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Therapeutic potential of *Sandhaniya Maha Kashaya*: A Critical Review of Ayurvedic Literature and Pharmacological Insights

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ABSTRACT

In the modern era of science and development, traditional medicines, especially those rooted in Ayurveda, hold significant therapeutic potential. Among Ayurveda's foundational texts, the Charaka Samhita emphasizes the importance of *Bheshaja Chatushka*, which includes chapters on therapeutic applications of various medicinal plants. In its *Shadvirechanshtashreeya* chapter, *Acharya Charak* introduces the concept of *Maha Kashaya*, encompassing 50 categories of 500 herbs classified based on their effects on biological systems. This study focuses on *Sandhaniya Maha Kashaya*, a group of ten medicinal plants renowned for their healing and tissue-binding properties. These plants aid in repairing fractures, stopping bleeding, and promoting the regeneration of muscles and bones. Their actions are attributed to their *Kashaya Rasa* (astringent taste) and their ability to induce tissue constriction (*Sankuchana*). A critical review of Ayurvedic literature, combined with the scientific classification and analysis of these plants, reveals their pharmacological potential. Key findings include detailed *Ras Panchak* profiles (taste, properties, potency, and post-digestive effects) of the ten plants, demonstrating their predominant *Kashaya Rasa* and *Sheeta Virya* (cooling potency), which facilitate wound healing. The discussion elaborates on the pharmacological mechanisms of prominent herbs like *Madhuka, Guduchi*, and *Lodhra*, highlighting their roles in collagen synthesis, anti-inflammatory effects, and antimicrobial properties. This exploration underscores the therapeutic relevance of *Sandhaniya Maha Kashaya* in promoting tissue healing, validated by its traditional applications and modern scientific insights. Such integrative studies bridge traditional knowledge and contemporary medicine, offering holistic approaches to health care.

Key words: *Sandhaniya Maha Kashaya, Tissue Healing, Wound Repair.*

INTRODUCTION

In this era of science and development, a holistic approach to treatment is the basic need of the hour. The study of traditionally used medications in diverse indigenous medical systems is growing nowadays.

Among all literary works, the Charka Samhita is regarded as one of the oldest ancient medical texts. *Charka* explained *Bheshaja Chatushka*, a collection of therapeutic chapters, regarding the medicinal indications of different plants. In fourth chapter of *Bheshaja Chatushka*, i.e., *Shadvirechanshtashreeya* is the fourth chapter of the *Sutrasthana*, Acharya *Charak* has expounded upon fifty *Maha Kashaya*. This chapter's primary focus is on fifty classes of five hundred herbs, chosen for their specific effects on different biological systems and ailments. These groups, which consist of ten plants apiece, are referred to as *Maha Kashaya* (classes of medications with comparable action characteristics).

Various medicinal plants have been the subject of scientific study and have numerous documented uses in traditional Ayurvedic scriptures. Here, we attempt to methodically examine and gather beneficial information on *Maha Kashaya*. *Sandhaniya Maha Kashaya* can be defined as union promoters. This *Maha Kashaya* works to promote or help unite or bind the *Bhagna* (fractured bone), *Vichinna Rakta* (disrupted blood), *Mansa* (muscle), and *Asthiadi Dhatus* (bone and other tissues). The *Sandhaniya Guna* (quality) of drugs especially works by its *Kshaya Rasa* (astringent taste), which causes *Sankuchana* (constriction) of

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Dhatu Avayava (body tissues) and hence promotes its binding action.

METHODOLOGY:

Critical review of the literature

↓

Identify the *Sandhaniya Maha Kashaya* and mention its drug

↓

Scientific naming and classification of drugs were done

↓

Tabular presentation of *Ras Panchak* of drug of *Sandhaniya Maha Kashaya*

↓

Critical analysis of data was done

OBSERVATIONS

Table 1: Information of Drugs in *Sandhaniya MahaKashaya*

SN	Name	English Name	Botanical Name	Family
1.	*Madhuka*	Liquorice	*Glycyrrhiza glabra*	Fabaceae
2.	*Guduchi*	Giloe	*Tinospora cordifolia*	Menispermaceae
3.	*Prishnaparni*	Prsniparni	*Uraria picta*	Fabaceae
4.	*Patha*	Velvetleaf	*Cissampelos pareira*	Menispermaceae
5.	*Samanga*	Touch Me Not	*Mimosa pudica*	Mimosaceae
6.	*Dhataki*	Fire Flame Bush	*Woodfordia fruticosa*	Lytheraceae
7.	*Lodhra*	Lodhtree	*Symplocos racemosa*	Symplocaceae
8.	*Mochrasa*	Silk-Cotton Tree	*Salmalia malabarica*	Bombacaceae
9.	*Priyangu*	Perfumed Cherry	*Callicarpa macrophylla*	Verbenaceae
10.	*Katphala*	Box Myrtle	*Myrica esculenta*	Myricaceae

Table 2: Description of drugs in *Sandhaniya Maha Kashaya* with their *Ras Panchak*.

SN	Name	*Rasa*	*Guna*	*Virya*	*Vipaka*
1.	*Madhuka*	*Madhura* (Sweet)	*Guru* (Heavy), *Snigdha* (Unctuous)	*Sheeta* (Cooling)	*Madhura* (Sweet)
2.	*Guduchi*	*Tikta* (Bitter), *Kashaya* (Astringent)	*Guru* (Heavy), *Laghu* (Light)	*Ushna* (Heating)	*Madhura* (Sweet)
3.	*Prishnaparni*	*Madhura* (Sweet), *Katu* (Pungent)	*Laghu* (Light), Sara (Fluid)	*Ushna* (Heating)	*Madhura* (Sweet)
4.	*Ambastaki (Patha)*	*Tikta* (Bitter)	*Laghu* (Light), Tikshna (Sharp)	*Ushna* (Heating)	*Katu* (Pungent)
5.	*Samanga*	*Tikta* (Bitter), *Kashaya* (Astringent)	*Laghu* (Light), *Ruksha* (Dry)	*Sheeta* (Cooling)	*Madhura* (Sweet)
6.	*Dhataki*	*Kashaya* (Astringent), *Katu* (Pungent)	*Laghu* (Light), *Ruksha* (Dry)	*Sheeta* (Cooling)	*Katu* (Pungent)
7.	*Lodhra*	*Kashaya* (Astringent), *Madhura* (Sweet), *Tikta* (Bitter)	*Guru* (Heavy), *Ruksha* (Dry)	*Sheeta* (Cooling)	*Katu* (Pungent)
8.	*Mochrasa*	*Kashaya* (Astringent)	*Laghu* (Light), *Snigdha* (Unctuous)	*Sheeta* (Cooling)	*Madhura* (Sweet)
9.	*Priyangu*	*Tikta* (Bitter), *Kashaya* (Astringent), *Madhura* (Sweet)	*Guru* (Heavy), *Ruksha* (Dry)	*Sheeta* (Cooling)	*Katu* (Pungent)
10.	*Katphala*	*Kashaya* (Astringent), *Tikta* (Bitter), *Katu* (Pungent)	*Laghu* (Light), *Ruksha* (Dry)	*Ushna* (Heating)	*Katu* (Pungent)

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DISCUSSION

Table 3: Brief Information on *Rasa* classification of *Sandhaniya Maha Kashaya* Drugs

SN	Constituent *Rasa*	No. of Drugs	Drugs Included
1.	*Kashaya* (Astringent)	7	*Guduchi* [*Tinospora cordifolia* Miers.], *Lajjalu* [*Mimosa pudica* Linn.], *Mocha*rasa [*Bombax ceiba* Burm.f.], *Dhataki* [*woodfordia fruticosa*], *Lodhra* [*symplocos racemosa*], *Priyangu* [*callicarpa macrophylla*], *Katphala* [*myrica esculenta*]
2.	*Tikta* (Bitter)	6	*Guduchi* [*Tinospora cordifolia* Miers.], *Patha* [*Cissampelos pareria* Linn.], *Lajjalu* [*Mimosa pudica* Linn.], *Lodhra* [*symplocos racemosa*], *Priyangu* [*callicarpa macrophylla*], *Katphala* [*myrica esculenta*]
3.	*Madhura* (Sweet)	4	*Madhuyashthi* [*Glycyrrhiza glabra* Linn.], *Prishniparni* [*Uraria picta* Desv.], *Lodhra* [*symplocos racemosa*], *Priyangu* [*callicarpa macrophylla*]
4.	*Katu* (Pungent)	3	*Prishniparni* [*Uraria picta* Desv.], *Dhataki* [*Woodfordia fruticosa*], *Katphala* [*Myrica esculenta*]

1. From the above table, it can be analysed that out of 10 *Sandhaniya Maha Kashaya* drugs, most (7 drugs) are of *Kashaya Rasa* (astringent taste), which has properties as *Ropan* (healing), *Kleda Shoshan* (absorbing moisture), *Sangrahi* (binding), and hence works in *Sandhaniya Maha Kashaya*.
2. The second most predominant *Rasa* is *Tikta* (bitter), present in 6/10 drugs, which has properties as *Kleda Medha Upshoshan* (absorbing moisture and fat) and *Sheeta* (cooling), hence does its karma in *Sandhaniya Maha Kashaya*.
3. Other insignificant *Rasas*, *Madhura* (sweet) and *Katu* (pungent), are present in 3/10 drugs in *Sandhaniya Maha Kashaya*.

Table 4: *Vipaka* Classification of *Sandhaniya MahaKashaya* Drugs

SN	Constituent *Vipaka*	No. of Drugs	Drugs Included
1.	*Madhura* (Sweet)	5	*Madhuyashthi* [*Glycyrrhiza glabra* Linn.], *Guduchi* [*Tinospora cordifolia* Miers.], *Prishniparni* [*Uraria picta* Desv.], *Lajjalu* [*Mimosa pudica* Linn.], *Mocha*rasa [*Bombax ceiba* Burm.f.]
2.	*Katu* (Pungent)	5	*Patha* [*Cissampelos pareria* Linn.], *Lajjalu* [*Mimosa pudica* Linn.], *Dhataki* [*Woodfordia fruticosa*], *Lodhra* [*Symplocos racemosa*], *Priyangu* [*Callicarpa macrophylla*], *Katphala* [*Myrica esculenta*]

1. From the above table, it can be analyzed that out of 10 *Sandhaniya MahaKashaya* drugs, 5 drugs are of *Madhura Vipaka* (sweet post-digestive effect) and 5 are *Katu Vipaka* (pungent post-digestive effect).

Table 5: *Virya* classification of *Sandhaniya Maha Kashaya* Drugs

SN	Constituent *Virya*	No. of Drugs	Drugs Included
1.	*Sheeta* (Cooling)	6	*Madhuyashthi* [*Glycyrrhiza glabra* Linn.], *Lajjalu* [*Mimosa pudica* Linn.], *Mocha*rasa [*Bombax ceiba* Burm.f.], *Dhataki* [*Woodfordia fruticosa*], *Lodhra* [*Symplocos racemosa*], *Priyangu* [Callicarpa *macrophylla*]
2.	*Ushna* (Heating)	4	*Guduchi* [*Tinospora cordifolia* Miers.], *Prishniparni* [*Uraria picta* Desv.], *Patha* [*Cissampelos pareria* Linn.], *Katphala* [*Myrica esculenta*]

1. From the above table, it can be analyzed that out of 10 *Sandhaniya MahaKashaya* drugs, most (6

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drugs) are of *Sheeta Virya* (cooling potency), which does *Stambhan Karma* (hemostatic action) and is *Dahajeetam* (alleviating burning sensation), hence promoting wound healing (*Sandhaniya Karma*). *Sheeta Virya* enhances *Kapha Guna* (qualities of *Kapha Dosha)* which promotes the binding action of *Sandhaniya* drugs.

2. The other 4 drugs are of *Ushna Virya* (heating potency).

Mode of Action

Madhuka [1] (Liquorice)

Mode of Action as *Sandhaniya Karma*

1. **Stimulation of Collagen Synthesis:**[2] Herbs with *Sandhaniya Karma* often stimulate collagen production, crucial for strengthening tissues and facilitating wound closure.
2. **Antioxidant and Anti-inflammatory Properties:**[3] They typically exhibit antioxidant effects, protecting cells from oxidative stress, and anti-inflammatory properties, which reduce swelling and aid in healing.
3. **Promotion of Granulation Tissue:**[4] These herbs support the formation of granulation tissue, which provides a base for new tissue growth and vascularization.
4. **Antimicrobial Effects:**[5] Many herbs with *Sandhaniya Karma* possess antimicrobial properties, helping to prevent infections that could impede healing.
5. **An anti-ulcer agent:**[6] Licorice has been utilized historically as an effective antiulcer agent. Glycyrrhizin extracted from licorice, specifically DGL (deglycyrrhizinated licorice), is commonly used for treating ulcers. Carbenoxolone derived from licorice roots demonstrates antiulcerogenic effects by inhibiting gastrin secretion. Licorice also elevates prostaglandin levels in the digestive system, promoting stomach mucus secretion. Additionally, it prolongs the lifespan of stomach surface cells and exhibits an ant pepsin effect.[7]

Guduchi (Giloe)

Guduchi (*Tinospora cordifolia*) is a well-known herb in *Ayurveda* that is often attributed with *Sandhaniya Karma* due to its rejuvenate and tissue-healing properties.

Mode of Action of *Guduchi*

1. **Immunomodulation:**[8] *Guduchi* is renowned for its immunomodulatory effects, enhancing the body's defence mechanisms. It helps in boosting immunity which aids in faster recovery from various ailments, including wounds.
2. **Anti-inflammatory Properties:**[9] The herb has potent anti-inflammatory actions that reduce inflammation and swelling, promoting faster healing of tissues.
3. **Antioxidant Effects:**[10] *Guduchi* is rich in antioxidants, which protect cells from oxidative stress and damage. This property is crucial in maintaining cellular integrity and aiding in tissue repair.
4. **Rejuvenative and Tissue-Healing:**[11] *Guduchi* is classified as a *Rasayana* in *Ayurveda*, which means it has rejuvenated properties. It helps in the regeneration and healing of tissues, making it effective in wound healing and recovery after injuries.
5. **Wound Healing:**[12] *Guduchi* is known for its wound healing properties. The plant contains various chemical constituents such as alkaloids, glycosides, steroids, phenolics, and polysaccharides. Its extracts promote collagen synthesis and are rich in protein, calcium, and phosphorus.

Prishnaparni

"*Prishnaparni*," scientifically known as *Uraria picta*, is recognized in Ayurveda for its therapeutic actions, including its role as a "*Sandhaniya Karma*," which involves tissue healing and rejuvenation. Here's an overview of its mode of action in this context:

Mode of Action of *Prishnaparni* as *Sandhaniya Karma*

1. **Anti-inflammatory Properties:**[13] *Prishnaparni* exhibits significant anti-inflammatory effects, which help in reducing inflammation and swelling

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in various conditions. This property helps to promote tissue repair and regeneration.

2. **Antioxidant Activity:**[14] The herb is rich in antioxidants, which protect cells from oxidative stress and damage. Antioxidants play a vital role in maintaining cellular integrity and supporting tissue healing processes.
3. **Wound Healing Abilities:**[15,16] *Prishnaparni* is known for its wound healing properties. It helps in the formation of new tissue and accelerates the closure of wounds, thereby facilitating faster recovery.
4. **Immunomodulatory Actions:**[17] Similar to *Guduchi*, *Prishnaparni* also exhibits immunomodulatory effects, enhancing the immune response of the body. This property supports overall healing and recovery from various ailments.

Patha

Patha," known scientifically as *Cissampelos pareira*, is another Ayurvedic herb that is valued for its therapeutic properties, including its role as a "*Sandhaniya Karma*," which involves tissue healing and rejuvenation.

Mode of action of *Patha*[18] as *Sandhaniya Karma*

1. **Anti-inflammatory Properties:** *Patha* exhibits significant anti-inflammatory effects, which help in reducing inflammation and swelling. This property is crucial for promoting tissue repair and regeneration, making it useful in conditions involving inflammation.
2. **Antioxidant Activity:** The herb possesses antioxidant properties that protect cells from oxidative stress and damage. Antioxidants play a vital role in maintaining cellular health and supporting tissue healing processes.
3. **Wound Healing Abilities:** *Patha* is known for its wound healing properties. It promotes the formation of new tissue and accelerates the closure of wounds, facilitating faster recovery and regeneration of damaged tissues.
4. **Anti-ulcer Activity**[19]**:** *Patha* exhibits anti-ulcer properties, attributed to flavonoid quercetin. It has shown effectiveness against various ulcer-inducing agents like ethanol, aspirin, cold-resistant stress, and pylorus ligation in rat models at doses of 25-100 mg/kg.
5. **Immunomodulatory Actions:** Similar to other *Sandhaniya* herbs, *Patha* also exhibits immunomodulatory effects, enhancing the body's immune response. This property aids in overall healing and recovery from various ailments.

Samanga

Samanga, or *Mimosa pudica*, is a plant known for its unique reaction to touch, where its leaves fold inward when touched or disturbed, a phenomenon known as thigmonasty. In the context of Ayurveda, it has several medicinal properties, including those that can be associated with *Sandhaniya Karma*, which involves wound healing and tissue repair. Here's an overview of Mimosa pudica's mode of action in *Sandhaniya Karma*:

Mode of Action (*Sandhaniya Karma*) of *Samanga* (*Mimosa pudica*):

1. **Wound Healing:**[20,21] Mimosa pudica has been traditionally used in Ayurveda for its wound healing properties. It helps in the regeneration of skin tissues and promotes faster healing of wounds and cuts.
2. **Anti-inflammatory:** The plant exhibits anti-inflammatory effects, which can help reduce inflammation in wounds and alleviate pain associated with injuries.
3. **Antimicrobial:** *Mimosa pudica* has antimicrobial properties that help in preventing infections in wounds. It acts against various pathogens, including bacteria and fungi, thereby promoting clean and sterile healing conditions.
4. **Astringent:** It contains tannins, which contribute to its astringent properties. This helps in stopping bleeding by contracting blood vessels, promoting hemostasis in wounds.

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Dhataki

"*Dhataki*" is a Sanskrit term that refers to a medicinal plant known as *Woodfordia fruticosa*. In Ayurveda, the traditional Indian system of medicine, "*Sandhaniya Karma*" refers to the therapeutic actions related to healing, joining, or uniting tissues or wounds.

Mode of Action (*Sandhaniya Karma*) of *Dhataki*:[22]

Dhataki is primarily known for its styptic and wound-healing properties in Ayurvedic medicine. Its mode of action (*Karma*) can be summarized as follows:

1. **Styptic Action:** *Dhataki* has astringent properties due to tannins present in its flowers. This helps in stopping bleeding by contracting blood vessels and promoting blood clotting.
2. **Wound Healing:**[23] *Dhataki* promotes wound healing by accelerating the formation of granulation tissue, which is essential for the repair of damaged tissue. This action is attributed to its ability to enhance tissue regeneration and provide a protective barrier against infections. It promotes tissue regeneration and aids in healing ulcers such as ulcerative colitis, peptic ulcers, and mouth sores.
3. **Anti-inflammatory:** It has mild anti-inflammatory effects, which can help reduce inflammation at the site of wounds or injuries.
4. **Antimicrobial:** *Dhataki* exhibits antimicrobial properties against a range of bacteria and fungi, which can help prevent infections in wounds.

Lodhra

"*Lodhra*," scientifically known as *Symplocos racemosa*, is another important medicinal plant in Ayurveda known for its therapeutic properties, including its *Sandhaniya Karma*, which refers to its ability to promote healing and joining of tissues. Here's an overview of *Lodhra*'s *Sandhaniya Karma*:

Mode of Action (*Sandhaniya Karma*) of *Lodhra*

1. **Wound Healing:**[24] *Lodhra* is renowned for its wound healing properties. It promotes the regeneration of skin tissues and accelerates the closure of wounds. This action is crucial in traditional Ayurvedic formulations for treating cuts, burns, and other skin injuries.
2. **Anti-inflammatory:** It possesses anti-inflammatory effects, helping to reduce inflammation in wounds and promoting faster healing.
3. **Astringent:** *Lodhra* contains tannins that give it astringent properties. This helps in stopping bleeding and contracting tissues, which is beneficial in managing bleeding wounds and hemorrhages.
4. **Antimicrobial:** *Lodhra* has antimicrobial activity against fungi and bacteria. This property helps prevent infections in wounds and promotes sterile healing conditions.
5. **Anti-ulcer Activity:** *Lodhra*'s aqueous and ethanolic extracts demonstrate anti-ulcer activity in animal models. They reduce ulcer index significantly and exhibit anti-secretory activity by decreasing gastric volume and acidity.[25]

Mochrasa

"*Mochras*" typically refers to "*Mochrus*,[26] scientifically known as *Salmalia malabarica*, a plant used in traditional Ayurvedic medicine. Its *Sandhaniya Karma* pertains to its ability to aid in wound healing and tissue repair. Here's an overview of *Mochras* (*Salmalia malabarica*) and its *Sandhaniya Karma*.

Mode of Action (*Sandhaniya Karma*) of *Mochras*.

1. **Wound Healing:** Mochras is valued in Ayurveda for its wound healing properties. It helps in the regeneration of tissues and accelerates the closure of wounds, thereby facilitating faster recovery from injuries.
2. **Anti-inflammatory:** It exhibits anti-inflammatory effects, which contribute to reducing inflammation at the site of wounds. This property helps in alleviating pain and swelling associated with injuries.
3. **Astringent:** *Mochras* contains tannins that provide it with astringent properties. This aids in stopping

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bleeding by causing the contraction of blood vessels, thereby promoting hemostasis in wounds.

4. **Antimicrobial:** The plant possesses antimicrobial properties against a range of pathogens, including bacteria and fungi. This antimicrobial activity helps in preventing infections in wounds, ensuring a clean and sterile healing environment.
5. **Anti-haemorrhagic Action:**[27] *Mochras*, or *Salmalia malabarica*, acts as an anti-haemorrhagic agent and is used externally for wound healing in cattle.

Priyangu

In *Ayurveda*, *Pyriyangu*, known for its *Sandhaniya Karma*, accelerates wound healing through its regenerative properties.[28]

- **Promotion of Granulation Tissue Formation:** *Pyriyangu* facilitates the formation of granulation tissue, which is crucial for wound healing. This tissue provides a scaffold for new blood vessels and collagen deposition, essential for repairing damaged tissue.

Mode of Action (*Sandhaniya Karma*) of *Pyriyangu*.

1. **Anti-inflammatory Properties:**[29] *Pyriyangu* exhibits anti-inflammatory effects, helping to reduce inflammation at the wound site. This property is important as excessive inflammation can delay healing processes.
2. **Antimicrobial Activity:**[30] Many herbs with *Sandhaniya Karma*, including *Pyriyangu*, possess antimicrobial properties. This helps in preventing infections at the wound site, thereby promoting faster healing.
3. **Collagen Synthesis:**[31] *Pyriyangu* stimulates collagen synthesis, which is necessary for strengthening the newly formed tissue and enhancing wound closure.
4. **Enhancement of Epithelialization:**[32] Epithelialization is the process where new epithelial cells migrate and cover the wound. *Pyriyangu* accelerates this process, leading to faster closure of the wound.

Katphala

"*Katphala*" refers to the herb *Myrica esculenta*, which is known for its therapeutic properties, including its role as a "*Sandhaniya Karma*," or a substance that promotes wound healing and tissue regeneration[33]

Kataphala's Sandhaniya Karma involves stimulating collagen synthesis, reducing inflammation, and promoting granulation tissue formation, thereby enhancing wound healing.

Mode of Action (*Sandhaniya Karma*) of *Katphala*:[34]

1. **Stimulation of Collagen Synthesis:** *Kataphala* enhances the synthesis of collagen, a key protein in connective tissues, which strengthens the wound site and facilitates faster healing.
2. **Anti-inflammatory Properties:** It possesses anti-inflammatory effects, helping to reduce inflammation at the wound site, which can otherwise hinder the healing process.
3. **Antimicrobial Activity:** *Kataphala* exhibits antimicrobial properties, which protect against infections that can delay wound healing.
4. **Promotion of Granulation Tissue Formation:** It promotes the formation of granulation tissue, providing a scaffold for new blood vessels and cells essential for tissue repair.

CONCLUSION

Sandhaniya Maha Kashaya, a unique group of ten medicinal plants, holds immense promise in promoting tissue healing and repair, as highlighted in *Ayurvedic* literature and supported by contemporary pharmacological insights. These plants, characterized primarily by their *Kashaya Rasa* (astringent taste) and *Sheeta Virya* (cooling potency), exhibit properties that aid in wound healing, bone repair, and tissue regeneration. The detailed analysis of individual plants like *Madhuka, Guduchi*, and *Lodhra* demonstrates their significant roles in stimulating collagen synthesis, reducing inflammation, and preventing microbial infections, which are crucial for effective healing. Furthermore, the integration of traditional Ayurvedic principles with modern scientific understanding

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bridges the gap between ancient knowledge and current medical practices.

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