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REVIEW ARTICLE

A REVIEW ON RASAYANA EFFECT OF MRDVIKADI LEHYA WITH ANALYTICAL EVALUATION

Raji. R.S., Abhaya Kumar Mishra., Arun Mohanan., Ramesh.N.V and Bri.Sailaja

Department of Rasashastra and Bhaishajya Kalpana (Medicinal chemistry and Pharmacy), Amrita School of Ayurveda, Amritapuri, Amrita Vishwa Vidyapeetham, India

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ABSTRACT

Mrdvikadi lehya is a special type of Ayurvedic formulation mainly used for respiratory tract infections. Infections are common due to the easy spread of large variety of organisms. It is a major challenge to the health system in developing countries due to high morbidity and mortality rate. Most of the infections occur due to weak immunity in peoples. A healthy immune system can defend against disease causing microorganisms. The Immunity and strength can be enhanced by the use of immunomodulators. The Ayurvedic system of medicine details the concept of immunomodulation by the term Rasayana. Mrdvikadi lehya contains Mrdiveeka (Draksha) and Pippali which have Rasayana property (immunomodulatory effect).

INTRODUCTION

Ayurveda is a life science deals with every aspects of human life. Hundreds of millions of people around the world suffer from preventable respiratory diseases. The human body's immune system is the best defense against diseases. Immunity and strength can be enhanced by the use of immunomodulator. It is the substance, which can influence any constituent or function of the immune system in a specific or nonspecific manner including either innate or adaptive arms of the immune response. The Ayurvedic system of medicine details the concept of immunomodulation by the term Rasayana. The use of drugs or formulations for improving the overall resistance of body against common infections and pathogens has been a guiding principle of Ayurveda. Such drugs possessing immunomodulatory effects are referred to as Rasayana in Ayurvedic classics. Mrdvikadi lehya is an Ayurvedic medicament mentioned in Ashtangahrudaya kasa chikitsa [1]. It contains Pippali and Draksha have been reported to possess immunomodulatory, antioxidant, antimicrobial, antifungal activities etc are included under Rasayana in Ayurveda. Ayurveda advocate the use of quality control parameters to make sure that the prepared medicine adhere the standard mentioned in Ayurveda.

MATERIALS AND METHODS

Mrdveeka (Draksha) is *Vitis vinifera* belongs to vitaceae family has been widely used in traditional Indian medical system. Ayurveda mentioned that fruits having madhura, kashaya rasa, snigdha - guru guna, sheeta virya, rechaka in action. It's useful in conditions of vata and pitta, Daha (burning sensation), Pandu (anemia), Vrshya (aphrodisiac), Rasayana (rejuvenating), haematinic, diuretic, nervine tonic, and has anti spasmodic property[2]. They are rich in sugars, flavonoids, anthocyanins, proanthocyanins, organic acids, tannins, mineral salts, and vitamins. Many studies reveal that it contains resveratrol and polyphenol has antioxidant properties. The pharmacological actions of *Vitis vinifera* has shown presence of anti oxidant , anti fungal, anti ulcer, hepato protective ,wound healing, cardio protective, breast cancer suppressor, angiotensin-converting enzyme, anti bacterial activity. So *Vitis vinifera* is a bio active compound having several pharmacological activities[3].

Pippali (*Piper longum*) belongs to Piperaceae family has been shown to a wide range of therapeutic utilities in the traditional Indian medicines. It is used since ancient time for therapeutic purposes. According to Acharya Vagbatta it's having katu rasa, snigdha- laghu guna, madhura vipaka and also having Rasayana (rejuvenating) and Vrshya (aphrodisiac) properties. It's useful to cure the respiratory infections[4]. The principle constituents of pippali include alkaloids–piperine, methylpiperine, pipernonaline, lignans, esters, volatile oils, organic acids. The modern researches have proved that pippali has many pharmacological activities like Antibacterial, Anti-inflammatory, Anti oxidant, immunomodulatory, CNS stimulant, Hepatoprotective etc[5].

Honey is a natural product that has been widely used for therapeutic purposes of its medicinal effects. It has been reported to contain about 200 substances including sugar, water, aminoacids, vitamins, minerals, enzymes etc. Many researchers have proved that it has been antioxidant property, anti inflammatory property, antimicrobial property, wound healing property, acts as food preservative etc.[6]

According to Ayurveda, Rasayana drugs and formulations provide longevity, memory, intelligence, freedom from disorders, youthful age, brilliance etc is a broad term and modern terms as Immuno-modulatory, Anti-oxidant, Hepato protective, Anti-inflammatory, Cardio protective activities. So both drugs have been reported to possess all these pharmacological activities and they act as aphrodisiac, strengthen the reproductive organs as well as immune system. The use of Mrdvikadi lehya helps to boost the immunity and strength of body.

Collection of plant material

The raw materials (Table no.1) are collected from authenticated sources of Amrita School of Ayurveda

Preparation of Drug

Mrdvikadi lehya was prepared with the reference of Ayurvedic Pharmacopeia of India[7] in prescribed quantity at Department of RS & BK, Amrita school of Ayurveda. Mrdveeka was washed with fresh water until it becomes clean and then dried. The seeds were removed and crushed into fine paste. The Pippali and Sarkara were powdered separately and triturate to fine paste using honey until it becomes lehya (Semisoild) form.

Table 1 Ingredients of Mrdvikadi lehya

Sl.No	Drugs	Botanical Name	Family	Parts Used	Quantity
1	Mrdvika	Vitis vinifera	Vitaceae	Fruit	50 in number
2	Pippali	Piper longum	Piperaceae	Fruit	30 in number
3	Sarkara	Sugar			48 g
4	Madhu	Honey			Q.s

Analytical evaluation

Organoleptic characters
Colour : Dark brown
Odour : Characteristic smell of lehya
Taste : Sweet – Pungent
State : Semi solid consistency

Physico Chemical Parameters

Loss on drying at 110^0c - 2.31%
p^H (5% aqueous solution) - 4.5%
Total Ash

About 2g of sample was exactly weighed in a pre-ignited, cooled, tarred silica crucible and kept inside the muffle furnace. The mains of the instrument were set at 550^0C. The sample was then heated at550^0C for 2 hours. The power was switched off and the instrument was allowed to cool naturally. The crucible was then transferred to a desiccator containing dry silica gel with the help of tongs. The crucible was then weighed at room temperature and the difference in weights was noted.

$$\% \text{ Ash} = \frac{\text{Weight of ash obtained}}{\text{Weight of sample taken}} \times 100$$

$$\% \text{ Ash} = \frac{0.018}{2.0875} \times 100 = 0.86\%$$

Acid insoluble Ash

To the crucible containing the total ash, about 25 ml of dilute hydrochloric acid was added, covered with watch glass and boiled gently for 5 minutes. The watch glass was rinsed with 5ml hot water and added to the crucible. The insoluble matter was collected on ash less filter paper. The paper was washed with hot water to remove the acidity. The insoluble matter along with the filter paper was then transferred to the crucible and ignited to constant weight in muffle furnace. The crucible was then allowed to cool on its own, transferred to desiccators and weighed at room temperature.

$$\% \text{ Acid insoluble ash} = \frac{\text{Weight of acid insoluble ash}}{\text{Weight of sample taken}} \times 100$$

$$\% \text{ Acid insoluble ash} = \frac{0.0026}{2.0875} \times 100 = 0.124\%$$

Alcohol soluble extractive

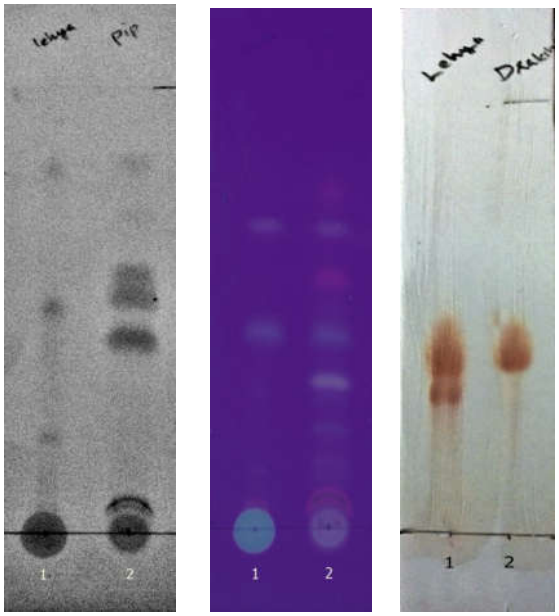
About 5 g of accurately weighed sample was taken in 250 ml glass conical flask.100 ml of ethanol (95%) was measured in a measuring cylinder and transferred in to conical flask containing the sample. The mouth of conical flask was then plugged with cotton and shaken at every ½ an hour intervals for the first 6 hours. The flask was then kept aside and shaken once after 18 hours. The solvent was then carefully filtered through a whattman filter paper.1/4^{th} of the filtrate was transferred into a pre-tarred evaporating dish and evaporated to dryness on a water bath at 75^0C . Final traces were removed by drying the evaporating dish in hot air oven till constant weight.

$$\% \text{ Alcohol soluble extractive} = \frac{\text{Weight of extract}}{\text{Weight of sample taken}} \times 100$$

$$\% \text{ Alcohol soluble extractive} = \frac{1.3102}{2.4681} \times 100 = 53\%$$

TLC

	Solvent System	Conditions	No.of Spots	R_f
Plate A	Toluene : Ethyl acetate 7 : 3	Short UV	3	0.21,0.53,0.78
Plate B		Long UV	3	0.14, 0.34, 0.64
Plate C	Butanol : Acetic acid 6 : 4	Derivatization with Anisaldehyde sulphuric acid	2	0.39 , 0.49



A B C

Plate	Spot 1	Spot 2

A- Alcoholic extract of lehyaAlcoholic extract of pippali
B- Alcoholic extract of lehyaAlcoholic extract of pippali
C- Alcoholic extract of lehyaAlcoholic extract of draksha

Table 2 Analytical values of API

Sl.No	Physico- chemical parameters	API Values
1.	Total Ash	Not more than 1%
2.	Acid- insoluble ash	Not more than 0.2%
3.	Alcohol –soluble extractive	Not less than 30%
4.	p^H	4 to 4.3%

Table 3 Analytical results

Sl.No	Physico- chemical parameters	Results (%)
1.	LOD	2.31
2.	Ph	4.5
3.	Total Ash	0.86
4.	Acid –insoluble ash	0.124
5.	Alcohol- soluble extractive	53

RESULT AND DISCUSSION

The results of Mrdvikadi lehya in API are given in table no.2.The prepared Mrdvikadi lehya is dark brown, characteristic odour, sweet- pungent taste & semisolid consistency as same as that of API standards. Table no.3narrated the values for physico - chemical parameters for Mrdvikadi lehya shows that total ash is 0.86%, acid insoluble ash is 0.12%, and alcohol soluble extractive is 53%. The amount of moisture content and volatile matter present in the lehya (LOD) is 2.31 %. It should be minimum to prevent microbial contamination and growth of fungi or insects. In TLC – The alcoholic extract of pippali and draksha shows some spots of same R_f value of lehya. It indicates bio-constituents present in pippali and draksha are present in lehya also.

CONCLUSION

Draksha and Pippali are the major ingredients of Mrdvikadi lehya. The combination of Draksha, Pippali, Sarkara and Madhu in the prescribed quantity as a lehya, is very effective in respiratory tract infection. The use of Mrdvikadi lehya has shown to improve the body's resistance to common infections due to the action of ingredients. The analytical evaluation on lehya was done and the preparation has met the API standards. The results of physicochemical evaluation of lehya were within the range prescribed in the API standards. Thus it is understood that Mrdvikadi lehya can meet API standards and can act as an immunomodulator that can prevent common infections and boost our immunity.

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