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Review Article

ANTI-INFLAMMATORY POTENTIAL OF *PUNARNAVADI CHURNA* - A POLYHERBAL FORMULATION

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ABSTRACT

Punarnavadi Churna is a polyherbal Ayurvedic medicine traditionally used in the treatment of abdominal diseases *(Udar roga),* oedema *(Shotha)* and ulcer *(Vran roga)*. This study investigates the potential use of *Punarnavadi Churna* in managing inflammation through its key herbal ingredients, which include *Punarnava* (*Boerhavia diffusa*), *Haridra* (*Curcuma longa*), *Daruhaldi* (*Berberis aristata*), *Devdaru* (*Cedrus deodara*), *Haritaki* (*Terminalia chebula*), and *Kantakari* (*Solanum surratense*). These herbs are known for their potent anti-inflammatory properties due to the presence of active compounds that target inflammatory pathways. The primary anti-inflammatory mechanism of *Punarnavadi Churna* is its ability to inhibit pro-inflammatory cytokines and reduce oxidative stress, both of which play a significant role in inflammatory conditions. For example, *Punarnava* (*Boerhavia diffusa*) is known for its diuretic and anti-inflammatory effects, which helps to reduce inflammation and fluid retention. *Haridra* (*Curcuma longa*) contains curcumin, a powerful anti-inflammatory and antioxidant potential that has been studied a lot for its ability to reduce chronic inflammation. Other herbs such as *Daruhaldi* (*Barberis aristata*) and *Devdaru* (*Cedrus deodara*) also contribute to the ability of pain and inflammation. Research, which includes animal studies and clinical observations, has verified that *Punarnavadi Churna* is powerful in dealing with inflammatory conditions like arthritis and edema. The synergistic potential of these herbs complements their healing advantages, making *Punarnavadi Churna* a promising alternative in integrative fitness practices. Its ability to address multiple pathways of inflammation makes it a valuable natural treatment, supporting overall health and wellness through holistic, plant-based remedies.

INTRODUCTION

The inflammatory process may be defined as a sequence of events that occurs in response to noxious stimuli, infection, trauma or injury in the living tissues.[1] The inflammation is initiated by a series of events which includes enzyme activation, fluid extravasations, mediator release, cell migration, tissue breakdown, and repair processes.[2] The inflammation causes liberation of white blood cells which is a protective mechanism induced by the body towards injury. These white blood cells synthesize several biomolecules and release them after injury leading to swelling, redness, heat, pain and loss of function.[3] Prostaglandins an important biomolecule, which causes an influx of inflammatory mediators due to their increased biosynthesis during inflammation.[4] Inflammation has been indicated in several diseases including cancer, rheumatoid arthritis, psoriasis and anti-inflammatory bowel disease.[5] Herbal formulations for the treatment of inflammatory diseases is well documented in Ayurveda, the medicinal system of ancient India.[6] According to a survey a major portion of world population (about 80%) especially in developing countries depends on herbal medicines.[7] Natural medicines are cheaper, easily available and show no or very less side effects in the treatment of inflammation.[8] During the screening

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out of many polyherbal formulation mention in Ayurvedic text *Punarnavadi churna* is taken for study to establish its anti-inflammatory potential.[9]

Ingredints of *Punarnavadi Churna*

Table 1: Ingredients of *Punarnavadi churna*

S.No.	Ingredients	Botanical Name	Family Name	Part use
1.	*Punarnava*	*Boerhavia diffusa* Linn.	Nyctaginaceae	Root
2.	*Devdaru*	*Cedrus deodara* (Roxb.) Loud.	Pinaceae	Heart wood
3.	*Haritaki*	*Terminalia chebula* Retz.	Combretaceae	Fruit
4.	*Patha*	*Cissampelos pareira* Linn.	Cessalpinaceae	Root
5.	*Bilva*	*Agele marmelos* Corr.	Rutaceae	Root bark
6.	*Gokshur*	*Tribulus terristris* Linn.	Zygophyllaceae	Fruit
7.	*Kantakari*	*Solanum surratense* Burm.	Solanaceae	Whole plant
8.	*Brihati*	*Solanum indicum* Linn	Solanaceae	Root
9.	*Haldi*	*Curcuma longa* Linn.	Zingiberaceae	Rhizome
10.	*Daruhaldi*	*Berberis aristata* DC.	Berberidaceae	Stem
11.	*Pippali*	*Piper longum* Linn.	Piperaceae	Fruit
12.	*Pippalimoola*	*Piper longum* Linn.	Piperaceae	Root
13.	*Chitraka*	*Plambago zeylenica* Linn.	Plumbaginiaceae	Root
14.	*Vasa*	*Adhatoda vasica* Nees	Acanthaceae	Root

Pharmacological Properties of Ingredients

Table 2: Ingredients of *Punarnavadi churna* and their pharmacological and therapeutic properties

S.No.	Name of the drugs	Ayurvedic properties & actions	Pharmacological properties
1	*Punarnava*	***Guna:*** *Laghu, Ruksha, Sita* ***Rasa:*** *Madhura, Tikta, Kasaya, Katu* ***Virya:*** *Ushna* ***Vipaka:*** *Katu* ***Karma:*** *Kaphagna, Pittahara, Anulomana, Shothahara, Mutral, Dipana, Rechana, Kushthaghna [10]*	Anti-inflammatory [11,12,13,14,15]
2	Devdaru	***Guna:*** *Laghu, Snigdha* ***Rasa:*** *Tikta* ***Virya:*** *Ushna* ***Vipaka:*** *Katu* ***Karma:*** *Kaphahara, Vatahara, Dustavranashodhana[16]*	Anti-inflammatory[17,18,19,20]
3	Haritaki	***Guna:*** *Laghu, Ruksha* ***Rasa:*** *Pancharasa* (except salt) *Kasayapradhan* ***Virya:*** *Ushna* ***Vipaka:*** *Madhura* ***Prabhav:*** *Tridoshahara* ***Karma:*** *Dipana, Medhya, Hridya, Rasayana, Anulomana[21]*	Anti-inflammatory[22,23,24,25]

4	Patha	***Guna:*** *Laghu, Tikshna* ***Rasa:*** *Tikta* ***Virya:*** *Ushna* ***Vipaka:*** *Katu* ***Karma:*** *Raktashodhaka, Grahni, Tridoshasamak, Stanyashodhan, Vishagna[26]*	Anti-inflammatory[27-30]
5	Bilva	***Guna:*** *Laghu* ***Rasa:*** *Madhura* ***Virya:*** *Sheeta* ***Vipaka:*** *Madhur* ***Karma:****Pittahara, Agnimanda, Krimihara, Mutral, Shothaghna* **Therapeutic uses:** *Svasa, Kasa, Mutrakricchra, Ashmari, Prameha, Sularoga, Shothahara, Arsha[31]*	Anti-inflammatory[32-40]
6	Gokshura	***Guna:*** *Snigdha, Guru* ***Rasa:*** *Madhura* ***Virya:*** *Sheeta* ***Vipaka:*** *Madhura* ***Karma:*** *Ashmarihara, Vastishodhana, Brmhana, Vatanut, Vrisya, Shothaghna* **Therapeutic uses:** *Sularoga, Arsa, Svasa, Daurbalya, Hridroga, Kasa, Mutrakricchra, Ashmari, Prameha, Shothahara.[41]*	Anti-inflammatory[42-46]
7	Kantakari	***Guna:*** *Laghu, Ruksha, Tikshna* ***Rasa:*** *Katu, Tikta* ***Virya:*** *Ushna* ***Vipaka:*** *Katu* ***Karma:*** *Shothahara, Dipana, Pachana, Amdoshanasak, Kanthya* **Therapeutic uses:** *Aruchihara, Jwarhara, Vatahara, Amadoshahara, Shwasajit, Pinasahara[47]*	Anti-inflammatory[48-52]
8	Brihati	***Guna:*** *Laghu* ***Rasa:*** *Katu, Tikta* ***Virya:*** *Ushna* ***Vipaka:*** *Katu* ***Karma:*** *Dipana, Hridya, Kaphahara, Vatahara, Pachana, Grahni* **Therapeutic uses:** *Shula, Swasa, Jwara, Agnimanda, Hridyaroga[53]*	Anti-inflammatory[54-57]
9	Haridra	***Guna:*** *Laghu, Ruksha* ***Rasa:*** *Tikta, Katu* ***Virya:*** *Ushna* ***Vipaka:*** *Katu* ***Karma:*** *Kaphahara, Krimighna, Kandughna, Vranya, Vishaghna, Pramehahara* **Therapeutic uses:** *Panduhara, Prameha, Vrana, Pinasa, Kushta, Shotha, Lekhan, Kaphavatashamak[58]*	Anti-inflammatory [59-64]

10	Daruhaldi	***Guna:*** *Laghu, Ruksha* ***Rasa:*** *Tikta, Kasaya* ***Virya:*** *Ushna* ***Vipaka:*** *Katu* ***Karma:*** *Stanyashodhana, Pachana, Krimi, Grahi, Arshoghna* **Therapeutic uses:** *Shothahara, Vedana sthapan,Vrana shodhana, Deepan, Pitta sarak, Grahi, Rakta shodhaka, Garbhashayashothahara, Stravahara*[65]	Anti-inflammatory[66-68]
11	Pippali	***Guna:*** *Laghu, Snigdha* ***Rasa:*** *Madhur, Katu, Tikta* ***Virya:*** *Sheeta* ***Vipaka:*** *Madhura* ***Karma:*** *Deepana, Tridoshahara, Rechana, Rasayana, Hridya, Ruchya*[69]	Anti-inflammatory[70, 71]
12	Pippalimoola	***Guna:*** *Laghu, Ruksha* ***Rasa:*** *Katu* ***Vipaka:*** *Katu* ***Virya:*** *Ushna* ***Karma:*** *Dipana, Rechana, Pachana, Kaphahara, Vatanulomana, Vatahara*[72]	Anti-inflammatory[73, 74]
13	Chitraka	***Guna:*** *Laghu, Ruksha, Tikshna* ***Rasa:*** *Katu* ***Vipaka:*** *Katu* ***Virya:*** *Usna* ***Karma:*** *Kaphavatahara, Grahi, Sothahar, Arshahar, Shulahara, Deepan, Pachan*[75]	Anti-inflammatory[76, 77,78]
14	Vasa	***Guna:*** *Ruksha, Laghu* ***Rasa:*** *Tikta, Kasaya* ***Virya:*** *Sheeta* ***Vipaka:*** *Katu* ***Karma:*** *Hridya, Kaphahara, Pittahara, Raktashodhaka, Vatarakta*[79]	Anti-inflammatory[80,81]

DISCUSSION

Punarnavadi Churna is a traditional Ayurvedic herbal blend commonly used to treat various inflammatory conditions. This review highlights its anti-inflammatory effects, showing that its key ingredients, such as *Punarnava (Boerhavia diffusa), Haridra (Curcuma longa), Kantakari (Solanum surratense),* and others, work together to offer substantial medicinal benefits. Each herb in this formulation provides unique bioactive compounds that help reduce inflammation through various mechanisms, working in harmony to enhance the overall therapeutic effect.

CONCLUSION

Punarnavadi Churna, as a polyherbal formulation, demonstrates significant anti-inflammatory potential through its synergistic combination of herbs such as *Punarnava*, *Haldi* and *Kantakari*. The active compounds within these ingredients effectively inhibit pro-inflammatory cytokines and oxidative stress, contributing to its therapeutic efficacy. Evidence from traditional use, animal studies, and preliminary clinical observations supports its application in managing various inflammatory conditions, including arthritis and edema. While the formulation shows promise, further rigorous clinical trials are necessary to establish its safety, optimal dosing, and broader applicability. Overall, *Punarnavadi Churna* presents a valuable option in integrative healthcare, aligning with the growing interest in natural and holistic approaches to inflammation management.

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