Analgesic activity of seeds of *Moringa oleifera* Lam.

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Moringa oleifera Lam. Seed has been documented to posses antimicrobial and water purifying activities and also used in the treatment of gout, eye infections and in arthritis. The alcoholic extract of Leaves of Moringa oleifera Lam. were reported to have analgesic activity but seed still not reported. The effect of alcoholic extract and its various fractions as Petroleum ether, Ethyl acetate, Diethyl ether, n-Butanol were tested for qualitative analysis which contain glycosides, Flavonoids, tannins, amino acids (alpha-4rhamnoloxy benzyl isothiocynate). The extracts were also tested for their Analgesic activity was carried out by using Hotplate and Tail immersion method. Aspirin (25 mg/kg) was used as a standard.

Key words: Analgesic activity by hotplate, aspirin, seeds of *Moringa oleifera* lam., tail immersion apparatus

INTRODUCTION

Moringa oleifera Lam. [Moringiaceae] is found in throughout India. It is known as drumstick in English, Mungna in Hindi, shevgi in Marathi.[1] Dried seeds of *Moringa Oleifera* are used in ophthalmic preparation, venereal affection anti-inflammatory, purgative and as tonic.[2-4] The alcoholic extract of the leaves of *Moringa oleifera* Lam. are reported to have analgesic activity[5] but seed still not reported. The effect of alcoholic extract and its Various fractions as Petroleum ether, Ethyl acetate, Diethyl ether, n-Butanol. The aim of the study was to screen the effect of the seeds of *Moringa oleifera* Lam. as analgesic.

MATERIALS AND METHODS

The fresh seeds of *Moringa oleifera* Lam. were collected. They were shade dried and ground to obtain coarse particle size. The powdered material was extracted with 95% alcohol in a continuous hot extractor at 40°-50°C temperature. Some part of the extract was kept aside and the remaining was fractionated with Pet. ether, Ethyl acetate, Diethyl ether, and n-Butanol. What ever the fractions collected was washed with water and then air dried and kept separately with $Na_2 SO_3$ as dehydrating agent.

Qualitative analysis were performed for the alcoholic extract showed that the presence of glycosides, amino acids, and sterols. Pet. Ether extract showed presence of fats and oils.[6-8]

EVALUATION OF ANALGESIC ACTIVITY

Hotplate Method
In this method Wister male albino rats (180-200 g) were used for the study. The animals were segregated into seven groups of six animals each.

Group 1 - Normal saline solution,
Group 2 - Aspirin as standard (25 mg/kg),
Group 3 - Alcohol extract (30 mg/kg),
Group 4 - Pet ether fraction (100 mg/kg),
Group 5 - Ethyl acetate fraction (300 mg/kg),
Group 6 - Diethyl ether fraction (300 mg/kg),
Group 7 - n-Butanol fraction (300 mg/kg).

The dried extract and its fraction were formulated as a suspension in distilled water. Alcoholic extract and its various fractions were administered orally using intragastric tube. The pain threshold (Number of licking of paw/jumping) were measured at 20, 60, 90 min after administration of standard and test solution.[9]

Tail Immersion Method
In this method Wister male albino rats (170-210 g) were used. The lower 5 cm portion of the tail was marked and this part of tail was immersed in a cap of water having temperature 55°C. Reaction time was recorded before and after the administration of drug, extract and fractions. The animals were segregated into seven groups of six animals each.

Each group was administered with same amount of saline, standard drug (Aspirin) and extracts as given in hotplate method procedure. The pain threshold [Time required for removal of tail from hot water (55°C) was measured at 0,1,2,3

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and 4 h after administration of standard and test solution.

Group 1 - Normal saline solution,
Group 2 - Aspirin as standard (25 mg/kg),
Group 3 - Alcohol extract (30 mg/kg)
Group 4 - Pet ether fraction (100 mg/kg),
Group 5 - Ethyl acetate fraction (300 mg/kg),
Group 6 - Diethyl ether fraction (300 mg/kg),
Group 7 - n-Butanol fraction (300 mg/kg).

The dried alcoholic extract and its various fractions were formulated as a suspension in distilled water. Alcoholic extract and its various fractions were administered orally using intragastric tube. The rectal temperatures were measured at 30, 60, 90, 120, and 180 min after administration of standard and test solution.[10,11]

RESULTS AND DISCUSSION

Analgesic Activity

Amongst alcoholic extract and its various fractions of seeds of *Moringa oleifera* Lam., alcoholic extract showed potent analgesic activity which is comparable to that of aspirin at the dose of 25 mg/kg of body weight [Tables 1 and 2].

From this study, it can be concluded that the seeds of *Moringa oleirera* Lam. possess marked analgesic activity [Figs. 1 and 2] and is equipotent to standard drug (Aspirin). The present study establishes the use of *Moringa oleifera* Lam. seeds as regular analgesic. The plant plant has to be further explored for its phytochemical profile to identify the active constituent responsible for the above mentioned activities.

Table 1: Results of effect of Alcohol extract and its fractions of seeds of *Moringa oleifera* Lam. on Hotplate method

Time in min.	Control (vehicle)	Aspirin	Alcohol extract	Pet. ether extract	Solvent ether fraction	Ethyl acetate fraction	n-Butanol fraction
0	2.00 ± 0.15	2.80 ± 0.15 (4.44%)	2.6 ± 0.18 (3.35%)	2.4 ± 0.21 (2.27%)	2.3 ± 0.17 (2.22%)	2.4 ± 0.21 (2.27%)	2.4 ± 0.13 (2.23%)
20	2.25 ± 0.11	7.21 ± 0.63 (28.38%)	6.80 ± 0.35 (25.63%)	6.42 ± 0.50 (23.84%)	4.30 ± 0.60 (11.54%)	5.00 ± 1.23 (15.49%)	6.20 ± 0.70 (22.25%)
60	1.50 ± 0.07	8.19 ± 0.74 (36.21%)	7.99 ± 0.22 (35.13%)	6.49 ± 0.60 (27.02%)	6.14 ± 0.55 (25.13%)	5.30 ± 1.25 (20.54%)	7.49 ± 0.71 (32.43%)
90	1.50 ± 0.22	10.9 ± 1.16 (50.8%)	8.93 ± 0.63 (40.17%)	7.58 ± 0.61 (34.32%)	7.17 ± 0.70 (30.65%)	5.40 ± 1.07 (21.08%)	7.46 ± 1.14 (34.25%)

Table 2: Results of effect of Alcohol extract and its fractions of seeds of *Moringa oleifera* Lam. on Tail immersion method

Group	Rectal temp. °C		Time after medication in min				
	Initial	18 h after yeast injection	30 min	60 min	90 min	120 min	180 min
Group	38.30 ± 0.031	39.35 ± 0.025	39.30 ± .015	39.23 ± 0.025	39.20 ± .003	39.15 ± 0.038	39.00 + 0.02
Aspirin 150 mg/kg	38.30 ± .073	39.35 ± 0.077	38.37 ± .025	38.09 ± 0.015	37.67 ± 0.053	37.58 ± 0.058	37.40 + 0.47
Alcohol 30 mg/kg	38.28 ± .022	39.37 ± 0.038	38.43 ± .022	37.87 ± 0.060	37.43 ± .044	37.30 ± 0.038	37.30 + 0.38
Pet ether 100 mg/kg	38.25 ± .058	39.39 ± 0.080	8.68 ± 0.051	38.00 ± 0.065	37.88 ± 0.057	37.70 ± .074	37.68 + 0.72
Solvent ether 300 mg/kg	38.27 ± .065	39.40 ± 0.012	38.80 ± 0.17	38.60 ± 0.11	38.40 ± .096	38.05 ± 0.10	38.00 + 0.7
Ethylactate. 300 mg/kg	38.24 ± .080	39.38 ± 0.10	38.67 ± 0.13	38.50 ± 0.069	38.40 ± .086	38.35 ± .080	38.30 + 0.85
n-Butanol 300 mg/kg	8.26 ± 0.065	39.40 ± 0.051	38.75 ± 0.11	38.61 ± 0.060	38.58 ± 0.065	38.40 ± .052	38.37 + 0.072

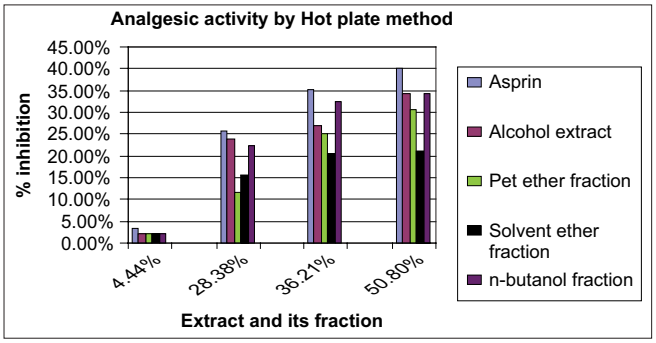

Figure 1: Analgesic activity by Hotplate method

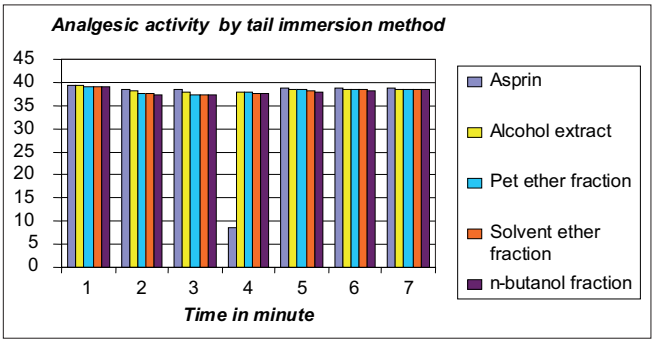

Figure 2: Analgesic activity by Tail Immersion method

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