

A CASE STUDY

Ethnopharmacological studies on some wound healing plants of west Champaran

■ RATNESH KUMAR DWIVEDI AND ANIL KUMAR SINGH

SUMMARY

A large number of plants / plant extracts, decoctions, infusions or pastes are equally used by folklore for the treatment of cuts wounds and burns. The present work, thus, is an attempt to analyze the ethno-botanical knowledge base for the treatment of cuts and wounds. A large number of plants used by tribal and folklore with enormous potentials have not been validated for their wound healing activities. This work, therefore, attempts to bridge the lacunae in the validation of the traditional claims and development of safe and effective herbal drugs for cuts and wounds.

Key Words : Cuts, Wounds, Burns, Folklore, Ethno-botanical

How to cite this article : Dwivedy, Ratnesh Kumar and Singh, Anil Kumar (2016). Ethnopharmacological studies on some wound healing plants of west Champaran. *Internat. J. Plant Sci.*, **11** (1): 141-143.

Article chronicle : Received : 14.10.2015; Accepted : 28.12.2015

The concept of developing drugs from plants used in indigenous medical system is very old (Heinrich and Gibbons, 2001). Chronic wounds affect a large number of patients and seriously reduce their quality of life. The prevalence of chronic wounds in the community claims 4.5 per 1000 population whereas that of acute wound claims 10.5 per 1000 population (Gupta *et al.*, 2004). Both traditional and Western systems of medicine for wound healing suffer from lack of resources and awareness with respect to their utilization, safety and efficacy.

Wounds are physical injuries that result in an opening or break of our skin. Proper healing of wounds is essential for the restoration of disrupted anatomical continuity that disturbs functional status of the skin. Healing is a complex intricate process initiated in response to an injury that restores the function and integrity of damaged tissues. Wound healing involves continuous cell to cell and cell to matrix interactions that allow the process to proceed in three overlapping phases *i.e.* inflammation (=3-4 days), cellular proliferation (=4-10 days) and remodeling (=3-6 months) (Glynn, 1981; Clark, 1996 and Martin, 1996). Healing requires the collaborative efforts of many different tissues and cell lineages (Martin, 1997). It also involves platelet aggregation and blood clotting, formation of fibrin, an inflammatory response to injury, alteration in the ground substances, angiogenesis and re-epithelialization. Healing is not complete until the disrupted surfaces are firmly knit by collagen (Buffoni

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et al., 1993).

MATERIAL AND METHODS

The plant species e.g. *Abrus precatorius* L. (FABACEAE); *Blumea lacera* (Burm.f.) DC (ASTERACEAE); *Calotropis procera* (L) R. Br. (ASCLEPIADACEAE); *Leonotis nepetifolia* (L) Br. (LAMIACEAE) were collected from different parts of West Champaran district. The collected plant species were dried under herbarium press for a week under dry condition and

then poisoned in 2 per cent mercuric chloride solution with the help of brush. The poisoned plant species were mounted on herbarium paper with favicol.

The parts of plants as mentioned in Table A excluding latex were collected and dried in incubator and their infusions were made in a grinding machine. The freshly prepared infusion mixed with coconut oils were applied externally on the affected parts (Bhatt *et al.*, 2002; Katewa *et al.*, 2004; Sharma *et al.*, 2002 and Das and Mishra, 1999).

Table A : Botanical name of plant			
Botanical name of plant	Family	Parts used	Ailments
<i>Abrus precatorius</i> Linn.	FABACEAE	Leaf	Cuts and wounds
<i>Blumea lacera</i> (Burm.f.) DC	ASTERACEAE	Leaf	Cuts and wounds
<i>Leonotis nepetifolia</i> (L) Br.	LAMIACEAE	Flowers	Scalds, burns, thanail
<i>Calotropis procera</i> (L) R. Br.	ASCLEPIADACEAE	Latex	Leprosy, cuts, wounds



Abrus precatorius



Blumea lacera



Leonotis nepetaefolia



Calotropis procera

RESULTS AND DISCUSSION

Medicinal plants have been used since time immemorial for the treatment of various ailments of skin and dermatological disorders especially cuts, wounds and burns. It has been also estimated that 70 per cent of the wound healing drugs are of plant origin, 20 per cent of mineral origin and the remaining 10 per cent consisting of animal products. Thus, this work will help pharmacologists to understand the exact part of the plant and its exact use (=cuts, wounds, leprosy, scalds, thanail) in the traditional system of medicine thereby strengthening the ethno-pharmacological claims and building the global acceptance of the wound healing agents of plant origin. Thus, the major aim of present paper is to project the plants as modern drug substitute.

Ethno-botanical approaches :

The classical systems of Indian Medicine especially Ayurvedic, Siddha and Unani employed a large number of medicinal plants to treat cutaneous problems which includes wounds, cuts and burns. A classical application of plant-based medicine in the treatment of injuries is described in epic Ramayana, when Lakshman, the brother of Lord Ram mortally wounded in battlefield then Hanuman brought Lakshmanputi from Himalaya to restore Lakshman to fighting strength (Maya *et al.*, 2003).

Historically, Alexander the Great was reputed to have stopped at the island of Socotra, which was full of *Aloe vera* (LILIACEAE) plants. The pulp of its leaves were used to cure the wound of wounded soldiers (Ryan, 1992; Bodeker, 1995; Bodeker and Hughes, 1998).

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