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Compress (Kattu) of Wound Healing Herbs in Siddha System of Medicine- A Review

Keerthika.R[1]*, R.Rajpriya[2] , Sugasini P[3] , D.Periyasami[4],M.V.Mahadevan[5]

[1]Former Assistant professor, Dept. of Pura Maruthuvam, National Institute of Siddha, Chennai.

[2]Assistant Professor, Dept of Noi Anugavidhi Ozhukkam, Annai Medical college of Siddha and research centre, Kumbakonam

[3]Ph.D scholar, Dept of Sirappu Maruthuvam, National Institute of Siddha,Chennai

[4]Associate professor, Dept. of Pura Maruthuvam, National Institute of Siddha, Chennai.

[5]HOD i/c, Dept. of Pura Maruthuvam, National Institute of Siddha, Chennai.

Corresponding author: Keerthika R,

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KEYWORDS

Kattu, external therapy, wound healing,Siddha system

ABSTRACT:

In the Siddha system of medicine, *Kattu*(Compress) is one of the 32 external therapies and one of the topical applications on the skin. It is the application of medicine made of herbs, inorganic substances (pashanam), etc. to the affected area and bandaging it. Many literature evidence are found on a compress for wound healing. In this paper, wound healing herbs *Caesalpinia pulcherrima (Mayilkondrai), Aleo barbadensis(Katrazhai), Jasminum sambac(malligai)* are indicated for wound compress in text Theraiyar vaidhiyam 1000 is justified.

1. Introduction

Kattu is a topical application and one among 32 external therapy. It is the application of medicine made of herbs, inorganic substances (*pashanam*), etc. to the affected area and bandage it.(1,2) *Kattu* is used in trauma, open wound, muscle spasm, sprain, abscess, and dislocation of joints and fractures. *Kattu* is applying a strip of material such as cotton cloth used to protect, immobilize, compress, or support a wound or injured body part. The bandaging done in wounds after the application of medicated creams, oils, or herbal pastes is also a component of this therapeutic procedure. Banding prevents contamination and secondary infection. It also helps faster healing as restricted movement help wound healing to a great extent. The plants used in this procedure usually are anti-inflammatory, analgesic, antibacterial and rubefacient. Emollients such as castor oils and butter are used as carriers.The process of wound healing is a complex biological process and the promotion of tissue recovery is the main objective of medical interventions. Skin lesions are caused due to different reasons such as burns, arterial diseases, surgery, and trauma.(3)Wound healing is a dynamic process that takes place in three phases. The first phase is inflammation, congestion, and leukocyte infiltration. The second phase involves the removal of dead tissue and the third phase of proliferation includes epithelial regeneration and fibrous tissue formation.(4) Several studies on siddha medicinal herbs such as *Mayilkondrai*, *Katralai* and *malligai* have been conducted and shown to be effective in the prevention and healing of skin wounds.

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2.Literature evidence on Compress for wound healing:

2.1Caesalpinia pulcherrima (Mayilkondrai):

Siddha literature:

Apply castor oil on the wound, saute the leaves of *Caesalpinia pulcherrima (Mayilkondrai)*and use as a compress on it for faster wound healing.

"Thandathae maeikkonnai thazhai ithudan

Andathae siruthaamanakkennai vaar

Kindathae vadhakee yadaithati more

Kandathae punneer kata aaripogumae" (5)

Apply castor oil on the wound, saute the leaves of *Caesalpinia pulcherrima (Mayilkondrai)*and use as a compress on it for faster wound healing.

Scientific validation:

Caesalpinia pulcherrima is an important plant belonging to the family Leguminosae.It is widely distributed in India and its leaves, flower, bark, and seeds are used in Indian medicine. The plant is considered as a tonic, stimulant, and emmenagogue. The bark is used as an abortifacient and an infusion of leaves is used as abortifacient and cathartic. The plant is rich in active ingredients like caesalpin-type diterpenoids, sitosterol, pulcherrimin, lupeol, lupeol acetate, myricetin, quercetin and rutin, flavonoids, carotenoids, glycosides, peltogynoids, phenols, and steroids.(6-10).It exhibited a significant anti-inflammatory activity in a cotton pellet granuloma test by the decrease in granuloma tissue development. This may be due to inhibition of fibroblasts and synthesis of collagen and mucopolysaccharides during granuloma tissue formation by lupeol and quercetin in CP. Flavonoids in general and quercetin in particular are reported to possess analgesic, anti-inflammatory, and antiulcer activities.(10,11) .The ethanolic and aqueous extracts of CP at both the doses decreased ulcer score and provided protection against ulcers. Protection against pylorus ligation induced ulcers also indicates the antisecretory activity of CP. These results indicate that *C. pulcherrima* is not only non-ulcerogenic but is also ulcer protective.(12)

2.2 Aleo barbadensis(katrazhai)

Siddha literature:

A compress is made after applying the colorless inner gel of the leaves of *Aleo barbadensis(katrazhai)*on the wounds and sinus. The application should be done twice a day for fifteen days.

"Oodum katrazhai utchooreduthuda

Naadu moovaindhu naaliru naeramum

Thaeduvaithu ranathin maer katidil

Needu pinnpurai nilaadi thetumae" (5)

Scientific validation:

Aleo barbadensis belongs to the Liliaceae family; It is an herbaceous and perennial plant with thick, fleshy and long leaves. It also prevents skin ulcers as it contains mucopolysaccharides, amino acids, zinc, and water. There are over 100 active constituent are found in *A. vera* plant which possesses astringent, haemostatic, antidiabetic, antiulcer, antiseptic, antibacterial, anti-inflammatory, antioxidant, anticancer, antidiarrhoeal, and wound healing properties (13). The mucilage content present in leaves of this plant that is also called as aloe gel is used for various cosmetics and medical applications (14). *A. vera* leaves pulp was found to have better and faster wound healing effect than standard drug Povidone Iodine ointment (5 % w/w) on excision wound model (14).In vitro studies and studies conducted on living organisms have In vitro studies and studies conducted on living organisms have shown that Aloe vera can inhibit thromboxane (an inhibitor of wound healing), improve the wound healing process, and reduce inflammation.(15,16) Aloe vera is known for its anti-tumor, anti-inflammatory, skin protection, anti-diabetic, anti-bacterial, anti-viral, antiseptic, and wound healing properties.(17)·Wound healing and preventive effects of Aloe vera have been reported in several studies.(18)Topical application of Aloe vera to prevent ulcers and enhance the healing process of dermal injuries (e.g., burns, frostbite, skin infections, surgical wounds, inflammation, herpes ulcers, diabetic foot ulcers, pressure sores, and chronic wounds) has been reported.(19) Aloe vera is highly suitable for wound dressings.(20) It is indicated that Aloe vera (as a gel or cream) can be effective to treat chronic wounds such as psoriasis lesions, pressure ulcers, venous, diabetic, herpes ulcers and chronic anal fissure. In terms of quality

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and speed of wound healing, Aloe vera is much more effective and less costly compared to the currently available alternative treatments. (21)

2.3.Jasminum sambac(Malligai)

Siddha literature:

Saute the leaves of *Jasminum sambac(Malligai)*leaves with castor oil and apply as a compress for wounds.

"Yeta malligai ilaiyum parithumae

Itaam aamanakennai viduthudan

Thotamaai vadhakki oru thonudhamaai

Katta ranangkalum kandarindhu oodumae"

Scientific validation:

Jasminum sambac belongs to Oleaceae family. It is a scandent or sub-erect shrub with young pubescent branches, broadly ovate or elliptic, opposite leaves, white, very fragrant flowers cultivated nearly throughout the tropical and sub-tropical parts of the world.Many research studies supported by histopathological evidences, i.e. enhanced Keratinization, epithelialization, collagenization and neovascularisation in extract treated wounds compared to control. Thus the successive ethanolic extract of leaves promotes wound healing by increased cell proliferation and collagen deposition. As per the literature survey, it was found that wound healing takes place in different stages, but some bacteria like Staphylococcus species will delay the healing by exerting their effects at inflammatory phase. This delaying also causes generation of reactive oxygen species. Both the presence of microbes and reactive oxygen species at the wound site has synergetic effects hence delaying healing. From the result it is clear that successive ethanolic extract of leaves possess good antimicrobial and antioxidant effects. As the process of wound healing is promoted by several plant products, composed of active principles like flavonoids, triterpenoids, alkaloids, steroids, tannins and other biomolecules. These agents exert their effect usually by influencing one or more phase(s) of healing process. (22).Our preliminary phytochemical analysis reveals the presence of flavonoids, triterpenoids, steroids, alkaloids, saponins, tannins and phenolic compounds in successive ethanolic extract. Flavonoid (23), Triterpenoids (24) and Tannins (25) are known to promote the woundhealing process mainly due to their astringent, anti-microbial and free radical scavenging, which seem to be responsible for wound contraction and increased rate of epithelialization. Whereas sterols and poly phenols are responsible for wound healing due to their free radical scavenging and anti-oxidant activity, which are known to reduce lipid per oxidation, thereby reduce cell necrosis and improving vascularity. The results demonstrate that J. sambac shows wound healing property partly by increasing the collagen synthesis, probably due to the presence of useful mixture of phytoconstituents in the leaves and also due to phenolic content and antimicrobial activity. (26). Antimicrobial activity was determined using diffusion and minimum (serial dilution) methods. The result showed that ethanolic extract of J. sambac leaves; exhibited a higher rate of wound contraction (84.15 ± 0.54% on 15th day), decrease in the period of epithelialization (17.83 ± 1.66 days), higher skin breaking strength (179.8 ± 1.79 g), higher collagen content and favorable histopathological changes compared to control group in both the models studied. The ethanolic extract was found to be most effective against Pseudomonas auregenosa having inhibition of zone 14.67 ± 0.9 mm and a minimum inhibitory concentration was 0.78 mg/ml. These results are significant in understanding the medicinal potential of Jasminum sambac(22)

3.Discussion:

According to Therayar's explanation in his book Tharu, kattu is the finest method for treating injuries, open wounds, muscular spasms, sprains, abscesses, dislocated joints, and fractures. The Kattu technique uses ground or boiled wet plant parts, birds, natural vinegar, or inorganic salts to purify the body and provide local healing, analgesic, and anti-inflammatory effects on the skin in the form of compressive bandages. Application and covering of a specially prepared topical medicine made up of crude plants ,birds, fermented water or inorganic substances on the affected area is known as *Kattu*. Typically, three rounds of this treatment are carried out at intervals of 3–7 days.Wound healing is one of the most complex processes in the human body. It involves the spatial and temporal synchronization of a variety of cell types with distinct roles in the phases of hemostasis, inflammation, growth, re-epithelialization, and remodeling. Vast types of external therapies are available for wound healing process . Kattu is one among and cost effective OPD procedure. This review explains about the siddha literature review of wound healing herbs *Caesalpinia pulcherrima (Mayilkondrai), Aleo barbadensis(Katrazhai), Jasminum sambac(malligai*

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used as Kattu and its justification in scientific view. This herbs possess wound healing activity and may useful in clinical trials in future.

4.Conclusion:

Siddha medicinal herbs such as *Mayilkondrai*, *Katralai* and *malligai* are effective in the prevention and healing of skin wounds. The collected data intends to convey the researchers and scientists in order to assist them gain a better comprehension of the function and significance of plant-based components in the management and treatment of wounds.

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