

## ORIGINAL RESEARCH ARTICLE

**Effect of *Tridax Procumbens* Leaves Juice Extract on Bleeding Time in Healthy Human Volunteers****Bhuvaneshwari S<sup>1\*</sup>, Arun Pothan Raj V<sup>2</sup>, Alice Kuruvilla<sup>3</sup>, Appalaraju B<sup>4</sup>**

<sup>1</sup>Professor, Department of Pharmacology, <sup>2</sup>Former MBBS Student, <sup>3</sup>Former Professor and HOD, Department of Pharmacology, <sup>4</sup>Professor and HOD, Department of Microbiology, PSG IMS &R, Peelamedu, Coimbatore-641004, Tamilnadu, India

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**ABSTRACT**

A preliminary screening was planned to screen the leaf juice of *Tridax procumbens* for arrest of bleeding on healthy human volunteers, to find out growth of any organisms from leaf juice and to ascertain whether any gender influence is there on the effect of *Tridax*. Institutional Human Ethics Committee approval was obtained. Healthy human volunteers were included after obtained written informed consent. 10 males and 10 females were included. Mean bleeding time was noted using Ivy method. Mean bleeding time was calculated after applying distilled water and *Tridax procumbens*. No bacterial growth in the plates with *Tridax procumbens* showed that the juice was sterile and safe for applying to the bleeding surfaces.

The leaf juice extract of *Tridax procumbens* decreased mean bleeding time in Males. But in females mean bleeding time was increased after *Tridax*. Both are not statistically different. This shows that *Tridax* have varying effect on bleeding time.

There is no significant difference in the mean bleeding time between males and females with control and *Tridax* shows that *Tridax* produces equal effect in both males and females.

Anyway a detailed study on above effects with larger sample size will be required to find out the effect of *Tridax procumbens* on bleeding time.

**Key words:** *Tridax procumbens*, bleeding time, humans.

**INTRODUCTION**

*Tridax procumbens* is a species of flowering plant in the daisy family. It is best known as a widespread weed and pest plant. It is native to the tropical Americas but it has been introduced to tropical, subtropical, and mild temperate regions worldwide. It is listed as a noxious weed in the United States and has pest status in nine states [1].

Its common names include coat buttons and *Tridax* daisy in English, Jayanthi in Kannada, cadillo chisaca in Spanish, herbe caille in French, Jayanti veda in Sanskrit, Ghamra in Hindi, Bishalya karani in Oriya, Kambarmodi in Marathi, Gaddi Chemanthi in Telugu, vettukaaya poondu in Tamil<sup>2</sup>, and kotobukigiku in Japanese.

*Tridax procumbens* is known for several potential therapeutic activities like antiviral, anti

oxidant antibiotic efficacies, wound healing activity, insecticidal and anti-inflammatory activity<sup>3</sup>. Some reports from tribal areas in India state that the leaf juice can be used to cure fresh wounds, to stop bleeding, as a hair tonic. Despite these known benefits, it is still listed in the United States as a Noxious Weed and regulated under the Federal Noxious Weed Act. In humans, *Tridax procumbens* used as treatment for boils, blisters and cuts by local healers in Nalgonda and Warangal District of Telangana, Andhra Pradesh, India (Sreeramulu *et al.*, 2013).

There is considerable use for hemostyptic agents in surgery and dentistry. The leaf juice of *Tridax procumbens*, a common rice weed is used by folk doctors, tribals and farmers to stop any type of bleeding. It is a common practice of tribal people

living in forest area to squeeze the juice of fresh leaves over the cut wounds to arrest bleeding. Therefore a preliminary screening of the above plant leaf for hemostyptic activity was planned to screen the leaf juice of *Tridax procumbens* for arrest of bleeding on healthy human volunteers, to find out growth of any organisms from leaf juice and to ascertain whether any gender influence is there on the effect of *Tridax*.

## MATERIALS AND METHODS

Before conducting study Institutional Human Ethics Committee approval was obtained. *Tridax procumbens* was procured locally and authenticated by Pharmacognosy department of the Institution.

### Extraction of leaf juice extract:

75 g of fresh leaves were plucked in early morning, and they were washed with water to remove the dirt and dried to remove moisture. Now the leaves were put in mortar and grinded nicely. The grinded material was then placed on a clean cloth and squeezed to get only the juice and the residue was thrown. The juice thus collected was passed through filter paper and filtered juice was again filtered through a membrane filter. The juice now collected was divided into two parts. One part was sent to microbiology lab for testing growth of any bacteria in Mac Conkey and Blood agar. The other part was used for test procedure.

### Selection and grouping of volunteers:

Normal Healthy volunteers above 18 years were included. 10 males and 10 females were selected (since it was a pilot study). Informed consent was obtained from them after explaining the purpose of the study.

### Procedure for testing effect on bleeding time:

In each volunteer, one hand was used as control and the other as test. Bleeding time in each hand was measured using "Template Bleeding Time Method" (Ivy's method) <sup>[4]</sup>.

### Measuring bleeding time using control:

The following steps were followed:

1. A blood pressure cuff was applied over the left upper arm and raised the pressure to 40 mmHg.

2. A small area on the anterior surface of left forearm was cleaned with spirit and allowed to dry.
3. Three punctures of three mm depth, with one cm gap were made over the clean dried area of the forearm using Lancet, so that blood flows freely. Puncturing of veins was avoided.
4. A drop of distilled water was applied to the puncture and the time from when the incision was made until all bleeding has stopped was measured using stopwatch and was called the bleeding time. Every 30 seconds, filter paper was used to draw off the blood.
5. The test was finished when bleeding has stopped completely.

### Measuring bleeding time using *Tridax procumbens*:

Now the procedure was repeated on the right forearm using *Tridax procumbens* leaf juice extract instead of distilled water.

### Statistical analysis:

SPSS version 19 was used to analyse the data. First mean Bleeding time was calculated for each participant. Then the mean bleeding time between control and test was compared by Independent t test. Same test was used to find the significance between males and females.

## RESULTS

- About 35 ml of juice was extracted with 75 g of *Tridax procumbens*.
- There was no bacterial growth in the *Tridax procumbens* juice.
- The mean Bleeding time in males were decreased after *Tridax procumbens* compared to control (Table 1). But it was not significantly different (Table 2).
- In females bleeding time was increased after *procumbens* compared to control (Table 1). But it was also not significantly different (Table 2).
- Between males and females there was no significant difference when compared for control and test (Table 2).

Table 1: Mean bleeding time, Std. Deviation and Std. Error Mean in males and females

	Male			Females		
	Mean bleeding time in minutes	Standard Deviation	Standard Error Mean	Mean bleeding time in minutes	Standard Deviation	Standard Error Mean
Control	2.6400	.92222	.29163	2.2670	.95403	.30169
<i>Tridax procumbens</i>	2.3370	.96562	.30536	2.5010	.93969	.29715

Table 2: Statistical difference using mean bleeding time in males and females

	P value	95% Confidence Interval of the Difference	
		Lower	Upper
Between control and <i>Tridax procumbens</i> in males	.482	-.58410	1.19010
Between control and <i>Tridax procumbens</i> in females	.587	-1.12366	.65566
Between males and females with control	.386	-.50855	1.25455
Between males and females with <i>Tridax procumbens</i>	.705	-1.05916	.73116

## DISCUSSION

- No bacterial growth in the plates with *Tridax procumbens* showed that the juice was sterile and safe for applying to the bleeding surfaces.
- The leaf juice extract of *Tridax procumbens* decreased mean bleeding time in Males. But in females mean bleeding time was increased after *Tridax*. Both are not statistically different. This shows that *Tridax* have varying effect on bleeding time.
- There is no significant difference in the mean bleeding time between males and females with control and *Tridax* shows that *Tridax* produces equal effect in both males and females.

Anyway a detailed study on above effects with larger sample size will be required to find out the effect of *Tridax procumbens* on bleeding time.

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