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Pharmaceutical And Analytical Study Of Vasadi Kwath

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ABSTRACT

Diabetic retinopathy (DR) is a microvascular complication caused by long-term diabetes and is a leading cause of vision loss. Due to lifestyle changes, retinal abnormalities may appear within a decade of diabetes onset or even earlier. Modern medicine offers mainly conservative, symptomatic treatments, and current DR therapies have notable limitations. In *Ayurveda*, DR correlates with *Madhumehajanya Timir*, and traditional *Ayurvedic* texts describe several formulations for diabetes and its ocular complications. This case study evaluates the actual effectiveness of these *Ayurvedic* treatments in managing DR. For many years, *Ayurvedic* pharmaceutical companies have prepared various *kwath* formulations, which *Acharyas* have traditionally used to treat numerous diseases. Diabetic retinopathy is increasingly common, and *Ayurveda* offers an effective line of treatment for managing its symptoms. Administering a *kwath* medicated with drugs possessing *Pitta-Rakta Shamaka* properties can significantly support the management of diabetic retinopathy.

KEYWORD: Diabetic retinopathy, *Madhumehajanya Timir*, *Kwath*, *Pitta-Rakta Shamaka*.

INTRODUCTION

- The most prevalent eye condition that affects people with diabetes is diabetic retinopathy (DR). For those between the ages of 20 and 65, it is a prevalent cause of legal blindness.[1] It is forecast to rise, with 700 million people expected to have diabetes mellitus by 2045.[2] Vision-threatening DR (VTDR) affects one-third of the estimated 285 million diabetics. [3] The most prevalent vision-threatening condition associated with type 1 diabetes is proliferative diabetic retinopathy (PDR), which manifests as macular edema in type 2

diabetes. [4] A few daily routines for eye conditions, such as *Aschyotana* (eye drops), *Anjana* (Collyrium), and *Padabhyanga* (foot massage with oil), have been listed in *Ayurveda*. These are preventive and promotive actions for diabetic retinopathy, which in turn helps to maintain eye health. [5] Proper understanding of any ailment followed by selection of *aushadha* or medicine with adequate care is most important as drug or medicine is one among the *chatushpada*. Anything in the world is considered as *aushadha* by *Acharyas* and hence *yukti* (skill) and experience is required for selection of appropriate drugs. *Ayurvedic* medicine is not only subjected to the cure of disease, but it is also means to maintain the good health of a healthy person because, it is used for *dhatusamya*. It does not merely add more years to the life but it also adds active functional years to the total span of life. In simpler words it has both effects viz. preventive and curative. Diseases are born with man and drugs came into existence since then to remove the agony and to cure them. Treatment is basically *Samprapti Vighatana*. The pharmacodynamics of these drugs and their compound preparations have been explained on the basis of *Rasa, Guna, Virya, Vipaka* and *Prabhava*. An *Ayurved* drug break the *Samprapti* without producing any side effect has been looked upon as ideal drugs. As in the textual reference of *vasadi kwath* it is indicated that it is useful in hemorrhage, *kapha dosha shamak* and *chakshusya* properties. The contents of the trial drug are altogether *shita virya, tikta kashyaya rasa, shonitha sthapana,* thus indicating their appropriate role in *Timira* as well as retinal hemorrhages. Other formulation is mentioned as *'Mahavasadi Kwath'* in ***Vrihadyogatarangini*** (Chapter/Taranga 131) and ***Vrihannighanturākara*** (under the section on eye diseases, *Netrarogadhikar*) and also ***Yogatarangini*** (Chapter/Taranga 71), where it is simply referred to as *'Vasadikwath'*. **Conclusion**: The research suggests that the formulation is a potentially effective line of treatment for managing DR symptoms and is safe for internal administration based on the analytical parameters tested

- **Objective**: The study evaluates the effectiveness of *Vasadi Kwath* in managing diabetic retinopathy, correlated in Ayurveda with *Madhumehajanya Timir*

MATERIAL AND METHODS

Table No. 1: Composition of *Vasadi kwath* [6]

Sr.No.	Ingredients name	Botanical name	Reference
1.	*Vasa*	Adhatoda vasica	Bh.Pr.6/89
2.	*Sunthi*	Zingiber officinale.	Bh.Pr.6/45
3.	*Guduchi*	Tinospora cordifolia	Bh.Pr.6/9
4.	*Daruharidra*	Berberis asiatica	Bh.Pr.6/202
5.	*Rakta Candanam*	Pterocarpus santalinus	Bh.Pr.6/17
6.	*Chitrak*	Plumbago zeylanica	Bh.Pr.6/71
7.	*Kirāta Tikta*	Swertia chirayta	Bh.Pr.6/155
8.	*Nimba*	Azadirachta indica	Bh.Pr.6/95
9.	*Kutaki*	Picrorhiza kurroa	Bh.Pr.6/152
10.	*Patola*	Trichosanthes dioica	Bh.Pr.6/72
11.	*Haritaki*	Terminalia chebula	Bh.Pr.6/20
12.	*Bibhitaki*	Terminalia bellirica	Bh.Pr.6/37
13.	*Amalaki*	Phyllanthus emblica	Bh.Pr.6/43
14.	*Musta*	Cyperus rotundus	Bh.Pr.6/93
15.	*Kutaja*	Holarrhena antidysenterica	Bh.Pr.6/118
16.	*Yava*	Hordeum vulgare	Bh.Pr.6/61
17.	*Kalingaka*	Holarrhena antidysenterica	Bh.Pr.6/158

Ayurvedic Properties and Chemistry [7]

Vasa increase *vata* reduces *kapha, pitta* and *rakta* disease, it is bitter and astringent in taste. It cures eye disease. **Chemistry**- the active chemical compounds (alkaloids like Vasicine) in the *Ayurvedic* herb *Adhatoda vasica* (Malabar Nut) used for respiratory relief, and the *Vasa* (DEAD-box) protein**,** a crucial RNA helicase for germ cell development and cell cycle regulation, found across species. ***Sunthi*** has a pungent taste, is easy to digest, and is *snigdha*, meaning it contains aromatic oils or promotes oily secretions in the body. It is heat-generating and has a sweet post digestive effect (*madhura vipāka)*. *Sunthi* helps to alleviate *Kapha,* while also benefiting *Vāta* disorders. **Chemistry** The rhizomes of dry ginger contain oleoresins rich in gingerols, including 6-gingerol, along with fats and waxes. it is rich in various chemical compounds, primarily phenolic compounds and essential oils**,** that give it its distinctive aroma, pungent taste, and therapeutic properties. ***Gudūchi*** is pungent, bitter, and astringent in taste, with a sweet post digestive effect *(madhura vipāka)*. It acts as a tissue vitalizer *(rasāyana),* is absorbent, hot in potency *(uṣṇa vīrya),* and light in action *(laghu). Gudūchi* enhances strength helps in digesting toxins. It alleviates all three *Doṣas* and effectively reduces *Āma*. **Chemistry** *Gudūchi* contains a variety of bioactive compounds including iridoid glycosides such as picroside-I and kutkoside, along with veronicoside and minecoside. It also includes phenolic glycosides like picein and androsin, cucurbitacin glycosides, and 4-hydroxy-3-

methoxyacetophenone. ***Daruharidra*** it is pungent and bitter in taste, reduces *kapha pitta*. This drug cures the diseases of eyes. **Chemistry-** Berbirine, Karachine, Palmatine. ***Rakta Candanam*** is cooling, heavy, sweet and bitter in taste. It is good for vision and is an aphrodisiac. **Chemistry** - centers on its rich bioactive compounds, primarily **Santalin A & B**, the red pigments responsible for its color, alongside flavonoids (like Pterocarpin), tannins, phenolic compounds ***Citraka*** is pungent in taste and post digestive effect. It is easy to digest. It reduces *Väta* and *kapha*. It is absorbent, relieves *Väta Pitta* and *kapha.* **Chemistry** - primarily characterized by the presence of various phytochemicals**,** with the naphthoquinone derivative plumbagin being the most significant and biologically active compound. ***Kirāta*** is laxative, drying, cooling, and bitter in taste and is light to digest. It brings relief from *Sannipäta Jwara* (fevers caused due to the aggrevation of all three *dosas*). dyspnoea, *kapha, pitta* and *Rakta* diseases and pacifies burning sensation. It also cures cough, edema, thirst, skin diseases, fevers, wounds and worms. **Chemistry -** These plants are rich sources of phytochemicals. Swertia chirata contains several key chemical constituents, including swertiamarin, amarogentin, swechirin, sweroside, gentianine, amaroswerin, oleanolic acid, swertanone, and ursolic acid. The leaves of ***Nimba*** are beneficial for eyes, act as vermifuge and diminish Pitta and poisonous effects. **Chemistry-** Heart wood and roots contain tannins, ketosantalic acid. Leaves contain wax, betulinic acid, B-sitosterol, glucose, fructose and sucrose. ***Patola*** is light to digest, cures disease of *rakta* and *tridosh* its reduces *kapha dosa*, leaf reduces *pitta.* **Chemistry-** various phytochemicals like antioxidants (Vitamin C), saponins, fatty acids (oleic, linoleic), and terpenes, ***Haritaki*** has five rasas, devoid of saltish taste and dominant in astringent. It is good for eyes. It is capable of reducing *kapha* and *pitta* owing to its sweet, bitter and astringent effect and taste. It can reduce *vata*, due to its sour taste. **Chemistry** is rich in tannins, especially hydrolyzable ones like chebulagic acid**,** chebulinic acid, and gallic acid, along with ellagic acid, punicalagin, and anthraquinones, The useful part of *Phala* (fruit) of ***Vibhitaka*** exhibits *Rasadi Panchaka* properties such as *Kashaya rasa***,** *Ruksha* and *Laghu guna***,** *Madhura vipaka***,** and *Ushna virya***.** These attributes contribute to its diverse *karma* (actions) including *Netrya, Krimighna* and *Bhedana*, while its pharmacological activities are recognized as astringent, tonic**.** In terms of *doshakarma***,** it is considered *Tridosha Shamaka***,** predominantly *Kapha-shamaka* due to its *Ushna virya* and *Kashaya rasa*, while it also alleviates *Pitta* through *Madhura vipaka* and *Kashaya rasa* and balances *Vata* owing to its *Ushna virya* and *Madhura vipaka*. Classical texts (Su. Utt. 12/13) mention that *Anjana* prepared from the *asthi-majja* (seed pulp) of *Vibhitaka* serves as an effective remedy for managing corneal opacity. **Chemistry**-featuring tannins **(**gallic acid**,** ellagic acid**)**, flavonoids, sterols **(**beta-sitosterol**)**, sugars (glucose, fructose)**,** and fatty acids ***Amalaki*** it reduces *vata* due to its *amla* taste *pitta* due to its sweetness and cooling effect and *kapha* due to its drying action and astringents taste and it reduces all the three *dosas.* **Chemistry** - rich in antioxidant polyphenols like gallic acid, ellagic acid, and powerful tannins (emblicanin A & B), ***Kutaja*** is bitter and astringent in taste, drying, appetizer and cold in potency. **Chemistry-** Bark contains alkaloids-conessine, concuressine. Kurchamine, Kurchinine. Conemine, Conessedin,holarrhenin etc; Leaves contain-Aminoglycosteroids. Seeds contain Tricanthin. ***Mustaka*** is pungent bitter and astringent in taste

cold in potency absorbent and digestant. It removes *kapha, pitta* and *rakta* disease. **Chemistry-** Retrofractamide. A.B.C and D. piperine, sistosterol and and al kaloid piplartine. ***Barley*** grains diminish excess *medas* control excess urine and nourish all the tissues uniformly. **Chemistry** centers on its primary components: carbohydrates (starch, fiber like β-glucan), proteins (amino acids), fats, minerals (ash), vitamins, and phenolics, ***Indra yava*** removes all the three *dosas*, astringent pungent in taste, cures the disease due to *rakta*, *vata* and *kapha* diseases. **Chemistry-** The presence of numerous steroidal alkaloids**,** as well as various other phytoconstituents like flavonoids, tannins, and triterpenoids.

Method of Preparation

- As per text the above approximately 17 herbs are taken. A decoction is prepared by boiling them in water until reduced. The resultant decoction is called *Vāsādi Kwātha*. [8]

Drug Preparation

Powdering clean all herbs, make powder – not very fine, not very coarse

⇩

Quantity take 1 part herb mixture, Add 16 parts water. Each herb = 10 grams, use water =160 ml.

⇩

Boiling heat on low flame, boil until the water reduces to 1/8th of the original. 160 mil →boil down to about 20 ml

⇩

Filtering filter using a clean cloth or fine strainer, Collect the decoction. This is the *Vasadi Kwatha.*

DISCUSSION

Table No. 2: Physico -Chemical parameter of *Vasadi kwath*

Sr.No.	Drug Name	Total Ash value%(w/w)	Acid Insoluble Ash value %(w/w)	Water Extractive Value %	Alcohol Extractive Value%
1	***Vasa***	9.875	0.905	19.376	20.368
2	***Sunthi***	5.455	0.47	13.768	5.528
3	***Guduchi***	9.535	0.16	15.56	4.472
4	***Daruharidra***	2.73	0.53	8.312	7.342
5	***Raktachandan***	2.74	0.25	1.672	4.634
6	***Chitrak***	4.614	2.391	14.824	6.932
7	***Kirattikta***	5.76	0.115	14.664	11.456
8	***Nimb***	5.24	0.245	34.234	12.623
9	***Kutki***	5.46	0.825	33.70	23.744
10	***Patol***	9.215	1.939	24.04	28.52
11	***Haritaki***	2.53	0.451	54.263	39.368
12	***Bibhitak***	4.735	2.095	23.904	6.656
13	***Amalaki***	6.122	0.639	47.304	29.48
14	***Musta***	4.545	2.42	5.296	23.392
15	***Kutaj***	7.02	0.125	16.136	19.152
16	***Yava***	2.465	0.095	29.912	21.048
17	***Kalingaka***	6.635	1.125	3.934	2.831

The ingredients of the *Vasadi Kwatha* not only have effect on eye but also have overall systemic effect like, hypoglycemic, lipid lowering, hypertensive, vasodilator and anti-oxidant properties.[9] Maximum number of drugs were having *Tikta-Kashaya Rasa* and *Laghu- Ruksha Gunas,* which acts as *Pramehagna, Medohara* and *Pitta-Rakta Shamana.* It prevents the oxidative stress damage to the retinal vasculature endothelium. [10] There is a classical reference *Prameha* can produce *Netra Rogas*.[11] After a proper analysis of clinical feature, pathogenesis and stages of DR, the disease can be correlated to *Timira* with different *Doshas* predominance in different stages. *Vasadi Kwatha* does *Prameha Samprapthi Vigatana,* also augments the absorption of intra retinal hemorrhages and exudates. The drugs selected here for *Timira* should be *vata* pacifying as well as *pitta shamaka* with *rakta prasadka* properties which will help in healing and reducing the symptoms that are caused especially due to ocular hemorrhages.

Conclusion-

The study suggests that *Vasadi Kwath* is effective in managing symptoms of diabetic **retinopathy** (DR)**,** an ocular complication of diabetes. The herbal ingredients in the *kwath* (decoction) have properties that help in the management of DR by addressing the underlying pathology related to vitiated *doshas* (especially *Pitta* and *Rakta*), reducing inflammation, and arresting DR. Clinical observations have shown significant relief in symptoms in patients treated with the *kwath.*

The *Vasadi kwath* preparation process is important for ensuring the quality and efficacy of the final product. The ingredients work synergistically not only on the eyes but also provide systemic effects such as hypoglycemic and anti-oxidant properties, which are beneficial for the overall management of diabetes and its complications.

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