



Received on 21 November 2014; received in revised form, 29 December 2014; accepted, 30 December 2014; published 01 January 2015

WOUND HEALING MEDICINAL PLANT OF INDIA: A REVIEW

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Keywords:

Chamomile, BALB/c mice,
Escherichia coli, *In-vivo*

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ABSTRACT: The traditional Indian medicine - Ayurveda, describes various herbs, fats, oils and minerals with anti-aging as well as wound healing properties. Wounds are the result of injuries to the skin that disrupt the soft tissue. Wound healing can be defined as a complex dynamic process results in the restoration of anatomic continuity and function. Various plant products have been used in the treatment of wounds over the years. Wound healing herbal extracts promote blood clotting, fight infection, and accelerate the healing of wounds. Hence in the current review, a list of the plants used in traditional medicine for the treatment of wounds was screened. It is a beneficial work for researchers to provide many details about the wound healing herbs and development of safe and effective and globally accepted herbal drugs for cuts and wounds.

INTRODUCTION: Wounds are a major case of physical disabilities¹. A wound which is disturbed the state of tissue caused by physical, chemical, microbial (or) immunological insults (or) typically associated with loss function. According to the wound healing society, wounds are physical injuries that result in an opening (or) break of the skin that causes a disturbance in the normal skin anatomy and function². Wound healing is an interaction of complex cascade of cellular and biochemical actions healing to the restoration of structural and functional integrity with regain of the strength of injured tissues. Involves continuous cell-cell interaction and cell-matrix interactions that allow the process to proceed in different overlapping phases and process including inflammation, wound contraction, Re epithelialization tissue, remodeling, & formation of granulation tissue with angiogenesis³.

Several factors delay (or) reduce the wound healing process including bacterial infection, necrotic tissue, & interference with blood supply, lymphatic blockage & diabetes mellitus, generally, if any agent could alter the above factors, an increased healing rate could be achieved⁴. Many Ayurvedic plants have a very important role in the process of wound healing. Plants are more potent healers because they promote the repair mechanisms in the natural way⁵. Plant-based therapy not only accelerates the healing process and also maintains the aesthetics⁹. More than 70% of wound healing pharma products are plant-based, 20% are mineral based and remaining containing animal products as their base material.

The plant base materials are used first aid – antiseptic coagulants and wound wash⁶. In recent times, focus on plant researchers has increased all over the world and a large body of evidence has collected to show the immense potential of medicinal plants used in various traditional systems. More than 13,000 plants have been studied during the last five years period⁷. Probably these reviews used to findings for wound healing activity of some medicinal plants are highlighted here.

	DOI: 10.13040/IJPSR.0975-8232.IJP.2(1).6-10
	Article can be accessed online on: www.ijpjournal.com
DOI link: http://dx.doi.org/10.13040/IJPSR.0975-8232.IJP.2(1).6-10	

1. *Allium cepa* Linn. (Liliaceae): *Allium cepa* Linn. belongs to the family of Liliaceae. It N-sitosterol, ferulic acid, myritic acid, prostaglandins. These constituents used as abortifacient and bulb extract was shown to have an economic effect in rats. *Allium cepa* Linn is proved that antidiabetic ⁸ Antioxidant, antihypertensive, antithrombotic, hypoglycemic & hyperlipidemic Activities ⁹. Phytochemical screening of *Allium cepa* Linn revealed the presence of tannins, flavonoids,

alkaloids, proteins & other important constituents. Flavonoids have been documented which is believed to be one of the most important components of wound healing. The enhanced wound healing may be due to free radical scavenging action and the antibacterial property of the Phytoconstituents present in it which either due to their individual or additive effect fastens the process of wound healing. This could be the reason for prohealing activity of *Allium cepa* Linn.



FIG. 1: ALLUM CEPA LINN.

2. *Alternanthera sessilis* Linn. (Amaranthaceae): *Alternanthera sessilis* Linn (Amaranthaceae) is an annual (or) perennial prostrate weed, found throughout the hottest part of India ¹⁰. The plant has been scientifically proven to consist of chemical spinosterols ¹¹ lupeol isolated from roots ¹² the plant has been reported as a galactagogue, chologogue, abortifacient, febrifuge & indigestion

¹³. The leaves used in eye diseases, in cuts & wounds, the antidote for snake bite & scorpion sting and skin diseases. The wound healing property of *Alternanthera sessilis* Linn attributed to phytoconstituents present in the plant. Sterols were the major constituents, and it is responsible for wound healing activity.



FIG. 2: ALTERNANTHERA SESSILIS LINN.

3. *Aspila Africana*: (Compositae): *Aspila Africana* C.D. Adams (Compositae) an herb about 1 m tall covered with bristles & commonly known as 'Hemorrhage plant' due to this ability to stop bleeding from fresh wounds¹⁴. The bruised leaves and flowers of *Aspila Africana* are used to clean the surface of sores which subsequently heal¹⁵.

The plant is widespread in Africa. It is used for the treatment of rheumatic pain & it has been reported to possess hemostatic¹⁶, anti-bacterial, membrane stabilization & anti-inflammatory activities. Phytochemical analysis of the plant extracts revealed the presence of terpenoid, saponins & tannins¹⁷.



FIG. 3: ASPILA AFRICANA

4. *Mussaenda frondosa*. Linn. (Rubiaceae): *M. frondosa* commonly called as Nagavalli reported possesses some medicinal properties. It is used as a folk medicine for the treatment of the wound in a different part of the world¹⁸. The leaves are traditionally used for the treatment of jaundice, asthma, hyperacidity, fever, ulcer, leprosy, and diuretic, wound & swells. This plant has been

investigated by several workers Antimicrobial¹⁹, Diuretic activity²⁰ Hepatoprotective activity²¹, activity on fever, asthma & cough²² was reported in the leaf extract. The leaves of *Mussaenda frondosa* Linn possess the presence of various secondary metabolites like steroids, glycosides, saponins, Resins, mucilage & flavonoid²³.



FIG. 4: MUSSAENDA FRONDOSA LINN.

5. *Aristolochia bracteata* (Aristolochiaceae) & *Cassia tora* (Leguminosae): The process of wound healing involves a variety of biological responses, such as acute inflammation, cellular proliferation and a contraction of collagen lattice formed²⁵.

Aristolochia bracteata belongs to the family Aristolochiaceae. *Cassia tora* (Leguminosae) is used in traditional medicine as a gastric stimulant and in the treatment of cancer, lung inflammation; dysentery and snake bite²⁶.

CONCLUSION: It is a wild crop plant and grows in most parts of India as a weed. According to Ayurveda the leaves & seeds are acrid²⁷ laxatives, antiperiodic, anthelmintic, ophthalmic, liver tonic, cardiogenic & expectorant. The leaves & seeds are useful in leprosy, ringworm, flatulence, colic, dyspepsia, constipation, cough, bronchitis, cardiac disorders²⁸. The chemical component of *Cassia tora* are anthraquinones, chrysophanol, emodin, obtusifoliosin, obtusin, chryso-obtusin, aurantio-obtusin, & their glycosides²⁹. Miss. Jayasudha concludes that the wound contracting ability of the extracts was significantly greater than that of the control, which was comparable to that of the reference standard nitrofurazone ointment³⁰.

ACKNOWLEDGEMENT: Nil

CONFLICT OF INTEREST: Nil

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How to cite this article:

Adhav R, Mantry P and Darwhekar GN: Wound healing medicinal plant of India: a review. Int J Pharmacognosy, 2015; 2(1): 6-10. doi: 10.13040/IJPSR.0975-8232.2(1).6-10.

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