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Mridweekadi Churna - A Drug Review

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ABSTRACT

Mridweekadi churna is an Ayurvedic preparation commonly used in clinical practice. It is described in Charak samhita for treating diseases of kantha (throat region).This article reviews the chemical constituents and the experiment based pharmacodynamics of components of Mridweekadi churna.

KEYWORDS

Mridweekadi churna, Kanthagata roga, Vitis vinifera, Ayurvedic drug for tonsillitis

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INTRODUCTION

The use of herbal medicines is on the rise as they bear less chances of side effects and toxity. They are also available readily at a lower cost. One of the commonly used type of formulation in Ayurveda is 'churna'. It is a powder prepared by a single drug or a combination of drugs.

Charak samhita is considered a benchmark of medicine in Ayurveda. The treaty describes `*Mridweeka churna*` as a treatment option in *kanthagata Roga*[1].

MATERIALS AND METHODS

Research articles from IJDDR, PMC, IJRAP, Ayurvedic text books were considered, reviewed with key words like *Mridweeka, Katuka, Shunthi,* chemical constituents of study drugs, pharmacological properties, in vivo study, in vitro study etc.

Table 1 Ingredients of Mridweekadi Churna[2]

CONTENT	BOTNICAL NAME	FAMILY	RASA	GUNA	*VIRYA*	*VIPAKA*
Mridweeka	*Vitis vinifera* Linn.	Vitaceae	*Madhur*	*Snigdha,Guru Mridu*	*Sheeta*	*Madhur*
Katuka	*Picrorhiza kurroa* Royal ex benth	Scrophulariaceae	*Tikta*	*Laghu,Ruksha*	*Sheeta*	*Katu*
Shunthi	*Zingiber officinale Rocs.*	Zingiberaceae	*Katu*	*Laghu,Snigdha*	*Ushna*	*Madhur*
Pippali	*Pipper longum* Linn.	Piperaceae	*Katu*	*Laghu,Snigdha, Teekshana*	*Anushan a Sheeta*	*Madhur*
Marich	*Pipper nigrum* Linn	Piperaceae	*Katu*	*Laghu,Ruksha*	*Ushna*	*Katu*
Darvitwak	*Berberis aristata* Dc	Berberidaceae	*Tikta*	*Ruksha*	*Ushna*	*Katu*
Amalaki	*Emblica officinalis*	Euphorbiaceae	*Panchras*	*Guru,Ruksha*	*Sheeta*	*Madhur*
Haritaki	*Terminalia chebula* Retz.	Combretaceae	*Panchras*	*Laghu,Ruksha*	*Ushna*	*Madhur*
Vibhitak	*Terminalia bellirica* Roxb.	Combretaceae	*Kashaya*	*Laghu,Ruksha*	*Ushna*	*Madhur*
Nagarmotha	*Cyperus rotundus* Linn.	Cyperaceae	*Tikta,Katu Kashaya*	*Laghu,Rukhsa*	*Sheeta*	*Katu*

PROPERTIES OF INDIVIDUAL DRUGS-The properties of individual drugs of the formulation, *Mridweekadi churna* are as follows (Table No. 1)-

1. **MRIDWEEKA**- It is a dried form of grapes, cultivated mostly in north western India.

Morphology- It is a large deciduous tendril climber. Leaves are simple, 3-5 lobbed, orbicular-cordate, irregularly toothed glabrous above, tomentose beneath. Flowers are long peduncled, leaf- opposed cymes, greenish or white.Fruits (berry) are globose, ovoid or oblong, varying in size,

pale green or purple with 2-4 seeds which are oblong- obovoid, brown.

Chemical constituents-

- Fruits-fructose, galactose, glucose and amino acids like alanine, arginine and proline.
- Shoot- linoleic, oleic, linolenic, palmitic acids.
- Leaves- Isochlorogenic acid, isomer of quercitrin.

Pharmacological action- antioxidant, antifungal, antiulcer, wound healing and antibacterial activity[3].

Pharmacodynamical study[4]-

❖ A chemical resveratrol present in *Vitis vinifera* has strong antioxidant properties. It protects skin from UVB exposure mediated damages, which was seen in the skin of hairless mice.

❖ It is also proved to have anti-aging and anti cancer effect.

2. **KATUKA-** Also known as kutki, distributed in the north-west of India.

Morphology- A trailing hairy herb, zig-zag, elongate, cripping rhizome, 2-8 cm long, grayish-brown giving off- shoots at joints. The leaves are simple and alternate. Flowers are dimorphic, bluish-white or pale blue- purple. Flowering and fruiting June-September.

Chemical constituents-

Root- D-mannitol, kutkiol, 4-hydroxy-3-methoxyacetophenone (apocyanin), vanillic acid.

- Rhizome- kutkin, apocynin, alkanol.
- Plant- apocynin, picroside, acetophenon.

Pharmacological activities- antipyretic, anti-inflammatory, antiviral, antibacterial, antioxidant, antimicrobial, immunomodulating[5].

Pharmacodynamical study-

❖ Picrorhiza kurroa has shown reduction in liver lipid content, when it is used for liver injury in rats[6].

❖ Antioxidant and antidiabetic property was also seen in the root of Picrorhiza kurroa[7].

3. **SHUNTHI-** Shunthi (*Zingiber officinale*) commonly known as ginger, is a spice consumed worldwide for culinary and medicinal purposes.

Morphology- A herbaceous perennial, can grow up to a height of 90 cm, leaves sessile. Flowers greenish with a small dark purple lip, fruits oblong capsules.

Chemical constituents-

- Essential oil from rhizomes- α-terpinene, α-terpineol, geranial, geraniol, geranyl acetate.
- Root- Dehydrogingerdione, gingerdione and gingerol.
- Arial parts and tuber- Aspartic acid, threonine, serine, glycine, cysteine, valine

and leucine.

Pharmacological activity- Anti-inflammatory, antiulcer, antipyretic, antioxidant, antibacterial, antifungal[8].

Pharmacodynamical study[9]-

❖ Manju and Nalini in her study observed that ginger supplementation can suppress colon carcinogenesis by activating various enzymes.

❖ In a study, when 2 g of ginger supplementation given on the patients of muscle pain, it resulted in satisfactory relief in muscle pain.

4. PIPPALI- Cultivated in various areas of tropical Asia and hotter region of India.

Morphology- A slender, creeping shrub, leaves ovate, cordate, spike cylindrical, pedunculate, fruit ovoid, yellowish orange.

Chemical constituents-

- Stem and roots- alkaloid piperlongumine and piperlonguminine.
- Oil from dried fruit- n-hexadecane, α-thujene, terpinolene.
- Root- Piperine, triacontane,dihydro-stigmasterol, reducing sugars.
- Stem and fruit- Major alkaloid piperine and sesamin.
- Fruit- piperine, N-isobutyldeca-trans 2-trans-4-dienamide.
- **Pharmacological activity-** Antibacterial, anti-inflammatory, cough suppressor immunostimulatory, anti ulcerogenic[10].

Pharmacodynamical study[11]-

❖ When *pippali rasayana* was tested on *Giardia lamblia* infected mice, it produces significant activation of macrophages shown by increased phagocytic activity.

❖ Isolated piperine from long pepper shows work as a central stimulator in mice.

5. MARICH- It is an important plant of family piperaceace and mostly used spices, known as " The king of spices".

Morphology- Climbing shrub, leaves simple, dark green, fruits ovoid, seeds globose, testa thin.

Chemical constituents-

- Stem-piperine, hentriacontan-16-one, β-sitosterol.
- Fruit- piperonal
- Plant- serine, threonine, ascorbic acid, carotene.

Pharmacological activity- Antioxidant, sedative, analgesic, antipyretic, anti-inflammatory, antifungal, antiulcer[12].

Pharmacodynamical study[13]-

❖ A study proved that piperine inhibits free radicals which suggest its protective effect against oxidative damage.

❖ The antitumor activity of piper nigrum was seen in different experimental models.

6. DARVITWAK-

Darvitwak *Berberis aristata* DC from family *Berberidaceae* mostly called as "*Daruhaldi*" and "*Chitra*" in Hindi. It is an important medicinal herb distributed in Himalaya region of India.

Morphology- It is characterized by an erect spiny shrub, height ranging between 2 to 3m. The leaves are simple, pinnate venation, flowering season starts in march.

Chemical constituents-

- Contains alkaloid protoberberine and bisisoquinoline.
- Root – alkaloid berbamine, berberine.

Pharmacological activity-Antimicrobial, anti-inflammatory, antioxidant[14].

Pharmacodynamical study[15]-

❖ Aqueous extracts of *Berberis aristata* root showed significant anti-inflammatory activity in rats when it is compared with diclofenac sodium.

❖ The stem bark of B.aristata reduces blood glucose level in diabetic rats which suggest its anti-diabetic activity.

7. AMALAKI- Emblica officinalis (Amla) is a herb used for promoting longetivity.

Morphology- A deciduous tree, leaves subsessile, flowers greenish- yellow, fruits fleshy globose, pale yellow.

Chemical constituents-

- Fruits- Nicotinic acid, carotene, vitamin C, D-glucose, riboflavin.
- Seed oil- fatty acids.
- Bark- leucodelphinidin, fructose tine.
- Root- ellagic acid.
- Leaves and fruits- phyllantidine and phyllanmatory.

Pharmacological activity- antimicrobial, antioxidant, antibacterial, antiulcer[16].

Pharmacodynamical study-

❖ It has been reported that tannins of *Emblica officinalis* emblicanin A and B have good result against oxygen radical[17].

❖ The antioxidants activity of *Amla* is examined in rats[18].

8. HARITAKI- *Terminalia chebula*, also known as Black Myrobalan is an important medicinal plant.

Morphology- A tree, 15-24m high, leaves ovate or elliptic, flowers yellowish white, drupes ellipsoidal, obovoid, yellow to orange brown, seeds hard and pale yellow.

Chemical constituents-

- Fruits- chebulinic, tannic acid, vitamin C.
- Fruit kernels- Linoleic, oleic, stearic and palmitic acid.
- Flowers- chebulin.
- Leaves- 2-α hydroxymicromeric acid, maslinic acid.

Pharmacological activity- Antimicrobial, antifungal, antibacterial[19].

Pharmacodynamical study[20]-

❖ Its fruit contains a phenolic compound which shows free radical scavenging activity.

❖ It also showed antiamoebic activity against E. histolytica.

9. VIBHITAK- *Vibhitak* also called Belliric Myrobalan, and is known as *Vibhitaki* in Sanskrit, which means 'fearless'.

Morphology- A tree, upto 40 m high, leaves petiolate, flowers greenish yellow, fruits globular.

Chemical constituents-

- Seed coat- gallic acid.
- Fruits- β- sitosterol, belliricanin.
- Seed- protein, oxalic acid.
- Bark- oxalic, tannins.
- Kernel and its oil- linoleic acid.

Pharmacological activity- Antifungal, antihistaminic, antibacterial[21].

Pharmacodynamical study[22]-

❖ Antipyretic activity of *Terminalia bellirica* fruits was studied in rats which show significant reduction in body temperature.

Terminalia bellirica shows anti-ulcer activity in wistar rats.

~~Samhita its benefits have been mentioned.~~

10. NAGARMOTHA-It is also known as nut grass. In ayurvedic text of Charak Samhita its benefits have been mentioned.

Morphology-It is a perennial herb, 10-75cm high, stolons 10-20cm long, bearing hard, black, fragrant tubers. Inflorescence a compound umbel. Spikelets 0.8- 1.0×0.1cm linear, brown, nuts about 15mm long, broadly obovoid, greenish- black.

Chemical constituents-

- Rhizomes- β- sitosterol, 4α, 5α-oxidoeudesm-11- en-3α-ol.
- Essential oil from tubers- pinene, cineol, alcohol-isocyperol.
- Fatty oil- linolenic, linolic, oleic acid and glycerol.
- Leaves- luteolin and aureusidin.

Pharmacological activity- Anti-inflammatory, antipyretic, antimicrobial[23].

Pharmacodynamical study[24]-

❖ Anti-inflammatory activity of C. *rotundus* tuber was examined in adult albino rats, which showed significant result.

❖ Anti ulcer activity of C. *rotundus* tuber was studied on guinea pigs and rats, it was found that it showed significant effects.

DISCUSSION

Mridweekadi churna has nine ingredients in which major ingredients have *Katu, Tikta* and *Kashaya ras, laghu, rukha guna, Ushna virya* and *katu vipaka* and have anti-inflammatory, anti-pyretic, antimicrobial and antifungal property. Hence, this drug

can provide protection against diseases of oral cavity.

CONCLUSION

From the above properties of ingredients of the *Mridweekadi churna*, we can conclude that we can use *Mridweekadi churna* in the treatment of oral cavity disease. The constituents of *Mridweekadi Churna* that is are important potential medicine in Ayurveda. It can be used without any side effect.

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