



EFFECT OF VARIOUS EXTRACT OF *TRIDAX PROCUMBENS* ON BLOOD CLOTTING TIME

Ashwini B. Adel, Zia H. Khan* and Nazia D. Khan

Department of Biochemistry, Shri Shivaji College of Arts, Commerce & Science, Akola (M.S.).

*Corresponding Author: Zia H. Khan

Department of Biochemistry, Shri Shivaji College of Arts, Commerce & Science, Akola (M.S.).

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ABSTRACT

Tridax procumbens Linn. (*Tridax*) family compositae commonly known as 'Ghamra' and in English popularly called 'Coat buttons' because of appearance of flowers has been extensively used in Ayurvedic system of medicine for various ailments. The plant is native of tropical America, and naturalized in tropical Africa, Asia, Australia and India. It is a wild herb distributed throughout India. The leaf juice possesses antiseptic, insecticidal and parasiticidal properties. As a remedy against conjunctivitis and is used to check haemorrhage from cuts, bruises and wounds insect repellent. It is also used as bioadsorbent for chromium (VI). The leaf of *Tridax* mainly contains crude proteins 26%, crude fiber 17%, soluble carbohydrate 39%, calcium oxide 5%, luteolin, glucoluteolin, quercetin and isoquercetin have been reported from its flowers. *Tridax procumbens* is a widely occurring medicinal herbs used by ethnomedicinal practitioners. It has known for its number of pharmacological activities like Hepatoprotective activity, Anti inflammatory, Wound healing, Antidiabetic activity, Hypotensive effect, Immunomodulating property, bronchial catarrh, dysentery, diarrhea. The effect of extracts of *Tridax procumbens* on blood clotting time was investigated in order to verify the claim that the said extract can be used to manage bleeding. These were performed using the Duke method, the Lee and white method.

KEY WORDS: *Tridax Procumbens*, Clotting Time, Ethanol, Petroleum Ether.

INTRODUCTION

Tridax procumbens Linn is a common grass found in the tropics. Traditionally, it is used for the treatment of bronchial catarrh, dysentery, malaria, diarrhea, high blood pressure and to check haemorrhage from cuts, bruises and wounds and to prevent falling of hair. It possesses. Anti diabetic (Durgacharan *et al.*, 2008), Anti-bacterial (Chitra Pai *et al.*, 2011), Anti plasmodial (Rappiah *et al.* 2011), Anti hepatotoxic, Anti-oxidant (Reddipalli *et al.* 2008) and Antimicrobial (Sneha *et al.* 2010) properties (Rajaram S. Sawant and Ashvin G. Godghate, 2013).

The phytochemical screening revealed the presence of alkaloids, carotenoids, flavonoids (catechins and flavones) and tannins. It is richly endowed with carotenoids and saponins. The proximate profile shows that the plant is rich in sodium, potassium and calcium [C. Ikewuchi Jude *et al.*, 2009].

Leaf of *Tridax* mainly contains crude proteins 26% crude fiber 17%, soluble carbohydrates 39%, calcium oxide 5%, Luteolin, glucoluteolin, quercetin and isoquercetin have been reported from its flowers. Whereas the fumaric acid, fl-sitosterol and tannin has also been

reported in the plant (R.K. Verma and M. M. Gupta, 1988).

Oleanolic acid was obtained in good amounts from *Tridax* and found to be a potential antidiabetic agent when tested against aglucosidase (Muhammad Shaiq Ali *et al.*, 2002).

Blood performs very many life-sustaining functions (Taylor D. I. *et al.*, 1997). And in view of these important functions excessive loss of blood vessels can have lethal consequences. To forestall excessive bleeding, vertebrates have evolved a complex biochemical mechanism by which blood arrests its loss from damaged tissues called coagulation or haemostasis. The process entails formation of a platelet plug, vasoconstriction and blood clotting (Senbulinga K and Senbulinga, 2013).

The coagulation process may be hastened by procoagulants or inhibited by anticoagulants, both of which may emanate from physiological or non-physiological sources. Some plant extracts, snakevenom and calcium alginate are among documented non-physiological procoagulants and some of these have been applied in folk medicine to manage bleeding as is

claimed about the leaf extract of *Tridax procumbens* among the Agilla tribal population of Ado L.G.A. of Benue state in Nigeria. This research sought to verify this claim by investigating the effect of aqueous leaf extract of *Tridax procumbens* on blood coagulation.

The coagulation process involves a complex interaction of twenty different clotting factors in cascade mechanism which occur by a sequence of proteolytic activation where one factor activates the next in the sequence (Senbulinga K and Senbulinga, 2013, Geoffrey L. Z. *et al.*, 1995).

Most of the clotting factors are proteins, very few are not and the ultimate reaction in the clotting cascade is the conversion of soluble fibrinogen into insoluble fibrin (Kim EB *et al.*, 2012).

It is this fibrin clot together with the platelet plug that block the wound and stop the bleeding. *Tridax procumbens* is a common grass found in the tropical southern part of Nigeria as well as the tropical guinea savannah part of the country (Salahdeen HM *et al.*, 2011).

Tridax procumbens leaf extracts have been reported to have various pharmacological effect such as antimicrobial activity against both Gram positive and Gram negative bacteria. It has also been reported to stimulate wound healing (Taddel A and Romeo AJ, 2013, Udopa SI, *et al.*, 2014, Diwan PW, *et al.*, 1982).

The objectives of this study were to determine the effect of *Tridax procumbens* extract on clotting time. The study also sought to investigate the effect of varying doses of the various extract on clotting time.

MATERIAL AND METHODS

This study was carried out in the Department of Biochemistry of Shree Shivaji college Akola. And the materials and method used for this study are as described hereafter.

***Tridax procumbens* Extract:** Fresh leaves of *Tridax procumbens* were obtained from our college campus following identification and authentication by a botanist in the same College, the leaves were rinsed in distilled water and allowed to air dry. Using a homogenizer, 250g of the leaves were homogenized and extracted in 500 ml distilled water. The homogenate was then centrifuged and the supernatant carefully decanted to obtain an aqueous extract free from suspended particles.

Clotting Time Procedure: The Lee and White method was used (Anil J P, 2012). Nine pyrex glass test tubes were arranged in Three pairs and marked experimental sample tube and corresponding control sample tubes. To the first pair of tubes, 1ml each of freshly collected human blood was added and 1 drop of the prepared extract was quickly added to the blood in the

experimental sample tube but not to the control sample tube. Both tubes were carefully shaken and the stop watch started immediately. After 2 minutes, both tubes were then observed at 15 seconds intervals by very gently tilting them to see if the blood had clotted completely.

Clotting was considered to be complete when the tube could be inverted without significant movement of blood in each tube to clot (i.e experimental and control clotting times) were recorded to the nearest 15 seconds. The procedure was then repeated for the remaining pair of pyrex glass tube and the mean clotting times for both experimental and control samples was determined. For the effect of various doses of extract on clotting time, the clotting time experiment just described was again repeated only this time without control tubes and amount of the extract added to the blood was varied as follows 25ul, 50ul, 75ul respectively and the resulting clotting time recorded. Clotting times obtained with the extract were plotted against the dosage of the extract used.

RESULTS AND DISCUSSION

Effect of Various extract on *Tridax procumbens* on clotting time.

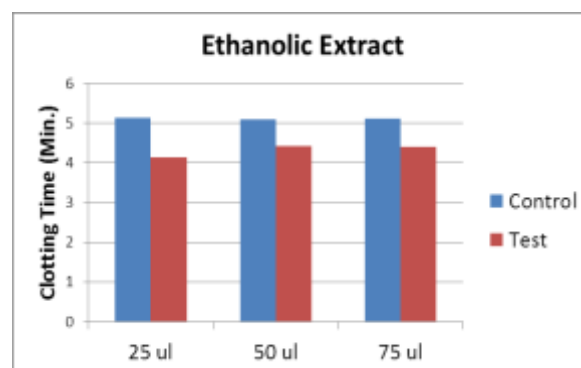


Figure 1: Effect of Ethanolic extract of *Tridax procumbens* on Human Blood Clotting Time.

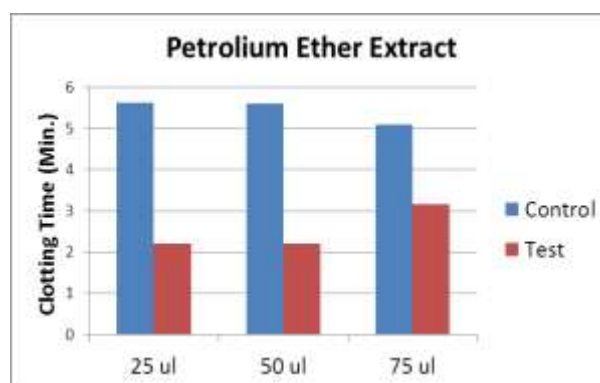


Figure 2: Effect of Petroleum Ether extract of *Tridax procumbens* on Human Blood Clotting Time.

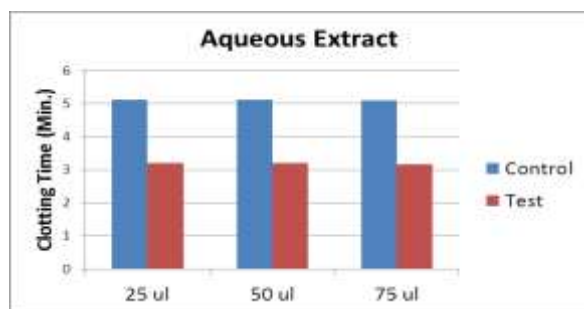


Figure 2: Effect of aqueous extract of *Tridax procumbens* on Human Blood Clotting Time.

All the figures shows clotting time obtained against varying dosage of extract. The observed clotting time steadily decreased as the doses of the extract applied was increased.

CONCLUSION

Tridax procumbens Linn. (Compositae) is a weed found throughout India, it is native of tropical America and naturalized in tropical Africa, Asia, and Australia. This plant widely distributed and it's each and every part having noble pharmacological activity. The work done till to date on its pharmacological activities like hepatoprotective effect, immunomodulating property, antidiabetic, hypotensive effect, anflammatory and antioxidant, bronchial catarrh, and leads to hair growth promotion. Our studies show the different extract of *Tridax procumbens* have coagulant properties thus, indicating a positive hemostatic effect. The petroleum ether extract of *Tridax procumbens* lowers blood clotting as compared to ethanolic and aqueous extract and this is dependent on the dosages of the extract added to blood.

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