



NATURAL DRUGS FOR WOUND HEALING

B.RamyaSree,B.Amani.
Sir c.r.reddy college of pharmaceutical sciences,Eluru
EmailID:ramyasreeborra@gmail.com

Abstract:-

We have all experienced a wound at some point in our life. The variety of wound types has resulted in a wide range of wound dressings with new products frequently introduced to target different aspects of the wound healing process. Various agents have been applied topically to treat infected wounds for millennia, but their proper role remains unclear. Topical therapy affords many potential advantages but also has disadvantages. This review presents an overview on a number of botanicals used in wound care in countries with limited access to contemporary wound care products.

Introduction:-

Traditional medicine (also known as indigenous or folk medicine) comprises the knowledge that has been developed over generations within various societies before the era of modern medicine^[1]. Your skin is your body's largest organ and plays a major role in keeping you healthy. Given optimum conditions, the human body is remarkably efficient at repairing injuries to this important barrier^[2].

The World Health Organization (WHO) defines traditional medicine as 'the health practices, approaches, knowledge and beliefs incorporating plant, animal and mineral-based medicines, spiritual therapies, manual techniques and exercises, applied singularly or in combination to treat, diagnose and prevent illnesses or maintain well-being'.

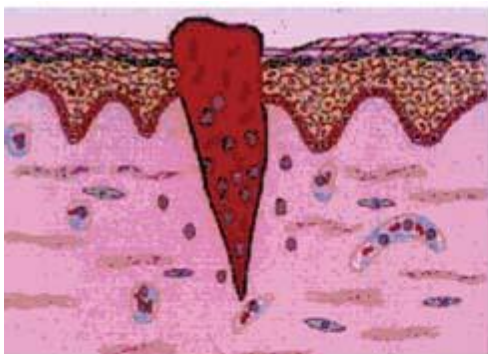
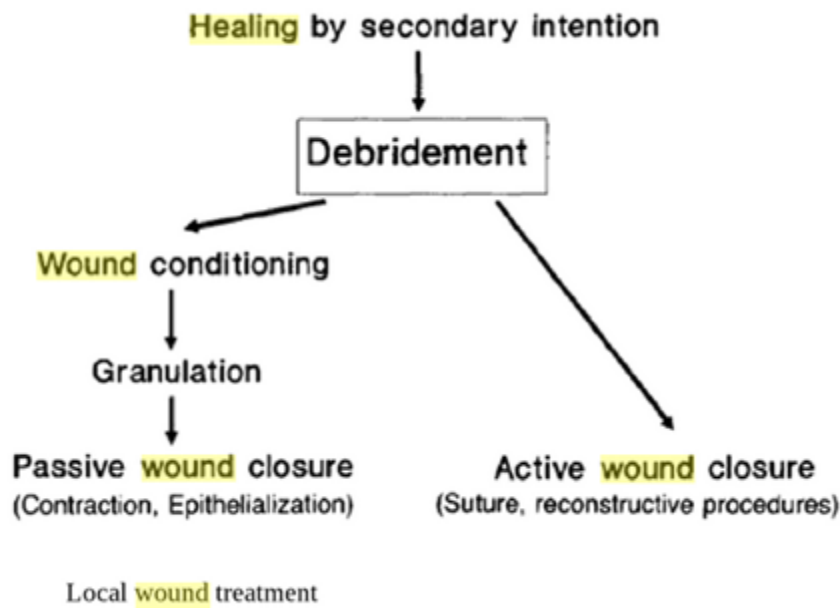
Wound:-A wound can be defined as a disruption in the continuity of the epithelial

lining of the skin or mucosa. Injury, due to surgery or accident, results in destruction of tissue, disruption of blood vessels and extravasations of blood constituents and hypoxia.

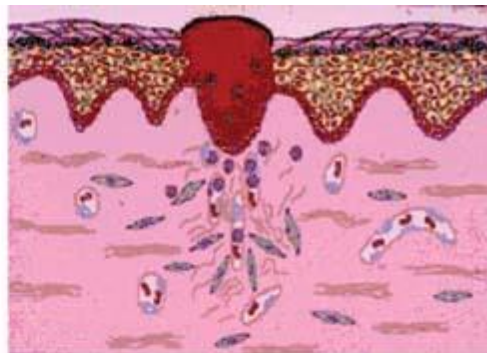
Wound Healing:-

Wound healing is the result of interactions among cytokines, growth factors, blood and cellular elements, and the extracellular matrix. The cytokines promote healing by various pathways, such as stimulating the production of components of the basement membrane, preventing dehydration, increasing inflammation and the formation of granulation tissue^[3].

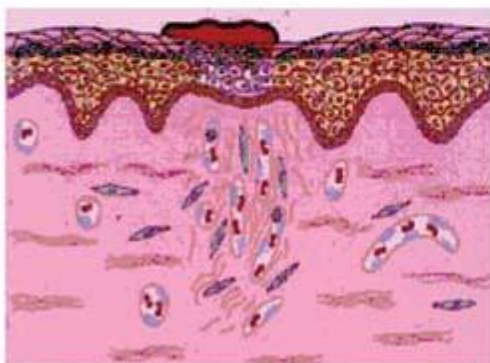
Wound healing is a complex process that has four phases: inflammatory phase, proliferative phase, maturation phase and remodelling phase.



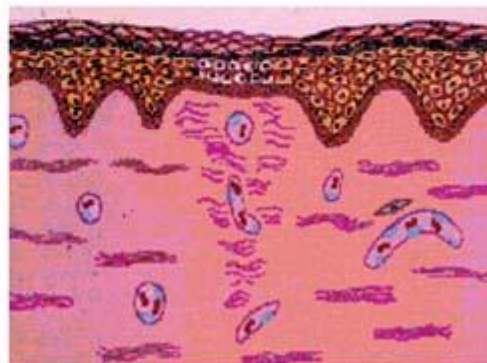
a Inflammatory phase



b Migratory phase



c Proliferative phase



d Remodelling phase

Classification Of Wounds:-

- 1.Acute Wounds.
- 2.Chronic Wounds.

Acute Wounds:-

Acute wounds occur most commonly due to accidents such as trauma or burns.

- ❖ Acute wounds should normally heal in a short duration provided the right treatment is given.
- ❖ In wound healing, it is always pertinent to achieve rapid and complete wound healing since the resulting scar tissue will be more satisfactory.
- ❖ Hence, the goal of every medical practitioner treating wounds should be to achieve early wound healing.

Chronic Wounds:-

Chronic wounds take a longer time to heal or sometimes even recur due to the underlying pathology. Hence, the underlying problem should first be identified and treated accordingly.

- ❖ When treating chronic wounds, it is important to note that biofilms play an important role in the prevention of wound healing.
- ❖ These biofilms harbour various microorganisms which delay the wound healing process.
- ❖ Due to the rise in antibiotic resistance, alternative/traditional medicines are increasingly becoming popular to overcome these multi-resistant organisms.
- ❖ Patients with chronic wounds require prolonged periods of dressings and this can cause a significant financial burden to the health-care system.

List of Natural Drugs:-

Herbal medicines include herbs, herbal materials, herbal preparations and finished herbal products that contain an active ingredient, parts of plants, or other plant material or combinations. Several traditional wound-care products are currently commercially available the importance and efficacy of traditional and complementary medicine have risen^[6].

- 1.Honey.
- 2.Garlic.
- 3.Calendula.
- 4.Chamomile.
- 5.Marshmallow root.

- 6.Cayenne pepper.
 - 7.Potato.
 - 8.Lavender.
 - 9.Aloe-vera.
 - 10.Golden seal.
 - 11.Tea tree oil.
 - 12.Coconut oil.
 - 13.Witch hazel.
 - 14.Juniper Leaves &Barks.
 - 15.Comfrey root.
- HONEY^[9]:-

Honey is a combination of various sugars producing a highly viscous sweet solution which is obtained from the nectar of flower or other plant secretions. The honey bee (*Apis mellifera*) is responsible for this mixture of sugars in addition to various other enzymes which originate from the bees.

CONSTITUENTS: amino acids, antioxidants, vitamins, minerals, glucose oxidase, fructose, glucose, sucrose and water.

MECHANISM OF ACTION: When honey gets diluted with the blood and tissues of the wound, hydrogen peroxide is produced via a glucose oxidase enzyme reaction.

USAGE: Spread some honey on a dressing and apply this to the wound. If the wound is deeper, the wound bed should be filled with honey, then wrapped with a dressing pad.

USES:Anti-bacterial Activity.

GARLIC^[8]:-

It consists of bulbs of the known as *Allium Sativum* linn .It is cultivated as a spice or condiment crop .Garlic is a hardy perennial with narrow flat leaves and bears white small flowers and bulbils.

CONSTITUENTS:-Carbohydrates, albumin, fat, mucilage and volatile oils(allicin,alliin).

MECHANISM OF ACTION:-constituents of garlic may reduce the healing time.

USAGE:- You can make a mix of 3 crushed garlic cloves and 1 cup of wine, blended, let stand for 2-3 hours and strain. Apply to the wound with a clean cloth 1-2 times a day.

USES:-Disinfectant ,Antibacterial.

CALENDULA^[5]:-

Calendula officinalis, or pot marigold, is a common garden plant .The flowers are the part of the herb used either in the form of infusions, tinctures, liquid extracts, creams or ointments, or in one of a number of skin and hair products.

CONSTITUENTS:-

Micronutrients,Flavanoids,Saponins and Polysaccharides.

MECHANISM OF ACTION:- Wound healing can also be delayed when microorganisms are present in large enough numbers Therefore, reducing the bacterial load of a wound may be necessary to facilitate wound healing, as well as reduce local inflammation and tissue destruction& preserve viable tissue and facilitate wound healing.

USAGE:- use this by applying to wounds. For internal infections, make a calendula tea with 1 cup warm water and 1 tbsp.

USES:-Vulnerary agent,Antimicrobial,Anti-inflammatory.

CHAMOMILE^[11]:-

Also known for it's awesome relaxation properties, chamomile is one of the most ancient medicinal herbs known to mankind!



CONSTITUENTS:-Terpenoids and Flavonoids.Also includes matricin, chamazulene, bisabolol.

MECHANISM OF ACTION:-Accelerate wound healing by its bacteriostatic property.

USAGE:- Make a chamomile press for your wound by soaking some chamomile tea bags in water, lightly draining some of the liquid, and then wrapping these tea bags around your wound with some gauze.

USES:-Anti-inflammatory , Acts positively on nervous system, Mucolytic effect.

MARSHMALLOW ROOT^[7]:-

Marshmallow plant or *Althaea officinalis* is an upright perennial The name is given because of the special qualities of the Mallows to soften and heal. The marshmallow plant can be found growing in salt marshes, in damp, wet meadows, by the sides of ditches, by the sea and on the banks of tidal rivers^[4].

CONSTITUENTS:- galacturonic acid, glucuronic acid, galactose, arabinose and rhamnose.

MECHANISM OF ACTION:- The plant can swell up and become slippery when wet. It gives the root an ability to soothe irritated tissue, particularly mucous membranes. Marshmallow is great for drawing out toxins and other bacteria found in wounds it can shorten the healing time by drawing out impurities.

USAGE:- Applying it to your wound can speed wound healing.

USES:-Diuretic,Astringent,Demulcent.

CAYENNE PEPPER:-



It is generally considered as capsicum which has more features that helps in daily life in many ways ,cultivation of this cayenne pepper is very easy even in our gardens^[8].

CONSTITUENTS:-capsicin.

MECHANISM OF ACTION:- Cayenne pepper is great for helping blood to clot faster at the site of your wound, the reason for this is that rather than the blood pressure being centralized, it is equalized by the Cayenne, and the clotting action of the blood becomes more rapid^[22].

USAGE:- If the wound is more severe, having the afflicted individual consume an 8-oz. glass of water with 1teaspoon. For external bleeding, take cayenne internally and pour cayenne directly on the wound^[12].

USES:-Disinfectant,Anti-bacterial,Anti-fungal.

POTATO:-

It is obtained from solanum tuberosum

CONSTITUENTS:-
Carbohydrates,proteins,starch,moisture retaining substances.

MECHANISM OF ACTION:- Potatoes have this type of gravitational pull which draws out infections from any type of wound or abscess^[14].

USAGE:- Apply to the affected area, and cover with gauze and then wrap with or other material

of choice. Leave overnight and remove in the morning. Clean affected area with salty water, cover with clean dressing and continue until healed.

USES:-Cleansing Agent,etc

LAVENDER^[17]:-

It is good for treating or aiding in the treatment of a number of health problems.



CONSTITUENTS:-Volatile oils.

MECHANISM OF ACTION:- Increase cell growth causing the wound to heal faster^[21].

USAGE:- Use topically 2-5 times per day by applying 2-4 drops on the wound area. Dilute as required.

USES:-Antiseptic, Antibiotic, Antiviral.

ALOE-VERA:-

Aloe is an excellent treatment for skin conditions such as burns and eczema.It can be cultivated in home itself ,this plant can survive in hot conditions also hence it is considered as xerophytic plant^[18].

CONSTITUENTS:-Alloin,other mucilage substances.

MECHANISM OF ACTION:- Reduce healing time due to the use of aloe vera sap.

USAGE:- Apply to the wound for every couple hours

USES:-In treatment of mouth ulcers, stomach ulcers.

GOLDEN SEAL:-

The roots and rhizomes of goldenseal contain many alkaloids which possess more uses internally and externally, this plant is known for its antiseptic and astringent properties^[16].

CONSTITUENTS:-Alkaloids like berberine, canadine etc.

MECHANISM OF ACTION:-Alkaloids in this goldenseal helps in destroying many bacteria and virus leads to decrease in healing time.

USAGE:- Use goldenseal ointment on your wounds.

USES:-Antidiarrhoeal, Antiseptic, Antibiotic.

TEA TREE OIL:-

Tea tree oil can help relieve any type of skin inflammation, including being used as a natural eczema treatment and for reducing psoriasis. This oil has less side effects compared to other natural products^[15].

CONSTITUENTS:-volatile oils etc.

MECHANISM OF ACTION:-Acts by reducing healing time and decreasing the bacterial infections.

USAGE:- we can just use tea tree oil applied 3-5 times a day on the wound.

USES:-Antiviral, Antifungal, Antibiotic.

COCONUT OIL:-

Coconut oil is available in low cost itself and has more medicinal properties. It is obtained from many easy processes use of this oil in cooking also clears most of the internal problems^[12,13].

CONSTITUENTS:-Fatty acids (Caprylic acid, Lauric acid).

MECHANISM OF ACTION:-Fatty acids reduce inflammation thereby decrease wound severity and gives easy relief.

USAGE:- Apply coconut oil under a band aid and re-fresh 2-3 times a day^[24].

USES:-Face cleanser, Moisturiser, sun screen etc.

WITCH HAZEL^[18]:-

It is usually meant for clearing inflammation of the wound side effects of this is less direct usage may sometimes cause irritation due to its constituents.

CONSTITUENTS:- Procyanidins, resin and flavonoids.

MECHANISM OF ACTION:- Significantly reduce swelling and speed up recovery time^[22].

USAGE:- Soaking a cloth in some witch hazel and applying it to cuts, bruises and other wounds.

USES:-Astringent, Anti-inflammatory.

JUNIPER LEAVES & BARKS:-

Juniper closely resembles cypress, and like cypress it is valued for its detoxifying action on the body^[20].

CONSTITUENTS:- volatile oil (pinene, myrcene, limonene, terpinene, camphene and thujone), sugars, vitamin c, flavonoids, resin, gallotannins.

MECHANISM OF ACTION:-Leaves and barks has the property of healing due its antiseptic action. Speed up the recovery of wounds.

USAGE:-Applied externally on the wound can heal soon and taken internally shows more effect for skin disorders like psoriasis etc^[19].

USES:-Antiseptic ,antibacterial.

COMFREY ROOT:-

The name for comfrey is *Symphytum officinale*, which literally means to “unite or knit together.”

CONSTITUENTS:-Allantoin etc

MECHANISM OF ACTION:- Comfrey contains a substance called allantoin, which helps cells grow faster, and so it literally improves healing time of broken bones, mends wounds quickly and helps burns heal quickly with little scarring^[17].

USAGE:- Use comfrey as a poultice to a cut, scrape or other wound.

USES:-Anti-inflammatory agent.

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