International Journal of Pharmaceutical Research and Applications
Volume 10, Issue 1 Jan - Feb 2025, pp: 1696-1700 www.ijprajournal.com ISSN: 2456-4494

A comprehensive review on traditional medicinal plants used in after bite treatment

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Date of Submission: 01-03-2025 Date of Acceptance: 10-03-2025

ABSTRACT

An insect bite happens when an insect, like a mosquito, flea, or bedbug, uses its mouth to break through a person's skin, usually in order to eat. Insects belong to the class of living organisms known as arthropods. Reactions to bug bites are commonly observed in clinical practice. Insect bites and stings are common. Environmental exposure is primarily associated with risk factors. Most insect stings and bites result in mild, local allergic reactions. Large local reactions and potentially severe systemic reactions, including anaphylaxis, are possible outcomes. Common insects that bite or sting include wasps, bees, flies, fleas, mozzies, ticks, and biting midges. Certain species are toxic or can cause disease, however their bites typically simply cause local responses. In the US, widow spiders (Latrodectus), which can cause severe muscle spasms when bitten, and brown recluses (Loxosceles), which can cause skin necrosis, are both regarded as medically significant spiders. Traditional medicinal plants used for insect bites include Aloe vera, Calendula officinalis, Rosa canina L, Mentha piperita, Neem, Tulasi.

Keywords: Insect bite,Arthropods,Anaphylaxis,widow spider,Brown recluses

I. INTRODUCTION

An animal bite is a wound caused by the components of its mouth. A sting is a special structure that allows certain animals to inject venom and inflict wounds.. Insects are not always dangerous. Insects that do not bite include beetles, locusts, moths, and butterflies; nonetheless, they can also cause skin reactions by other mechanisms, like allergic reactions to bodily fluids, feces, or parts. Although they do not bite, ants, wasps, and bees can cause allergic reactions through their stings[1]. In addition to causing pain and swelling, mechanical damage to tissue from bites and stings opens a gateway for germs, which may lead to a secondary infection. Arthropod salivary antigens frequently cause allergic reactions, which can lead to cutaneous pruritus and both localized and systemic rashes. Anaphylaxis is the most serious allergic reaction to arthropod stings and bites, and it can be quickly lethal.[2]

Possible Bites

Bee stings

Bee venom damages the body. Usually confined to the vicinity of the bite, this injury can occasionally result in serious, life-threatening consequences that spread throughout the body. These include allergic responses. The majority of fatal allergic reactions and most fatalities happen within the first hour following the bite.[3] When someone has been stung by a bee and experiences symptoms including lip swelling, hand tingling, hypotension, dizziness, severe shortness of breath, and anesthesia, they should visit the emergency room and receive treatment. The so-called medical professional in this instance has anaphylactic shock. Before visiting the emergency department, a person who experiences this shock should inject a subcutaneous o.1 cc ampoule of epinephrine the next time the bee stings.When these indications are absent, the sting is followed by excruciating pain and swelling. First, the bee stung must be removed, and then the inflammation must be reduced with an ice pack. Additionally, use antihistamines to avoid allergies and itching. To alleviate pain, painkillers are advised. Natural remedies might be a good.[4]

Scorpion Bite

For villages, migrants, and residents of slum regions, scorpion bites provide a work-related risk. The ratio of the scorpion's poison to the victim's body weight determines how severe the

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bite is. A more severe reaction occurs in a smaller child with a lower body weight and a higher venom to body weight ratio. Untreated infants have a 20% mortality rate, untreated school-aged children have a 10% mortality rate, and untreated adults have a 1% mortality rate ternative to pharmacological treatments because of their potential adverse effects. [5]

Black Flies

At the biting site, a little blood crust with ecchymosis surrounds it. Little itchy papules that linger for several days form in a matter of hours. Severe responses can occasionally result in nodules and eczematous areas that last for several months, along with significant limb edema and constitutional disturbance. Intense itching, excoriations, scarring, and hyperpigmentation were observed in two Simulium dermatitis patients from the northeastern part of India. Vesicles, cutaneous oedema, and perivascular infiltrates abundant in lymphocytes and eosinophils were observed in the histopathology.[6]

Traditional medicinal plants used for treatment of insect bite;

Tulsi

The tulsi plant can grow up to 1 m (3.3 ft) tall and is either a short-lived perennial shrub or a small annual. Simple toothed or whole leaves are borne opposite each other along the hairy stems.Tulsi's antibacterial, antifungal, antipyretic, antioxidant, anticancer, carminative, anti-inflammatory, antiseptic, stomachic, and apitizer qualities are well documented. Tulsi leaves are used to treat a variety of skin conditions, and inflammation due to insect bite, bee stings.

Figure 1. Rama tulsi

Figure 2.krishna tulsi

Tulsi is used as a preventative measure and remedy for insect bites and stings. The fresh juice of Tulsi must be applied to the affected regions. A paste prepared from fresh roots is another effectivetreatment for bug bites. A few hours after the insect bite, the procedure is repeated.[7]

Lemon balm

Lemon balm is an erect, perennial bushy shrub that grows to a height of roughly one meter. The heart-shaped, velvety, hairy leaves measure 2 to 8 centimeters in length. In herbal medicine, Melissa officinalis is utilized.The plant's dried or fresh leaves and upper aerial portion are used in the herbal tea, cosmetic, perfume, and pharmaceutical sectors.

Figure 3. Lemon balm

Lemon balm possesses various medicinal benefits, including carminative, digestive, diaphoretic, antioxidant, antiviral, antidepressant, and stimulant effects. When applied topically, it helps address conditions such as herpes, sores, gout, insect bites, and other skin ailments. Additionally, lemon balm serves as an insect deterrent.To use lemon balm for insect bites, just crush some freshlemon balm leaves and apply them directly to the area that is affected; alternatively,

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you can dilutea few drops of lemon balm essential oil in a carrier oil such as coconut oil and gently apply it tothe bite location.[8]

Aloe vera

The leaves of the aloe vera plant are triangular and meaty, with a clear gel inside. Arranged in a rosette, the leaves feature sharp spines along their margins. Aloe vera is recognized as the most ancient medicinal plant known to humankind and is widely utilized for its healing properties. Aloe vera extracts are recognized for their effectiveness in promoting skin healing. It aids in calming skin injuries caused by burns, irritations, cuts, and insect bites, while its antibacterial properties help alleviate itching and reduce skin inflammation.

Figure 4. Aloe vera

Aloe vera has been applied topically to address different skin issues, including cuts, burns, and eczema. It is claimed that the sap from Aloe vera alleviates pain and decreases inflammation. Aloe vera plants are also beneficial for treating insect bites, rashes, sores, herpes, urticaria, and fungal infections. We can use the gel from the aloe vera plant straight on insect bites to treat them. [9]

Turmeric

The perennial herbaceous plant turmeric (Curcuma longa) has a short, upright pseudo-stem made up of closely spaced leaf sheaths. The most important portion of the plant is its subterranean rhizome, which is distinguished by its branching, tuberous structure with an outer layer that is brownish-yellow and an interior that is yellow-orange. [10]

Figure6.Rhizomes of turmeric

Turmeric is a wound healer, an anti-inflammatory, and a natural antibiotic. It is particularly useful, externally to treat insect bites. Ayurveda suggests applying turmeric to a handful of basil leaves to treat bug bites since it has antinflammatory properties.[11]

Sarpagandha

Sarpagandha, also called Indian Snakeroot (Rauvolfia serpentina), is a tiny perennial shrub that belongs to the Apocynaceae family. It has a woody, branching, cylindrical, dark brown, rough-textured stem that reaches a height of 60 to 90 cm. [12]

Figure7.Sarpagandha plant

Insect stings can be effectively treated using sarpagandha root, although excessive dosages might be fatal [13]. In India, sarpagandha has been used for more than 4,000 years to cure insect bites.[14]

A tiny bit of Sarpagandha root should be ground into a thick paste with a few drops of water.After applying it, let the insect bite area to dry.20 to 30 minutes later, wash it off.[12]

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Neem

The pinnately compound, alternating leaves are 20–40 cm long, with 8–19 lanceolate leaflets that are 3–8 cm long and have a serrated edge. When young, the leaves are bright green; as they mature, they turn dark green.[15]

Figure8.Neem leaves

Neem (Azadirachta indica) has analgesic, antibacterial, antiseptic, and anti-inflammatory qualities, it is frequently used to treat insect bites. Neem contains chemicals including azadirachtin and nimbidin that help prevent infections and relieve pain, swelling, and itching. [16].On the bite site, apply neem paste or oil. Neem counteracts the majority of toxic insect venoms. Mix a small amount of neem powder with a small amount of water to create a paste. After applying this to the skin and letting it sit for ten to twenty minutes, rinse it off.[17]

Pot Marigold

The hardy, herbaceous, annual or short-lived perennial pot marigold (Calendula officinalis), which is a member of the Asteraceae family, can reach a height of 30 to 60 cm. It has a little gritty texture due to the fine hairs covering its branching, erect, or semi-erect stem.[18]

Figure9.Pot marigold plant

Pot Marigold is used to cure insect bites, skin infections, and earaches, among other conditions.[19] To create a paste, crush fresh marigold flowers and leaves. Apply this mixture directly to the insectbite and allow it to remain for 15 to 20 minutes before rinsing it off.[20]

II. CONCLUSION

Insect bites and stings are common occurrences that can lead to various health concerns, ranging from mild irritation to severe allergic reactions such as anaphylaxis. While bites, stings, and the resulting injuries can cause pain, swelling, and potential infections, many traditional medicinal plants have proven effective in alleviating symptoms and promoting healing. Plants like **Tulsi**, **Lemon balm**, **Aloe vera**, **Turmeric**, **Sarpagandha**, **Neem**, and **Pot Marigold** offer natural, accessible remedies with anti-inflammatory, antibacterial, and soothing properties that can help ease the discomfort from insect stings and bites. By using these plant-based treatments, individuals can manage minor injuries and prevent further complications, though for severe allergic reactions or infections, professional medical attention remains crucial. These traditional remedies not only provide a safe alternative but also highlight the value of nature's therapeutic offerings for modern-day ailments.

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