ABSTRACT

The present study aims to open new avenues for the improvement of medicinal uses of *Tridax procumbens* in the selected area for wound healing. *Tridax procumbens* Linn. is a common plant found in tropical areas of all countries, growing primarily during rainy season. It is commonly known as ‘Ghamra’ in Hindi and in English popularly called ‘Coat button’ due to appearance of flowers. It is a wild herb distributed throughout India. Coat buttons are found along roadsides, waste grounds, dikes, railroads, riverbanks, meadows, and dunes. Its widespread distribution and importance as a weed are due to its spreading stems and abundant seed production[2]. *Tridax* is a week straggling herb about 12-24 cm long with few leaves 6-9 cm long and very long slender solitary peduncles a foot or more in length. Leaf is simple, opposite, exstipulate, ovate, acute with two types of flowers such as rayflorets and disk-florets[3, 4]. All plant parts of *Tridax procumbens* have noble pharmacological activities. The reported work includes studies of pharmacological activities like hepatoprotective effect[5-11], immunomodulating property, promising wound healing activity, anti-diabetic, hypotensive effect, antimicrobial, insect repellent activity, anti-inflammatory and antioxidant, bronchial catarrh, dysentery, diarrhea[6-9]. The plant also prevents falling of hairs and used as hair growth promoter.

The plant material of *Tridax procumbens* was examined for wound healing Albino Wistar rats. The wounds were treated with aqueous extract of the plant material with coconut oil. Neosporin suspended in coconut oil is used for comparison purpose. An increased rate of healing, breaking strength indicates that the plant material gives better recovery. Animals from all study groups showed normal behaviour in food and water consumptions. The body weight changes were also linear. Thus *Tridax procumbens* may be used in humans for wound healing.

Key words: *Tridax procumbens* wound healing, Coat button.

INTRODUCTION

*Tridax procumbens* Linn. is well known medicine for liver disorders[1]. The plant is native of tropical America and naturalized in tropical Africa, Asia, Australia and India. It is a wild herb distributed throughout India. Coat buttons are found along roadsides, waste grounds, dikes, railroads, riverbanks, meadows, and dunes. Its widespread distribution and importance as a weed are due to its spreading stems and abundant seed production[2]. *Tridax* is a week straggling herb about 12-24 cm long with few leaves 6-9 cm long and very long slender solitary peduncles a foot or more in length. Leaf is simple, opposite, exstipulate, ovate, acute with two types of flowers such as rayflorets and disk-florets[3, 4]. All plant parts of *Tridax procumbens* have noble pharmacological activities. The reported work includes studies of pharmacological activities like hepatoprotective effect[5-11], immunomodulating property, promising wound healing activity, anti-diabetic, hypotensive effect, antimicrobial, insect repellent activity, anti-inflammatory and antioxidant, bronchial catarrh, dysentery, diarrhea[6-9]. The plant also prevents falling of hairs and used as hair growth promoter. This plant is used as biosorbent for removal of harmful Cr(VI) from the industrial wastewater[10-13]. It is an important component of “Bhringraj” in Ayurveda. In future, there is tremendous scope in research for this plant[14-16]

Study Protocol

1. Study Date : 9th November 2009.
2. Weight of the extract : 0.03g and Neosporin as control.
4. Application interval : Once a day.
5. Observation of wound healing : Daily.
6. Duration of the study : 14 days.
7. Daily monitoring of Body weights, Food and water intake of every rat.

MATERIALS AND METHODS

The plant material of *Tridax procumbens* were collected from Avsary Forest Park, Ambegaon, Pune District in Maharashtra. After complete drying in shade the plant material was transferred for 4-5 days for incubator drying at temp 38±2 degree Celsius (microwave) and then these plants were powdered using a electric grinder(Rajesh). The powder is sieved using a sieve (Jayant Scientific Ind. Mumbai) the Mesh No is BSS 85 (British Standard Sieve). The sieved powder is used for further analysis alcohol and water extract of these plants were prepared and used for wound healing study.

Animal Study

Animals used for wound healing were Albino Wister rats. After procurement from Raj Biotech (INDIA) Pvt. Ltd, Pune 411 038 the animals were kept in polyurethane cages, with one animal in each cage. The cages are provided with rice husk bedding and are cleaned daily. Animals are subjected to acclimatization for which they are kept in separate quarantine room. The animals are provided with drinking water ad libitum and are fed on commercially available mice feed supplied by AMRUT FEED. The specifications of the feed are as follows.

- **Crude protein**: 20-21% minimum
- **Ether extractive**: 04-05% minimum
- **Crude fiber**: 04% minimum
- **Ash**: 08% maximum
- **Calcium**: 1.2%
- **Phosphorus**: 0.6% minimum

NFE 54% pellet and ME Kcal/kg 3600 size 12 mm.

The feed is enriched with stabilized vitamins such as Vitamin A, Vitamin D-3 and Vitamin B-12, Thiamine, Riboflavin, Niacin, Folic acid and super fermented with all minerals and micro elements (as claimed by the manufacturer). Measured quantity of water and food are supplied daily in each cage. The consumption of water and food is estimated from the amount of water left in feeding bottle and the amount of feed remaining in feed hooper. Daily body weights and food, water intake is recorded during study period. In each animal four patches were made and are labeled as P1, P2, P3 and P4. In all the patches, laceration is done using sterile scalpel. The wound is of uniform dimension in all the patches. In the patches of all animals doses were applied as per the study protocol.
Group I
P1: fresh juice of leaves of Tridax procumbens
P2: Aqueous Extract of Tridax procumbens
P3: Control patch – Neosporin
P4: Natural Recovery Patch

Group II
P1: fresh juice of leaves of Tridax procumbens
P2: Aqueous Extract of Tridax procumbens
P3: Control patch – Neosporin
P4: Natural Recovery Patch

The application is done with the first finger with uniform massaging of extract on the patch.

Dose
0.03 gm of aqueous plant extract and Neosporin is weighed and it is suspended in 150µl of Coconut oil.

RESULTS AND DISCUSSION
All wounds were made are of equal size. The recovery of the wound was recorded from day first day to fourteenth day. The size of the wound was recorded with the help of Vernier calipers (BESTO) with least count of 0.01 cm. Blackening (Healing) of the wound becomes faster from the fifth day, thus, measurement of the length of the wound was carried out in two phases. The phase one is from first day to fourth day and phase second starts from fifth day onwards. Visual records are maintained from day1 to day14 along with the measurement of the length of the wound indicates that the recovery of wound with fast regeneration of cells was faster as well as comparable in both plant materials of Tridax procumbens as compare to reference Neosporin selected for comparison. Early healing without scar formation was observed with Tridax procumbens plant material faster than Neosporin.

CONCLUSION
The present study aims to open new avenues for the improvement of medicinal uses of Tridax procumbens for the selected area for wound healing. The effect of juice of fresh leaves of Tridax procumbens and the aqueous extract of leaves of the same plant were examined for the same for Wound healing in Albuno Wistar rats. The wounds were treated with aqueous extract of the plant material with coconut oil and the juice of leaves of this plant. Neosporin suspended in coconut oil is used for comparison purpose. An increased rate of healing, breaking strength indicates that in both cases this plant material gives better recovery of wounds. Animals from all groups of study showed normal behavior in food and water consumptions by application of plant material and Neosporin. The body weight changes were also linear. Thus it may be used in humans for wound healing purpose.

REFERENCES

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