

ANTI-ARRTHRITIC ACTIVITIES OF TRIBULUSTERRISTRIS LINN FRUITS (GOKHRU) IN ALBINO RATS

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ABSTRACT

The Anti-Arrthritic activity of the petroleum ether, Choloform, acetone, alcoholic, aqueous extract of the Fruits of TribulusTerristris linn in Albino rats was studied. The presence of Sterols, Alkaloids Resins in Choloroform extracts, Resins in Petroluem ether extracts, Sterols, Alkaloids, Flavonoids, Tanins in acetone extracts, Saponins, Alkaloids, Flavonoids, Resins, Tanins in Alcoholic extracts Saponins Alkaloids, Flavonoids, Tannins in aqueous extract. TribulusTerristris linn Fruits exhibited significant anti- Arrthritic activity in Albino rats, the exact doses were compared with Phenyl Butazone as standards & were found out that the extracts revealed the satisfactory significance activity.

Keywords: TribulusTerristris linn Fruits, Anti- Arrthritic.

INTRODUCTION

TribulusTerristris linn Fruits family, Zygophyllaceae is commonly known as chota gokuru is a genus of plant distributed throughout India up to 11,000feet high from the sea level, abundantly occurs in Kashmir & Ceylon, The Fruit contains Volatile oil, Resins, Steroidal sapogenins like Diosgenin, Ruascogenin, Gitogenin, Spirostanol, Trigogenin, Alkaloids like Harmol, Harmine, Harman, Flavonoids like Kamferol-3-Ramnosides, Akemferol-6-P, Coumaryl-3-D-Glucoside and Tannins.

Medicinal Uses

Nematicidal, Anti-Sclerotic Agent, Spermatogenesis, Hepatoprotective, Skin & Heart Diseases, Diuretic effect.

The plant TribulusTerristris linn selected for the present study is to investigate the Acetone extract of fruits for its Anti- Arrthritic activity.

MATERIALS AND METHODS

a) Plant material collection and preparation of extracts

The fruits of TribulusTerristris linn (Gokhru) were obtained from M/s.Amrut Kesari Depot, Bangalore. They were subjected to comminution & the powdered drugs were individually extracted using following solvents:

a) Petroleum ether b) Choloform, c) Alcohol 90%, d) Acetone e) Water

About 100 gms of the powdered drug was packed in a thimble & extracted in a soxhlet extractor using 500 ml petroleum ether (60-80 C) for 16-20 hours. At the end of extractions, the extract were filtered & distilled to concentrate. The residue was dried under vacuum for 24 hours & the yield was recorded. The resulting residue was dried & the yield was recorded. The marc left over after the extraction with chloroform was air dried & again subjected to soxhlet extraction using 500 ml of alcohol 90%, acetone, Aqueous,

after 20 hours of extraction, the percentage yield of the different solvent extracts & physical characters like state, colour, odour,

texture, PH & percentage yield were studied & recorded in table No.1.

Table 1: Physical characters of Individual extract from TribulusTerristris

S. No.	Parameters	TribulusTerristris				
		Petroleum ether extract	Chloroform extract	Acetone extract	Alcoholic extract	Aqueous extracts
01.	Percentage	0.3477	0.4826	3.7394	2.7589	11.3793
02.	State	Sticky	Solid	Semi Solid	Semi Solid	Semi Solid
03.	Colour	Brownish green	Dark Green	Green	Light Green	Light Green
04.	Odour	Rancid	Characteristic	Rancid Aromatic	Aromatic	Blend
05.	Taste	Mucilaginous bitter	First blend followed by slightly bitter	Bitter & characteristics	Salty Aromatic	Salty
06.	Texture	Smooth	Sticky	Smooth	Smooth	Smooth fluid
07.	PH	6.0	7.0	6.5	4.5	6.5

b) Experimental Animal

Wistar Albino rat weighing 150-200 gms were selected for the present study. Animals were fed with standard pellets diet (Mysore feeds). Rats were kept in environmentally controlled rooms (25° C + / - 2 ° C) 12 hours, light & dark cycle. 10.00 hours day & 14.00 hours night for 1 week before & during experiments. Animals were divided in different experimental animal groups five rats were used for each group. Experimental protocols were approved by institutional animal ethical committee (IAEC). Before performing the experiments.

Drugs & its preparation

Phenyl butazone (United States pharmacopia) Volume XX Page Nos.617 & 618. Carrageenan (Sigma Mumbai) were used in the study of TribulusTerristris.

Carrageenan preparation: 1% carrageenan in 0.9 % sodium cholera, phenyl butazone preparation. In 5% Gum acacia, TribulusTerristris linn extract in 5% gum Acacia before oral administration.

Phytochemical test

The freshly prepared petroleum ether extract, acetone extract, alcoholic extract, chloroform extract, aqueous extract of TribulusTerristris linn was subjected to standard phytochemical screening tests for various constituents, the extract revealed the presence of steroids, flavonoids, alkaloids, saponins, resins, tannins.

Anti-inflammatory activity

Carrageenan induced Rat Paw Edema: In this method, wistar albino rats were divided in five groups each consists of five wistar albino rats. The animals were pretreated with drugs 60 minutes before carrageenan (0.1 ml of 1%) injection. Carrageenan was injected into the sub plantor tissue of left hind paw of each rat. Swelling of carrageenan injected foot were measured at 0, 1, 2, 3, 6, 12 hours & 24 hours ,one week,two week,three week, four week, & fifth weeks using plethysmometer (UGO basile, Italy), the right hind paw was injected with 0.1 ml of vehicle. The standard drug and ethanolic extract of TribulusTerristris linn was prepared in 5% gum acacia suspension.

Group 1: The animals were received 5% gum acacia suspension prepared in distilled water served as Control.

Group 2: The animals were received the standard drug phenyl butazone 150 mg / kg. Served as a reference standard.

Group 3: Treated with Petroleum ether extract of TribulusTerristris linn (0.0854 gms / kg.P.O)

Group 4: Treated with Chloroform extract of TribulusTerristris linn (0.0741 gms / kg.P.O)

Group 5: Treated with Acetone extract of TribulusTerristris linn (0.0088 gms / kg.P.O)

Group 6: Treated with Alcoholic extract of TribulusTerristris linn (0.06618 gms / kg.P.O)

Group 7: Treated with Aqueous extract of TribulusTerristris linn (0.0447 gms / kg.P.O)

Statistical Analysis

All the data were expressed as mean + / - SEM

Statistical analysis were performed using one-way analysis of variance (ANOVA) followed by Dunnett's test.

*P<0.05 was considered statistically significant.

Phyto Chemical tests

The freshly prepared Petroleum ether extracts and alcoholic extract of TribulusTerristris linn were subjected to standard phyto chemical screening tests for various constituents, the extract revealed the presence of Volatile Oil, resins & steroidal sapogennins, alkaloids, flavanoids, respectively.

Carrageenan induced Rat Paw Edema

The ethanolic extract of Tribulus Terristris linn (0.06618 gms / Kg) showed significant decrease in paw volume induced by Carrageenan in Rat, maximum decrease in paw volume was observed in ethanolic extract of TribulusTerristris. (0.06618 gms / Kg) at 3 hours when compared to the control group.

RESULTS AND DISCUSSION

In an attempt to evaluate some of the important secondary cell constituents of TribulusTerristris linn for Anti- Arrthritic activity for volatile oil, resin & steroidal sapogenin, Alkaloids. Flavonoids, were isolated by standard extraction procedures and clark's distillation method and also carried out TLC studies in order to establish their TLC profile.

The Anti-Arrthritic activity of these constituents were studied by inducing 0.1 ml of 1% carragennin to rat hind paw where in which volatile oil, & steroidal sapogenin, showed better activity when compared with standard phenyl butazone USP.

The spectral studies for the isolated steroidal sapogenin individual fractions No.29, 34 were carried out & spectral peaks obtained were closely matched with the structure & functional groups of the Diosgennin & Hecogennin of TribulusTerristris.

These isolated components were evaluated for anti- Arrthritic activity by inducing 0.1 ml of 1% carragennin to rat hind paw methodThe results indicate the possession of maximum degree of anti- Arrthritic activity in fraction No.39 with 48.38% inhibition of oedema.

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