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ISOLATION OF SAPONIN FROM *TRIDEX PROCUMBENS* (ASTERACEAE)

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ABSTRACT

Tridex procumbens which is a terrestrial weed was selected for the present study. The alcoholic and water extract at 100 mg/kg body weight showed 67% inhibition to the mast cells. The compound isolated revealed a triterpenoid saponin which is antihistaminic.

Key words: *Tridex procumbens*, Saponin, Antihistaminic, Inhibition.

INTRODUCTION

Tridex procumbens (Compositae) is common grass found in Tropical Southern part of Nigeria, growing primarily during rainy season. The extract of *Tridex procumbens* have been reported to have various pharmacological effects, antimicrobial activity against both gram positive and gram negative bacteria and stimulate wound healing[1,2]. Flvones glycosides, polysachharides, monosachharides have been isolated from the leaves of the plant.

The name saponins comes from the latin word *sapo*, which means soap. This classical definition of saponins is based on their surface activity because they mostly have detergent properties. However, because of the numerous exceptions that exist, saponins are now more conveniently defined on the basis of their molecular structure, namely as triterpene or steroid glycosides[3].

The most common source of saponins are higher plant such as *Quillaja saponaria* (Soap bark) from South America and the most popular one to be used, *Saponaria officinalis* (soap wort), or *Sapindus saponaria* (Soap berry) and is lower marine animals such as the marine phylum Echinodermata, Holothuroidea (Sea cucumbers) and Asteroidea (Star fishes).

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EXPERIMENTAL

Material and methods

Plant material

Tridex procumbens is an annual weeds which grows plentifully in central India. Fresh leaves of this plant were collected from Ratibad Sehore road Bhopal. The plant was identified by Dr. S. K. Jain Botanist.

Extraction of Tridex procumbens

The collected plant material was washed thoroughly in water and the air dried plant material was grinded and powdered material was extracted in diethyl ether, 90% alcohol and water by using soxhlet apparatus.The weight of the powder was 600 gm in 600 mL of each solvent, which yielded greenish colour semisolid crude of about 1.8 g in diethyl ether, 3.84 g in 90% alcohol and 16.5 g in water. Obtained crude extract were used for experimental bioassay.

Yield of crude extract by soxhlation

Name of plant	Solvent	Weight of powdered material	Volume of solvent	Weight of extract
Tridex procumbens	Diethyl ether	600 gm	600 mL	1.8 gm
	90% Alcohol	600 gm	600 mL	3.84 gm
	Water	600 gm	600 mL	16.5 gm

Primary examination of saponin in the plant extract

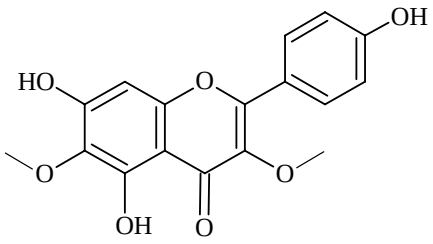
Saponin are polar compounds which contain glycosides and steroidal compounds. They are generally detected in plant material by taking a small amount of material in the beaker or test tube and when they shaken vigorously it gives a froth persists for long period, that indicates the presence of saponin in the compound.

Saponin was thought to be toxic, but glycoside especially cardiac glycoside saponin are non toxic and are used in several medicines.

Tridex procumbens roots give the indication of the presence of 5,7,4-trihydroxy-6,3-dimethoxy flavone molecule[4].

Antiasthamatic effect of indigenous plant extract on mast cells of experimental animal

During the course of present study, inhibition of granulation of mast cell was also noticed by the treatment of three herbal drug isolated by the P. I. & P. F. Saponins were isolated, and the detailed structure of the compound is:



5,7,4-trihydroxy-6,3-dimethoxy flavone molecule

The water and alcoholic extract of *Tridex procumbens* when given in three different doses of 25, 50, and 100 mg/kg body weight, it causes maximum 67% inhibition in 90% alcoholic extract of *Tridex procumbens* as shown in Table 1.

Table 1: % inhibition of histamine releases from mast cells in water and alcoholic extract

Extract	Dose (mg/kg) body wt.	% Inhibition	
		Exp. 1	Exp. 2
Water extract	25	0	0
	50	20	20
	100	21	22
90% Alcohol	25	20	25
	50	35	52
	100	65	67

RESULTS AND DISCUSSION

Three different doses 25, 50, 100 mg/kg body weight of both the extract causes inhibition of the histamine from mast cell which was maximum in alcoholic extract of *Tridex procumbens* causing 67% inhibitory at 100 mg/kg body weight dose.

This clearly indicates mast cells histamine inhibitory activity in the compound isolated from *Tridex procumbens*. Similar results have been reported by Lone[5] (2010) who have screened two medicinal plant of Kashmir valley which have shown Antihistaminic activity.

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