

REVIEW ARTICLE

Unraveling the Wound Management Potential of *Dravyas* in *Bhavaprakasa Nighantu*: A Review

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ABSTRACT

This review investigates the potential of *Vranaya Dravyas* from the *Bhavaprakasa Nighantu* in wound management, combining traditional Ayurvedic knowledge with modern practices. Effective wound healing is vital for preventing infections and facilitating recovery, and Ayurvedic texts provide detailed descriptions of various medicinal plants with significant antimicrobial, anti-inflammatory, and regenerative properties. The review is based on comprehensive literature sources, including *Bhavaprakasa Nighantu* and various pharmacological texts, which detail the properties, uses, and actions of these plants in promoting wound healing. The findings indicate that these herbs, through their synergistic effects, align closely with modern wound care principles, showcasing their potential as effective adjuncts to synthetic treatments. However, further clinical trials and research are necessary to validate their efficacy, standardize formulations, and fully integrate these traditional remedies into contemporary medicine.

1. INTRODUCTION

A wound is a disruption in the integrity of the skin or underlying tissues, resulting from trauma, surgical procedures, or pathological conditions. Effective wound management is essential for preventing infections, speeding up healing, and reducing complications. *Bhavaprakasa Nighantu* plays a crucial role in understanding medicinal plants for wound care by providing detailed descriptions of various plants and their healing properties, specifically aimed at promoting wound cleansing and healing. *Vrana* is the Sanskrit term for wound. "*Vran gatravichurne*" *gatra*^[1] means body part and *vichurne* means destruction or break. The *Vranaya Dravyas* plants and substances used specifically for wound management were essential in both medical and surgical wound care. It is reported that chemical constituents of plants, i.e., tannins, flavonoids, sterols, polyphenols, saponins, and tri-terpanoids have specific roles in wound healing due to astringent, antimicrobial, antioxidant, free scavenging activities, and improvement in vascularity.^[2] Wound healing is the normal phenomenon of the body that involves the sequential process of phagocytosis.^[3] It mainly consists of three phases – Inflammatory,

proliferative, and remodeling. Ayurveda involves two key processes for wound management: *Vranashodana* (wound cleansing) and *Vranaropana* (wound healing). *Ropana* is closely linked to *Shodhana* because a wound cannot heal unless it is purified. Thus, healing can only occur if the *Vrana* is clean.^[4] The wound healing and cleansing properties of the herbs can be identified through their pharmacodynamics. The *rasa*, *guna*, *veerya*, and *vipaka* are considered as pharmacodynamics attributes of drugs. The pharmacodynamic attributes of the herbs which indicate *Katu* and *Tikta Rasa* are useful in *Vrana Shodhana*, *Madhura*, *Kashaya*, and *Tikta Rasa* for *Vrana Ropana* and *Tikta, Katu Rasa* for *Vrana-Shodhana-Ropana*.^[5] There is a lack of clarity about how Ayurvedic medicinal plant's function, especially in wound healing. Although these plants are commonly used in traditional medicine, their specific healing actions and effects have not been extensively researched, making it challenging to understand their true benefits and mechanisms. This review aims to highlight the ancient knowledge from the *Bhavaprakasha Nighantu* for wound management and encourage further scientific exploration of the many Ayurvedic plants that have not yet been studied.

1.1. Classification of Wounds^[6]

Wound is a break in the continuity of body tissue. They are classified using various strategies based on factors such as their cause, location,

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type of injury, symptoms, depth, extent of tissue damage, and clinical manifestations.

Open wounds: In open wounds, blood escapes outside the body, making the bleeding clearly visible. These wounds are further classified into incised wounds, lacerations or tear wounds, abrasions or superficial wounds, puncture wounds, penetration wounds, and discharge wounds.

Closed wounds: In closed wounds, blood escapes from the circulatory system but remains inside the body. This type includes contusions (bruises), hematomas (blood clots), and crush injuries.

Acute wounds: Acute wounds involve tissue damage that heals through an orderly and timely process, resulting in the restoration of anatomical and functional integrity. These wounds are typically caused by cuts or surgical incisions and heal within the expected timeframe.

Chronic wounds: Chronic wounds fail to progress through the normal stages of healing, often leading to prolonged inflammation. They require extended periods to heal and may frequently recur.

Wound-Healing Process: Wound healing is a complex process that results in the restoration of anatomic continuity and function by several processes which involve the following phases [Table 1].

1.2. Phases of Wound Healing

Wound healing is an intricate step-by-step process that involves the stages of hemostasis, inflammation, proliferation, and remodeling. Wound healing involves continuous cell-cell and cell-matrix interactions that allow the process to proceed in three overlapping phase's, namely inflammation (0–3 days), cellular proliferation (3–12 days), and remodeling (3–6 months).^[7]

The TIME framework was developed as a practical tool for the management of wounds. TIME summarizes four main components of wound bed preparation.^[8]

- T- Tissue Management
- I- Control of inflammation and infection
- M- Maintenance of moisture balance
- E- Advancement of the epithelial edge of the wound

The management of wounds is described in Sushruta samhita Chikitsasthana in a very detailed manner.^[9] *Shashti Upakarma* provides a framework for various therapeutic procedures. Wound healing in animals is an essential process for the repair and restoration of function of tissue after injury.^[10] It is particularly useful in wound management and promotes both prevention and restoration of health. It offers effective wound management by emphasizing the principles of *Shodhana* (cleansing) and *Ropana* (healing). There is no fundamental difference between the TIME framework and the principles of *Shashti Upakramas*; the only variation is in how they are applied. The principles of *Shodhana* focus on tissue management and controlling inflammation and infection, while the principles of *Ropana* emphasize maintaining moisture balance and advancing the epithelial edge of the wound.

1.3. Role of Bhavaprakasha Nighantu in Wound Management

The Bhavaprakasha Nighantu is a comprehensive reference book for studying all aspects of drugs, from their origins to their pharmacological actions. It focuses on *karmaoushadi* (action-based drugs) and serves as a drug index in Ayurveda. Authored by Bhavamishra in 16th century which is organized into 22 *vargas*. It offers a comprehensive guide to

medicinal plants known for their wound-healing abilities and details various single drugs with *Vrana*, *Vranaropaka*, and *Vranashodaka*, providing detailed information on their properties, uses, and effects. This ancient text remains a crucial reference for selecting effective herbal treatments for wounds and plays a vital role in blending traditional knowledge with modern wound management practices in Ayurveda.

1.4. Phytoconstituents and Their Role in Wound Healing

Polyphenols and Saponin: Anti-microbial and antioxidant properties that encourage blood clotting, combat infections, and accelerate wound healing.

Phenolic compounds: Astringent and antimicrobial contribute to wound healing through their astringent properties and ability to fight infections.

Free Radical Scavenging: They also act as free radical scavengers, reducing oxidative stress and promoting cell viability.

Flavonoids: A subgroup of polyphenols, enhance wound healing by preventing lipid peroxidation, thus minimizing cell damage and improving collagen fibril viability.

Tannin and Tri-terpenoids: Promote wound healing due to their astringent and antimicrobial property and also act as free radical scavengers [Table 2].^[11]

2. MATERIALS AND METHODS

The review of herbs was based on Bhavaprakasha Nighantu, while the pharmacodynamics and pharmacological attributes were sourced from various textbooks, including *Dravyaguna vigyana* by J.L.N. Shastri well as the *Ayurveda Pharmacopoeia of India*. The review on wound management drew from reputable journals and websites. The drugs in Bhavaprakasha Nighantu were evaluated for their individual *Vrana ropaka* and *Vrana shodana* properties. In addition, the botanical names, family names, and *Rasapanchaka* of all the *Dravyas* were documented, and their pharmacological and pharmacodynamic activities were tabulated [Table 3 and 4].^[12-14]

4. DISCUSSION

4.1. Wound-Healing Mechanisms of *Vranya Dravyas*

The primary modes of action identified among these *dravyas* are anti-inflammatory, antimicrobial, and antioxidant effects, which collectively aid in different phases of wound healing [Table 2]. For instance, tannins and flavonoids contribute to anti-inflammatory effects, and flavonoids are known to have good anti-inflammatory properties. The structure of flavonoids plays an important role in anti-inflammatory activity.^[15] It plays a crucial in the initial inflammatory phase of wound healing. The ability of these compounds to scavenge free radicals further prevents cellular damage, which is especially vital in chronic wounds prone to prolonged inflammation. In addition, saponins, triterpenoids, and phenolic compounds, due to their astringent and antimicrobial properties, aid in infection control a critical factor in wound management, especially for open and contaminated wounds. The wound-healing properties of these drugs are often attributed to their ability to enhance collagen synthesis, reduce inflammation, and prevent infection. Wound-cleansing drugs focus on maintaining a sterile environment and preventing bacterial colonization, which is crucial for effective healing. Both categories of

drugs often contain overlapping phytochemicals, indicating a holistic approach in Ayurvedic medicine where one herb may serve multiple purposes.

4.2. Synergy with Modern Wound Care

The TIME framework in contemporary wound care, which emphasizes tissue management, infection control, moisture balance, and edge advancement, aligns closely with the Ayurvedic principles of *Vranashodana* (cleansing) and *Vranaropana* (healing). Herbs with *Katu* and *Tikta Rasa* are useful for *Vranashodana*, while those with *Madhura* and *Kashaya Rasa* are ideal for *Vranaropana*, showing how Ayurvedic pharmacodynamics can integrate into clinical practice. This alignment suggests that Ayurvedic herbs could be valuable in preparing wound bed conditions favorable for healing, thus serving as adjuncts to conventional treatments.

4.3. Pharmacodynamics and Clinical Implications

The pharmacodynamics of *Vranya Dravyas*, involving the properties of *Rasa*, *Veerya*, and *Vipaka*, indicate that these herbs act not only on wound sites but also systemically, potentially promoting overall immune health and resilience. Herbs with *Tikta* and *Katu Rasa* show strong potential for tissue debridement and infection prevention, as seen in their widespread use in Ayurvedic surgery for wound cleansing. Meanwhile, herbs with *Madhura* (sweet) and *Kashaya Rasa* have shown wound-healing benefits, with *Raktastambhaka* properties contributing to hemostasis, a crucial step in acute wound management.

4.4. Challenges

Despite the promising properties of these *dravyas*, there is limited scientific data on their exact mechanisms of action and clinical efficacy in wound healing. Most observations in traditional texts have yet to be validated by rigorous experimental studies, which presents a challenge for the systematic integration of Ayurvedic practices into mainstream medicine. Moreover, while Ayurvedic herbs are highly effective in managing wounds through natural means, standardizing dosages and formulations remains a challenge due to the inherent variability in plant sources and preparation methods. These gaps underscore the need for more clinical trials and experimental studies to substantiate the observed therapeutic effects of *Vranya Dravyas*.

5. CONCLUSION

The findings affirm that the application of Ayurvedic medicinal plants provides a promising alternative to synthetic treatments, particularly due to their antimicrobial, anti-inflammatory, and wound-healing properties. The aim of this review is to illuminate the wound management potential of *Vranya Dravyas* from the Bhavaprakasa Nighantu and to bridge the divide between traditional Ayurvedic knowledge and contemporary medical practices. By showcasing the pharmacodynamics of these herbs, the review advocates for their integration into modern wound care strategies. However, the current lack of extensive scientific validation necessitates further research, including clinical trials, to establish their true efficacy and safety. Ultimately, this endeavor seeks to enrich modern wound management practices with the time-tested wisdom of Ayurveda, fostering a more holistic approach to healthcare.

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None.

7. AUTHORS' CONTRIBUTIONS

All the authors contributed equally in design and execution of the article.

8. FUNDING

Nil.

9. ETHICAL APPROVALS

This study is not required ethical clearance as it is review study.

10. CONFLICTS OF INTEREST

Nil.

11. DATA AVAILABILITY

This is an original manuscript and all data are available for only review purposes from principal investigators.

12. PUBLISHERS NOTE

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Table 1: Wound-healing process

Hemostasis
Vascular constriction,
Platelet aggregation, degranulation, and fibrin formation (thrombus)
Inflammatory Phase
Neutrophil infiltration
Monocyte infiltration and differentiation to macrophage
Lymphocyte infiltration
Proliferative Phase
Re-epithelialization
Angiogenesis
Collagen synthesis
ECM formation
Remodeling Phase
Collagen remodeling
Vascular maturation and regression

Table 2: Pharmacological activities of herbs supporting wound healing

1.	Anti-inflammatory activity
2.	Antioxidant activity
3.	Antimicrobial activity
4.	Analgesic activity

Table 3: List of *Vranya Dravyas* with Pharmacodynamics in Bhavaprakasha Nighantu

Name	Botanical Name	Family name	Rasa	Virya	Vipaka
Harithaki	<i>Terminalia chebula</i> Reatz.	Combretaceae	Lavana varjitha pancha rasa	Ushna	Madhura
Ardra	<i>Zingiber officinale</i> Roscoe.	Zingiberaceae	Katu, Tikta	Ushna	Madhura
Shathapuspha	<i>Anethum Sowa</i> Kurz.	Umbelliferae	Katu , Tikta	Ushna	Katu
Vamsalochana	<i>Bambusa arundinaceae</i> Willd.	Poaceae	Kashaya Madhura,	Sita	Madhura
Yashtimadhu	<i>Glycyrrhiza glabra</i> Linn.	Leguminosae	Madhura	Sita	Madhura
Kampillaka	<i>Mallotus Philippensis</i> Muell.Arg	Euphorbiaceae	Katu	Ushna	Katu
Kiratatiktaka	<i>Andrographis paniculata</i> Nees.	Acanthaceae	Tikta katu	Sita	Katu
Madana	<i>Randia dumetorum</i> Lam.	Rubiaceae	Madhura, tikta	Ushna	Katu
Pashanabheda	<i>Aerva lanata</i> Juss.	Amaranthaceae	Tikta , Kashaya	Sita	Katu
Nakuli	<i>Aristolochia indica</i> Linn.	Aristolochiaceae	Katu Tikta	Ushna	Katu
Manjishta	<i>Rubia cordifolia</i> Lam.	Rubiaceae	Madhura, Tikta, Katu	Ushna	Katu
Haridra	<i>Curcuma longa</i> Linn.	Zingiberaceae	Tikta, Katu	Ushna	Katu
Daruharidra	<i>Berberis aristata</i>	Berberidaceae	Tikta, Kashaya	Ushna	Katu
Bhallataka	<i>Semecarpus anacardium</i> Linn.f.	Anacardiaceae	Katu, tiktha	Ushna	Katu
Laksha	<i>Laccifer lacca</i> (Kerr).	Lacciferidae	Madhura	Sita	Madhura
Raktachandana	<i>Pterocarpus santalinus</i> Linn.f.	Fabaceae	Tikta, Madhura	Sita	Madhura
Pathanga	<i>Caesalpinia sappan</i> Linn.	Caesalpiniaceae	Kashaya, Tikta	Sita	Katu
Sarala	<i>Pinus longifolia</i> Roxb.	Pinaceae	Tikta, Madhura	Ushna	Katu
Sarala Niriyasa	Oleo-resin of <i>pinus longifolia</i>		Tikta, Kashaya	Ushna	Madhura
Padmaka	<i>Prunus cerasoides</i> Roxb.ex wall	Rosaceae	Kashaya, Tikta	Sita	Katu
Rala	Resin of <i>Shorea robusta</i> Gaertn.f.	Dipterocarpaceae	Kashaya, Tikta	Sita	Madhura
Kumkum	<i>Crocus sativus</i> Linn.	Iridaceae	Tikta, Katu	Ushna	Madhura

(Contd...)

Table 3: (Continued)

Name	Botanical Name	Family name	Rasa	Virya	Vipaka
Nakha	<i>Helix aspera</i>		Katu	Ushna	Katu
Veerana	<i>Andropogon muricatus</i> Retz.	Gramineae	Tikta, Kashaya	Sita	Katu
Shaileyam	<i>Parmelia perlata</i> Ach.	Parmeliaceae	Tikta, Kashaya	Ushna	Katu
Kachura	<i>Curcuma zeodoria</i> Rosc.	Zingiberaceae	Tikta, Katu	Ushna	Katu
Kapoorachari	<i>Hedychium spicatum</i> Ham.ex Smith	Zingiberaceae	Tikta, Katu	Ushna	Katu
Granthiparna bheda	<i>Angelica glauca</i> Edgw.	Umbelliferae	Tikta, Madhura	Ushna	Katu
Elavaluka	<i>Prunus avium</i> L.	Rosaceae	Kashaya	Ushna	Katu
Parpati	<i>Pogostemon patchouli</i> var. <i>sauvis</i> Hook.f.	Lamiaceae	Katu, Tikta, Kashaya	Usna	Katu
Swetha Arka	<i>Calotropis gigantea</i> (Linn.) R.Br.ex Ait.	Asclepiadaceae	Tikta, Katu	Usna	Katu
Raktha Arka	<i>Calotropis procera</i> (Ait.) R.Br	Asclepiadaceae	Tikta, Katu	Usna	Katu
Sehund	<i>Euphorbia Neriifolia</i> Linn.	Euphorbiaceae	Katu	Usna	Katu
Kalihari	<i>Gloriosa superba</i> Linn.	Liliaceae	Katu, Tikta	Ushna	Katu
Karavira	<i>Nerium odoratum</i> Soland	Apocyanaceae	Katu, Tikta	Ushna	Katu
Dhattura	<i>Datura metel</i> Linn.	Solanaceae	Tikta, Katu	Ushna	Katu
Kanchanara	<i>Bauhinia variegata</i> Linn.	Fabaceae	Kashaya, Tikta	Sita	Katu
Shigru	<i>Moringa pterygosperma</i> Gaertn.	Moringaceae	Katu, Tikta	Ushna	Katu
Aparajitha	<i>Clitoria ternatea</i> Linn.	Fabaceae	Tikta, Kashaya	Sita	Katu
Karanja	<i>Pongamia pinnata</i>	Leguminosae	Katu, Tikta	Ushna	Katu
Gunja	<i>Abrus precatorius</i> Linn.	Fabaceae	Tikta, Katu	Ushna	Katu
Vamsa	<i>Bambusa arundinaceae</i>	Graminae	Madhura	Sita	Madhura
Patha	<i>Cissampelos paeira</i> Linn.	Menispermaceae	Tikta, Kashaya	Ushna	Katu
Indravaruni	<i>Citrullus colocynthis</i> Schrad.	Cucurbitaceae	Tikta, Katu	Ushna	Katu
Sarapunkha	<i>Tephrosia purpurea</i> Linn.	Fabaceae	Tikta, Katu	Ushna	Katu
Kakajanga	<i>Perstrophe bicalyculata</i>	Acanthaceae	Tikta, Kashaya	Sita	Katu
Meshashringi	<i>Dolichandrone falcata</i> Seem.	Bignoniaceae	Tikta, Madhura	Ushna	Madhura
Hamsapadi	<i>Adiantum lunulatum</i> Burm.	Adiantaceae	Tikta, Katu	Ushna	Katu
Vandha	<i>Loranthus Longiflorus</i> Desr.	Loranthaceae	Tikta, Kashaya	Sita	Madhura
Vandhyakarkotaki	<i>Momordica dioica</i> Roxb.	Cucurbitaceae	Tikta, Katu	Ushna	Katu
Jalapippali	<i>Lippia nodiflora</i> Mich.	Cucurbitaceae	Tikta, Katu	Ushna	Katu
Nagadhamani	<i>Pupalia lappaceae</i> Moq.	Amaranthaceae	Tikta, Katu	Ushna	Katu
Sarpakshi	<i>Ophiorrhiza mungos</i> Linn.	Rubiaceae	Tikta, Kashaya	Sita	Katu
Yuthika	<i>Jasminum auriculatum</i> Vahl.	Oleaceae	Tikta, Madhura	Ushna	Madhura
Mallika	<i>Jasminum sambac</i>	Oleaceae	Madhura	Sita	Madhura
Karnikara	<i>Abroma augusta</i>	Sterculiaceae	Madhura, Tikta	Sita	Madhura
Pippala	<i>Ficus religiosa</i>	Moraceae	Madhura	Ushna	Madhura
Udumbara	<i>Ficus glomerata</i> Roxb.	Moraceae	Madhura	Sita	Madhura
Kako udumbara	<i>Ficus hispida</i> Linn.	Moraceae	Kashaya, Madhura	Sita	Madhura
Plaksha	<i>Ficus infectoria</i> Roxb.	Moraceae	Madhura, Kashaya	Sita	Madhura
Sirisha	<i>Albizia lebbek</i> Benth.	Moraceae	Tikta, Kashaya	Sita	Katu
Shala	<i>Shorea robusta</i> Gaertn.f.	Dipterocarpaceae	Kashaya, Tikta	Sheeta	Madhura
Shallaki	<i>Boswellia serrata</i> Roxb.	Burseraceae	Kashaya	Sheeta	Katu
Irmeda	<i>Acacia farnesiana</i> Willd.	Mimosaceae	Madhura	Sheeta	Madhura
Ingudi	<i>Balanites roxburghii</i> Planch.	Simaroubaceae	Kashaya	Ushna	Katu
Jingini	<i>Odina woodier</i> Roxb.	Anacardiaceae	Tikta	Ushna	Madhura
Palasa	<i>Butea frondosa</i> Koen.ex Roxb.	Fabaceae	kasaya	Ushna	Katu
Karira	<i>Capparis aphylla</i> Roth.	Capparidaceae	Katu Tikta	Ushna	Katu

(Contd...)

Table 3: (Continued)

Name	Botanical Name	Family name	Rasa	Virya	Vipaka
<i>Simsapa</i>	<i>Dalbergia sisso</i> Roxb.	<i>Fabaceae</i>	<i>Kashaya</i>	<i>Sheeta</i>	<i>Madhura</i>
<i>Thuni</i>	<i>Cedera toona</i> Roxb.	<i>Meliaceae</i>	<i>Tikta, Madhura</i>	<i>Sheeta</i>	<i>Katu</i>
<i>Dhanwanka</i>	<i>Grewia tilifoelia</i>	<i>Tiliceae</i>	<i>Kasaya</i>	<i>Sita</i>	<i>Katu</i>
<i>Katabi</i>	<i>Albizia procera</i>	<i>Lecythidaceae</i>	<i>Tikta</i>	<i>Ushna</i>	<i>Katu</i>
<i>Panasa</i>	<i>Artocarpus heretophyllus</i> Lam	<i>Moraceae</i>	<i>Kashaya Madhura</i>	<i>Sita</i>	<i>Madhura</i>
<i>Sapthaparna</i>	<i>Alstonia scholaris</i> R.Br.	<i>Apocyanaceae</i>	<i>Tikta Kashaya</i>	<i>Ushna</i>	<i>Katu</i>
<i>Kosamra</i>	<i>Schleichera trijuga</i> Willd.	<i>Sapindaceae</i>	<i>Madhura</i>	<i>Sita</i>	<i>Madhura</i>
<i>Bahuvara</i>	<i>Cordia myxa</i> Roxb.	<i>Boraginaceae</i>			
<i>Sindoor</i>	Red oxide of Lead		<i>Kashaya</i>	<i>Ushna</i>	<i>Katu</i>
<i>Gandhaka</i>	Sulfur		<i>Tikta, Katu</i>	<i>Ushna</i>	<i>Katu</i>
<i>Haritala</i>	Yellow Arsenic		<i>Tikta, Katu</i>	<i>Ushna</i>	<i>Katu</i>
<i>Raktha sali</i>	<i>Oryza sativa</i>	<i>Graminae</i>	<i>Madhura</i>	<i>Sita</i>	<i>Madhura</i>
<i>Godhuma</i>	<i>Triticum aestivum</i>	<i>Poaceae</i>	<i>Madhura</i>	<i>Sita</i>	<i>Madhura</i>
<i>Tila</i>	<i>Sesamum indicum</i> Linn.	<i>Pedaliaceae</i>	<i>Madhura</i>	<i>Ushna</i>	<i>Madhura</i>
<i>Loni</i>	<i>Portulaca quadrifolia</i> Linn.	<i>Portulacaceae</i>	<i>Amla</i>	<i>Ushna</i>	<i>Madhura</i>
<i>Sarjarasa thailam</i>	<i>Vateria indica</i>	<i>Diptercarpaceae</i>	<i>Kashaya</i>	<i>Sita</i>	<i>Katu</i>

Table 4: List of *Dravyas* with bioactive compounds and their pharmacocological activities^[15]

<i>Dravya</i>	Bioactive Compounds	Pharmacological Action
<i>Harithaki</i>	Tannins, chebulic acid, ellagic acid	Laxative, antioxidant, anti-inflammatory
<i>Ardra</i>	Gingerols, shogaols, paradols	Anti-inflammatory, analgesic, antimicrobial
<i>Shathapuspha</i>	Anethole, carvone, limonene	Antispasmodic, carminative, antimicrobial
<i>Vamsalochana</i>	Silica, benzoic acid	Antioxidant, anti-inflammatory
<i>Nakuli</i>	Tannins, glycosides, flavonoids	Antioxidant, antimicrobial, hepatoprotective
<i>Yashtimadhu</i>	Glycyrrhizin, flavonoids, saponins	Antioxidant, anti-inflammatory, demulcent
<i>Kampillaka</i>	Kampillin, isorhamnetin, tannins	Laxative, antimicrobial, anti-inflammatory
<i>Kiratattikta</i>	Swertiamarin, sweroside, mangiferin	Anti-inflammatory, hepatoprotective, antipyretic
<i>Madana</i>	Fatty acids, flavonoids, phenolic compounds	Laxative, emetic, antioxidant
<i>Pashanabheda</i>	Bergenin, beta-sitosterol	Anti-urolithiatic, diuretic, anti-inflammatory
<i>Manjishta</i>	Rubiadin, anthraquinones, flavonoids	Blood purifier, antioxidant, anti-inflammatory
<i>Haridra (Turmeric)</i>	Curcuminoids, volatile oils	Anti-inflammatory, antioxidant, antimicrobial
<i>Daruharidra</i>	Berberine, flavonoids, tannins	Anti-inflammatory, antimicrobial, antipyretic
<i>Bhallataka</i>	Phenolic compounds, anacardic acid	Analgesic, anti-inflammatory, immunomodulatory
<i>Laksha</i>	Tannins, resin acids	Anti-inflammatory, astringent, wound healing
<i>Raktachandana</i>	Santalal, santalic acid, terpenes	Antioxidant, anti-inflammatory
<i>Pathanga</i>	Anthraquinones, flavonoids, saponins	Antimicrobial, antioxidant
<i>Sarala</i>	Resin, oleoresin, pinene	Analgesic, anti-inflammatory, antimicrobial
<i>Sarala Nirya</i>	Resins, diterpenes	Anti-inflammatory, analgesic
<i>Padmaka</i>	Tannins, flavonoids, glycosides	Antioxidant, anti-inflammatory
<i>Rala</i>	Gum resins, essential oils	Antiseptic, anti-inflammatory
<i>Kumkum</i>	Crocin, safranal, carotenoids	Antioxidant, antimicrobial, anti-inflammatory
<i>Nakha</i>	Terpenes, sesquiterpenes	Antiseptic, aromatic, antimicrobial
<i>Veerana</i>	Essential oils, flavonoids	Antimicrobial, anti-inflammatory
<i>Kachura</i>	Terpinene, cineole, zingiberene	Antiseptic, antimicrobial, anti-inflammatory
<i>Kapoor</i>	Camphene, terpinene, cineole	Analgesic, anti-inflammatory, antimicrobial
<i>Kachari</i>	Tannins, alkaloids, phenols	Anti-inflammatory, antioxidant

(Contd...)

Table 4: (Continued)

Dravya	Bioactive Compounds	Pharmacological Action
<i>Parpati</i>	Alkaloids, resins	Antimicrobial, anti-inflammatory
<i>Swetha Arka</i>	Alkaloids, flavonoids	Anti-inflammatory, analgesic, antimicrobial
<i>Raktha Arka</i>	Saponins, alkaloids	Antiseptic, anti-inflammatory
<i>Kalihari</i>	Saponins, glycosides	Anti-inflammatory, analgesic
<i>Karavira</i>	Cardiac glycosides, alkaloids	Antimicrobial, anti-inflammatory
<i>Dhattura</i>	Atropine, scopolamine, hyoscyamine	Analgesic, antispasmodic
<i>Kanchanara</i>	Flavonoids, tannins, alkaloids	Antimicrobial, anti-inflammatory
<i>Shigru (Moringa)</i>	Quercetin, beta-sitosterol, chlorogenic acid	Antioxidant, anti-inflammatory, antimicrobial
<i>Aparajitha</i>	Triterpenes, flavonoids, anthocyanins	Antioxidant, antimicrobial, immunomodulatory
<i>Karanja</i>	Pongamol, karanjin, flavonoids	Antimicrobial, anti-inflammatory, antioxidant
<i>Gunja</i>	Abrin, glycosides	Anti-inflammatory, analgesic
<i>Vamsa</i>	Silica, flavonoids, saponins	Antimicrobial, anti-inflammatory
<i>Patha</i>	Alkaloids, tannins	Anti-inflammatory, analgesic
<i>Indravavuni</i>	Cucurbitacins, flavonoids	Anti-inflammatory, hepatoprotective
<i>Sarapunkha</i>	Flavonoids, glycosides, tannins	Hepatoprotective, antioxidant, anti-inflammatory
<i>Kakajanga</i>	Tannins, phenols, saponins	Analgesic, anti-inflammatory
<i>Meshashringi</i>	Gymnemic acids, saponins, flavonoids	Anti-diabetic, anti-inflammatory, antioxidant
<i>Hamsapadi</i>	Flavonoids, saponins	Antimicrobial, anti-inflammatory
<i>Bandha</i>	Tannins, alkaloids	Anti-inflammatory, antimicrobial
<i>Vandhyakarkotaki</i>	Saponins, glycosides	Anti-inflammatory, analgesic
<i>Jalapippali</i>	Alkaloids, glycosides	Analgesic, antimicrobial
<i>Nagadhamani</i>	Alkaloids, phenols, glycosides	Antimicrobial, anti-inflammatory
<i>Sarpakshi</i>	Flavonoids, saponins	Antioxidant, antimicrobial
<i>Yuthika</i>	Essential oils, flavonoids	Antiseptic, antimicrobial
<i>Mallika</i>	Terpenes, flavonoids, alkaloids	Antimicrobial, antioxidant
<i>Karnikara</i>	Flavonoids, tannins, saponins	Anti-inflammatory, antioxidant
<i>Pippala</i>	Piperine, alkaloids, lignans	Antimicrobial, anti-inflammatory
<i>Udumbara</i>	Tannins, glycosides, saponins	Antioxidant, anti-inflammatory
<i>Kako udumbara</i>	Tannins, flavonoids, saponins	Antioxidant, anti-inflammatory
<i>Plaksha</i>	Flavonoids, tannins, resins	Antioxidant, antimicrobial
<i>Sirisha</i>	Flavonoids, tannins, saponins	Antioxidant, antimicrobial, anti-inflammatory
<i>Shala</i>	Tannins, resin, triterpenes	Antimicrobial, anti-inflammatory
<i>Khadira</i>	Catechins, flavonoids, tannins	Antimicrobial, antioxidant
<i>Irimeda</i>	Saponins, tannins	Antioxidant, antimicrobial
<i>Ingudi</i>	Tannins, saponins	Antimicrobial, anti-inflammatory
<i>Jingini</i>	Flavonoids, alkaloids	Antioxidant, antimicrobial
<i>Karira</i>	Alkaloids, glycosides	Anti-inflammatory, antimicrobial
<i>Simsapa</i>	Tannins, flavonoids	Anti-inflammatory, antimicrobial
<i>Thuni</i>	Tannins, flavonoids	Antioxidant, antimicrobial
<i>Katabi</i>	Tannins, alkaloids	Anti-inflammatory, antimicrobial
<i>Sapthaparna</i>	Alkaloids, terpenoids, flavonoids	Antimicrobial, anti-inflammatory
<i>Kosamra</i>	Alkaloids, tannins	Antioxidant, antimicrobial
<i>Sindoora</i>	Sulfur compounds	Antimicrobial, anti-inflammatory
<i>Gandhaka</i>	Sulfur compounds	Antimicrobial, anti-inflammatory
<i>Haritala</i>	Arsenic compounds, alkaloids	Antiseptic, antimicrobial
<i>Raktha sali</i>	Flavonoids, anthocyanins	Antioxidant, anti-inflammatory
<i>Godhuma</i>	Carotenoids, vitamin E, polyphenols	Antioxidant, anti-inflammatory

(Contd...)

Table 4: (Continued)

Dravya	Bioactive Compounds	Pharmacological Action
<i>Tila</i>	Sesamin, sesamol, lignans	Antioxidant, anti-inflammatory
<i>Loni</i>	Tannins, saponins	Antioxidant, anti-inflammatory
<i>Nalasakha</i>	Flavonoids, tannins	Analgesic, antimicrobial
<i>Sarjarasa thailam</i>	Resins, essential oils, terpenes	Anti-inflammatory, antimicrobial