

## Study of Some Plants Used as Wound Healers of District Gopalganj

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### ABSTRACT

Wound is a very common problem among the people. It is a complex biological response of vascular tissues to harmful stimuli such as pathogens, damaged cells and irritants. There are a number of dicot plants that showed wound healing properties and are used by folklore traditions in district Gopalganj for the treatment of wounds, cuts and damaged tissues. During entire work about 20 plants are routinely practiced by rural people of the proposed district of Bihar for screening purpose with special reference to wound healing activity. The methods of preparation fall into four categories viz., plant parts applied as paste, juice extracted from the fresh plant parts, powder made from fresh or dried plant parts, some fresh plant parts and decoction. Local traditional healers are commonly using these plants to treat wounds and related diseases, preferably related to their availability very easily.

**Keywords:** Plants, Wounds, Gopalganj.

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### INTRODUCTION

Plants have been used for medicinal purposes for long as history has been recorded. China, Egypt and India appear to have the places which cradled the use of herbs, but herbalism was common in India. In India has a rich tradition of plant based knowledge on healthcare systems. Medicines based on herbal origin have been the basis of treatment and cure for various diseases. More than 80% of the world's population still depends upon traditional medicines for various skin diseases (Babu *et al.*, 2002). A large number of plants are used by folklore traditions in India for treatment of cuts, wounds and burns. Moreover, Indian folk medicine comprises numerous prescriptions for therapeutic purposes such as healing of wounds, inflammations, skin infections, leprosy, diarrhea, scabies, venereal diseases, ulcers, snake bite *etc* (Mukherjee, 2000). Herbal medicines in wound management involve disinfection, debridement and providing a moist environment to

encourage the establishment of the suitable environment for mutual process (Purna and Babu, 2000).

Wounds are physical injuries and may be defined as a disruption of the cellular and anatomic continuity of a tissue with or without microbial infection. It may be produced due to physical, chemical, thermal, microbial or immunological exploitation to the tissues. Wounds in skin could happen through several causes like physical injuries resulting in opening and breaking of skin (Gerald *et al.*, 1994). The most common symptoms of wounds are bleeding, loss of feeling or function below the wound site, heat and redness around the wound, painful or throbbing sensation, swelling of tissue in the area and pus like drainage (Rashed *et al.*, 2003).

Wound healing is a natural process of restoring normal structure and functions of damaged tissues. It is a very complex, multi-factor sequence of events involving several cellular and biochemical processes.

The aim of wound healing is to regenerate and reconstruct the disrupted anatomical continuity and functional status of the skin.

Wound healing is a natural phenomenon by which body itself overcome the damaged to the tissue but the rate for healing is a very slow process and chance of microbial infection is high. This creates demand of a substance that speeds up the rate of healing. Wound healers are one of the most critical requirements in the essential medicaments for soldier and may help in putting injured soldiers back on the war field as quickly as possible. A wound healer also minimizes demand of other drugs like antibiotics and also their probable side effects by their use (Lazarus, 1994). A number of plants are used by local people for wound healing. Lactiferous plants like *Euphorbia nerifolia* L. is a wound healer plant as reported by Rasik (1996). Parallel work in this connection is highly desirable in proposed area.

A theoretical framework for wound healing vis-à-vis the TIME framework, reveals the potential untapped strengths of Ayurveda in the field of wound healing. The TIME framework is a very useful contribution but it can be made more wholesome by the use of temperature and other unique methods of edge advancement described in the Sasthi Upakramas. TIME framework was developed as a practical tool for management of wounds by a group of wound care experts in 2002. (Schultz G, Sibbaldet *al.*, 2003). TIM Esummarizes four main components of wound bed preparation (Dowset and Newton, 2005).

- T- Time Management.
- I- Control of Inflammation and infection.
- M- Maintenance of Moisture balance.
- E- Advancement of the epithelial edge of the wound.

## MATERIALS AND METHODS

### Study area

District Gopalganj is selected for research activities because this district is potential in terms of ethnomedicine. Little work has been carried out by some workers like Sarfarazand Manoj (2013) on

ethnomedicinal aspects of this area but no any comprehensive work has been done on wound healing plants in the said study area. Therefore the objective of the present study was to document the wound healing plants used by local people of district Gopalganj.

Study area lies 180 km from Patna, the state capital of Bihar. It covers total area 2033 sq km and lies in between latitude at 26.4° and longitude at 84.4. This district is bounded on west by Uttar Pradesh, on east by East Champaran, on south by Siwan district and north by Muzaffarpur district. Climate is sub-tropical. Seasonal variation is well marked with three seasons in the year like summer (March-June), rainy (July-Sept) and winter (Oct-Feb). Total population of the said district is more than 2558037 (2.62% of the state) where urban population is 130536 (6.07%) while rural population is 2018807 (93.93%).

A preliminary survey was done by periodical trips to the different parts of the study area to get information about study area along with local persons and knowledgeable persons. The area was visited several times from March 2017 to February 2018 in different seasons to obtain information regarding most of the plant resources. The methodology was based on interviews using checklist and questionnaire of information.

The plant specimens collected from the proposed area were dried, pressed and mounted properly on herbarium sheet. They were identified with the help of Flora of Bihar and Orissa (Hains, 1921,25).

### Enumeration

The botanical names were arranged on the basis of their habit followed by the name of family along with common name. The knowledge about the use of plants or plant parts or their products as wound healers are given based on information collected from the study area, after interviewed with Vaidya's, hakims, elderly aged local people, personal experience and by study of different literatures.

## RESULTS AND DISCUSSIONS

Wound is a very common problem among the people. It is a complex biological response of vascular tissues to harmful stimuli such as pathogens, damaged cells and irritants. About 35 plants are routinely practiced

by local people of Gopalganj district and hence we have selected 20 of them for screening purpose with special reference to wound healing activity. In table data obtained from the field survey are presented. In the study area 20 wound healing plant species of dicots belonging to 14 families have been recorded. Different parts of the plants like roots, stems, leaves flowers, fruits, seeds and latex are used for healing of wounds by the local rural people. The methods of preparation fall into four categories viz., plant parts applied as paste, juice extracted from the fresh

plant parts, powder made from fresh or dried plant parts, some fresh plant parts and decoction. External applications (mostly for skin diseases and wounds) and internal consumption of the preparations are involved in the treatment of diseases. The most frequently used preparations are decoctions and powdered plant material. Local traditional healers are commonly using these plants to treat wounds and related diseases, preferably related to their availability very easily.

**Table**

Sl. No.	Botanical Name	Family	Local Name	Habit	Parts used
1.	<i>Gymnema sylvestre</i> R. Br	Asclepiadaceae	Gurmar	Climber	Leaves
2.	<i>Cayratia trifolia</i> Linn.	Vitaceae	Amalbel	Climber	Roots
3.	<i>Mucuna pruriens</i> Bak.	Papilionaceae	Kawanch	Climber	Roots
4.	<i>Plumbago zeylanica</i> Linn.	Plumbaginaceae	Chitrak	Climber	Roots
5.	<i>Acalypha indica</i> Linn.	Euphorbiaceae	Kuppi	Herb	Leaves
6.	<i>Argemone mexicana</i> Linn.	Papaveraceae	Satyanashi	Herb	Roots & latex
7.	<i>Cannabis sativa</i> Linn.	Cannabinaceae	Bhang	Herb	Leaves
8.	<i>Eclipta alba</i> Hassk.	Asteraceae	Bhringraj	Herb	Whole plant, leaves & roots
9.	<i>Heliotropium indicum</i> Linn.	Boraginaceae	Hathisura	Herb	Leaves
10.	<i>Lippia nodiflora</i> Mich.	Verbenaceae	Jalbuti.	Herb	Fruits
11.	<i>Sida cordifolia</i> Linn.	Malvaceae	Kharinta	Herb	Roots
12.	<i>Nerium indicum</i> Mill	Apocyanaceae	Kaner	Shrub	Roots & latex
13.	<i>Jatropha curcas</i> Linn.	Euphorbiaceae	Jamalgota	Shrub	Leaves
14.	<i>Lantana indica</i> Linn.	Verbenaceae	Raimuniya	Shrub	Entire plant
15.	<i>Calotropis procera</i> Ait.	Asclepiadaceae	Madar	Shrub	Roots, shoot & latex
16.	<i>Gmelina arborea</i> Roxb.	Verbenaceae	Gamhar	Tree	Roots & leaves
17.	<i>Alstonia scholaris</i> Roxb.	Apocyanaceae	Dita	Tree	Leaves & stems
18.	<i>Mallotus philippinensis</i> Muell. Arg.	Euphorbiaceae	Kamala	Tree	Seeds & fruits
19.	<i>Melia azedarach</i> Linn.	Meliaceae	Neem	Tree	Stems
20.	<i>Moringa oliefera</i> Lamk.	Moringaceae	Sahjan	Tree	Roots

## CONCLUSION

In the present paper a number of plants *i.e.* natural resources which are used by rural people of district

Gopalganj for wound healing mechanism are noticed. They exploited these natural resources for their economic gain. Hence, these natural resources must



Fig.1. *Gymnema sylvestre* R.Br



Fig.2. *Cayratia trifolia* Linn.



Fig.11. *Sida cordifolia* Linn.



Fig.12. *Nerium indicum* Mill.



Fig.3. *Mucuna pruriens* Bak



Fig.4. *Plumbago zeylanica* Linn.



Fig.13. *Jatropha curcas* Linn.



Fig.14. *Lantana indica* Linn.



Fig.5. *Acalypha indica* Linn



Fig.6. *Argemone mexicana* Linn.



Fig.15. *Calotropis procera* Ait.



Fig.16. *Gmelina arborea* Roxb.



Fig.7. *Cannabis sativa* Linn.



Fig.8. *Eclipta alba* Hassk.



Fig.17. *Alstonia scholaris* Roxb.



Fig.18. *Melilotus philippinensis* Muell. Arg.



Fig.9. *Heliotropium indicum* Linn.



Fig.10. *Lippia nodiflora* Mich



Fig.19. *Melia azedarach* Linn.



Fig.20. *Moringa oleifera* Lamk.

be conserved properly in addition to their use as wound healers.

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