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Popular Article

Popular Ethnoveterinary Medicines for Wound Healing

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Wound is defined as a discontinuity of the soft tissue. One of the most researched areas in veterinary medicine is wound healing. Many of the traditional medicines used by tribes and folk medicines were found to be effective after extensive research work and many drug formulations are now available based on the research findings. Even now, many of the farmers apply locally available herbs for wound healings rather than going for traditional preparations due to the ease of availability and low cost. The most commonly used herbs are discussed in this scenario.

Turmeric (*Curcuma longa*)

Turmeric is one among the most popular wound healing medicines applied over wound in animals. The curcumin from the rhizome stimulates fibroblast proliferation, the development of granulation tissue and the deposition of collagen in the healing of cutaneous wounds. The beneficial effects of curcumin are produced by altering the composition of paracellular and extracellular matrix of cell (Saraswathy *et al.*, 2012).

Neem (*Azadirachta indica*)

Neem is the most popular ethnoveterinary medicine used for wound healing in animals. It is often applied as a combination along with turmeric. The leaves, seed oil and bark are most commonly used. The fly repellent property of neem also makes it very attractive for use in animal wounds. Neem is also known for its antibacterial, antiviral, anticancer properties (Mann *et al.*, 2017).



Aloe (*Aloe vera*)

Aloe vera is commonly used vehicle for other active ingredients or ethnoveterinary medicines. Even as a sole agent the leaf extract enhances wound healing due to the presence of acemannan, a mucopolysaccharide which acts through the cyclin D1 and AKT/mTOR signaling pathway as well as by its antimicrobial and phagocytic activity. Anthraquinone derivatives and saponins are the other compounds in *Aloe vera* known to have antimicrobial activity (Choi and Chung, 2003).

Tridax daisy or coatbuttons (*Tridax procumbens*)

It is a common weed that is seen in the paddy fields in India. Flavonoids and tannin in *Tidax procumbens* were the active ingredients responsible for wound healing when the crushed leaves were applied over rat wound models (Shrivastav *et al.*, 2020). They fasten wound healing by fibroblast proliferation, neovascularization and collagen synthesis (Yaduvanshi *et al.*, 2011).

Siam weed (*Chromolaena odorata*)

It is well known for its wound healing property. It is known to have anti-inflammatory, antimicrobial, antioxidant, anticancer, antidiabetic and antihepatotoxic properties. Its phytochemical components are alkaloids, flavonoids, flavanone, essential oils, phenolics, saponins, tannins, and terpenoids. Eupolin, chromomoric acid, quercetagenin, and quercetin, are the other active ingredients of this plant which contribute to its wound healing properties (Sirinthipaporn and Jiraungkoorskul, 2017). The fresh leaves are effective for leech bite treatment. The leaf poultice can stop bleeding from wounds (Vijayaraghavan *et al.*, 2017).

Sage-leaved Alangium (*Alangium salviifolium*)

The root and fruits of this plant are used for the treatment of dog/rabbit/rat bite wounds (Jain and Tarafder, 1970). The ethanolic extract from the leaves of this plant increased the hydroxyl proline content in healing wound; the wound contraction rate and epithelisation was also faster. The enhanced wound healing activity was attributed to the free radical scavenging activity (Inayathulla *et al.*, 2010).

Custard Apple (*Annona squamosa*)

The crushed leaves of the plant are applied for maggot infested wounds (Fienstein, 1952). The ethanolic extract of *A. squamosa* leaves on wound repair in excised skin wounds in diabetic induced rats showed an increased rate of epithelialisation and wound contraction rate (Ponrasu and Suguna, 2012).



Drumstick Tree/Moringa (*Moringa oleifera*)

The extract of the leaves of the moringa plant is used in the healing of wounds. It has antioxidant and antimicrobial properties. The effects are due to the expression of VEGF and TGF – β 1 genes (Al-Ghanayem *et al.*, 2022). The oil extracted from the moringa seeds can accelerate the healing of chronic wounds and this action may be partly due to the effects of oleic acid content in it (Ventura *et al.*, 2021).

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