of both food and water during post operative period. Overnight fastened animals sacrificed by cervical dislocation 3 Hrs after the dose of Ulcerogen. Open the stomach along the greater curvature and washed with normal saline, then kept on slide glass and observe under 10 x magnification.

Mean ulcer score for each animal is expressed as ulcer

Score	Appearance
0	Normal colored stomach
0.5	Red coloration
1	Spot ulcers
1.5	Hemorrhagic streaks
2	Ulcers > 3 mm but < 5 mm
3	Ulcers > 5 mm

index. The percentage protection calculated by the using the formula:

$$100 - (U_t / U_c) \times 100$$

Determination for free acidity and total acidity

The gastric contents centrifuged and take out 1ml into a 100 ml of conical flask added 2-3 drops of Topfer's reagent and titrated with 0.01 NaOH until red colour turn to yellowish to orange colour. Then few drops of phenolphthalein and till definite red ring appears. Again the total volume of alkali added was noted. The volume corresponds to total acidity¹³.

RESULTS

Preliminary phytochemical studies reveled the presence of alkaloid ,flavonoids, Triterpines and sterols according to Table no.2. The whole extract of *Oldenlandia Corymbosa (L)* was found to be minimal toxic. Treatment of rats with Aspirin produce an ulcer (Table no.3). Alcoholic and aqueous extract shows significant decrease in ulcer compare to control group. Pretreatment with Lansoprazole alcoholic and aqueous extract significantly prevent the no. of ulcer ,induced by Pylorus ligation. Alcoholic extract treatment

Table No.1: Data Showing the Extractive Values of *Oldenlandia Corymbosa* (L)

Plant name	Part used	Method of extraction	Yield in percentage		
			Petroleum Ether extract	Alcohol extract	Aqueous extract
<i>Oldenlandia Corymbosa</i> (L)	Whole	Continuous hot percolation	3	8.8	12.2

Table No.2: Data showing the preliminary phytochemical screening for the extracts of *Oldenlandia Corymbosa* (L)

Phytochemical constituents	Petroleum ether	Alcohol (95%)	Aqueous
Alkaloids	-	+	-
Flavonoids	-	+	+
Carbohydrate	-	+	+
Saponins	-	-	-
Triterpens	+	+	-
Sterols	+	-	-
Tannins	-	-	+
Glycosides	-	+	-

+ ve = Present -ve = absent

Table No.3: Effect of different extract of *Oldenlandia Corymbosa* (L), Lansoprazole on Aspirin induced gastric ulceration, (Mean \pm SEM n=6 in each group) in rats

Groups	Treatment	Dose (mg/kg)	Ulcer index	Percent protection
I	Control	-	7.05 \pm 0.5	-
II	Lansoprazole treated	8	0.83 \pm 0.21***	88.89
III	Alcoholic extract of <i>Oldenlandia Corymbosa</i> (L)	200	2.58 \pm 0.27***	65.7
IV	Aqueous extract of <i>Oldenlandia Corymbosa</i> (L)	400	5.0 \pm 0.1**	33

P<0.01 *P<0.001 Vs control respectively

Values are represented as mean \pm S.E.M (n=6)

One-way ANOVA followed by Student-Newman-Keuls post test (P< 0.001) is used.

a-vs group I and b-vs group II.

offered greater antiulcer effect than aqueous extract (Table no.3). Stomach of control group showed a normal histology. Alcoholic extract dose of 200 mg/kg body wt prevent Aspirin induced gastric ulcer, significantly 67.23% and aqueous decoction extract at dosage 400 mg/kg body wt., significantly 30.30%.

Discussion ⁽¹⁴⁻¹⁶⁾: In the present study Aspirin was selected as ulcer producing agents . Aspirin is one of the most common to produce ulcer then present study demonstrated as alcoholic extract exhibited significantly dose depended anti ulcer activity. In comparison to alcoholic extract, aqueous extract show less no. of ulcers in stomach induced by

Table No.4: Effect of different extract of *Oldenlandia Corymbosa (L)*, Lansoprazole on Aspirin induced gastric ulceration (Mean \pm SEM n=6 in each group) in rats

Groups	Treatment	Gastric Volume (ml)	Free acidity Meq/l/100gm	Total acidity Meq/l/100gm	PH
I	Control	5.01 \pm 0.10	87.33 \pm 0.98	171.33 \pm 1.7	2.01 \pm 0.07
II	Lansoprazole treated	1.95 \pm 0.07 ***	29.66 \pm 1.89***	67.66 \pm 3.32	5.11 \pm 0.11
III	Alcoholic extract of <i>Oldenlandia Corymbosa (L)</i>	2.95 \pm 0.22 ***	58.5 \pm 3.3***	97.83 \pm 2.70	4.08 \pm 0.19
IV	Aqueous extract of <i>Oldenlandia Corymbosa (L)</i>	4.48 \pm 0.13**	79.16 \pm 1.64*	109.8 \pm 5.48***	2.66 \pm 0.18

Values are represented as mean \pm S.E.M (n=6)

One-way ANOVA followed by Student-Newman-Keuls post test (P < 0.001) is used.

a-vs group I and b-vs group II.

Aspirin. The all histological changes absorbed in correlation with the physical, biochemical, and functional parameters of the stomach. It can be concluded that *Oldenlandia Corymbosa (L)* extracts possess a protective effect against Aspirin induced ulcer in rat, as evidenced by the physical, biochemical, functional and histological parameters.

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