

PALANDAANJANA – AN OPHTHALMIC PREPARATION

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ABSTRACT

Eye, one of the most important sense organs, is given utmost priority in the field of the Ayurvedic medical science, which considers it as the *pradhana anga*, taking *ashraya* in the *uttamanga*.^[1] Adhering to the fundamental principle of Ayurveda, “*Swasthasya Swasthya rakshanam*”, the present preparation is carried out with the intension of protecting the eyes and preventing it from possible diseases. In the present world, a wide range of population is involved in the use of mobiles or laptops, whose light rays have been proved to cause lenticular changes. Also, owing to the increase in the cases of senile and pre-senile cataract, the population would be benefitted by an ophthalmic formulation, that, in the current study, is analyzed to have a prophylactic effect in the above conditions of lenticular changes such as presbyopia and cataract. The *palandanjana* is a unique preparation, whose drug action is assessed to have a potential role in the prevention of the ophthalmic diseases involving the lenticular changes, such as cataract, presbyopia etc., which are considered under one big umbrella called *Timira*, according to Ayurveda. This unique preparation serves the dual purpose of medicinal usage as well as cosmetic use.

KEYWORDS: Palandanjana, Anjana, Timira, Lenticular changes.

INTRODUCTION

Shweta Palandu: *Palandu* is a bulbous herb with the scientific name, *Allium cepa*, which has a significant role in the preparation of various *ayurvedic* medicines. Its bulb and tender leaves are said to be rich in Glutathione, Quercetin, Pectins and Allyl-Propyl disulphide. *Palandu* is of 2 types and named as *Raktaja palandu* and *Shwetakshira palandu*, based on the colour of the bulbs.^[2] Its *Guna-Karmas* could be summarized as: **Rasa** – *Madhura, katu*; **Guna** – *Guru, snigdha, teekshna, ushna*; **Veerya** – *Anushna*; **Vipaka** – *Madhura*; **Doshakarma** – *Vatashamaka* due to *guru, snigdha, ushna guna, Kaphahara* due to *teekshna, ushna gunas* and *katu rasa* and *Kapha nissaraka*. The type of *palandu* used in the following *anjana* is the *Shweta palandu*, also called as the *Ksheera palandu*. The onion juice is used in cases of weak eyesight along with honey in the form of eye drops.^[3] This *anjana* is analyzed to have an effective action in the prevention as well as the curative aspects w.r.t the eye diseases arising from the lens changes as a result of age, such as Presbyopia, cataract etc., which are explained under one umbrella called *TIMIRA*, in the Ayurveda classics.

Anjana: *Anjana* is one among the forms of formulation, taken as one of the *Kriya kalpas*^[4] in the world of *Shalaky tantra*. *Acharya Charaka* in the *Matrashiteeya Adhyayam*^[5] of *Sutrasthanam* considers the use of *anjana* regularly for the maintenance of *swasthya*. *Acharya Sushruta* in the 18th chapter of the *Uttaratantram*, not only mentions its benefits, but also emphasizes on the various types of *anjanas*^[6], duration of usage, methods of preparation, dosage, mode of application, various formulations, proper and improper effects of *anjana prayoga*. Among the 3 types of *anjanas* mentioned by *Sushrutaacharya* as *Lekhana, Ropana* and *Prasadana anjanas*, the *Palaandaanjana* is the *lekhana anjana*. *Lekhana anjanas* are the kind of *anjanas* said to be formulated/prepared by using *lekhaneeya dravyas*. Based on the *doshic* involvement, the *rasas* are mentioned to be used for its preparation. While mentioning about the *gunas* of *lekhana anjanas*, *Sushrutacharya* says, on application it brings out the *doshas* from the *netra, vartma, netra siras, netra kosha, srotas, netra ashru* and in the *shringataka marma* causes *srava* (lacrimation/secretions) of the vitiated *doshas* through the *nasa* (nose), *mukha* (oral cavity/mouth) and/or *akshi* (eyes).^[7] Here, the *lekhana anjana* prepared

using the *Shweta palandu* is expected to have its drug action on the *kaphaja timira rogas* both as a prophylactic as well as a curative medicine. *Anjana* is prepared here considering 3 important aspects. Firstly, *anjana* is a specialized form of medicine, which is unique to the *Ayurvedic* science, as no modern eye medicine comes in the form of collyrium. Secondly, it can be used for both cosmetic as well as medicinal purpose. Next, unlike others, it is handy and does not require a sophisticated set up for the application and one can apply it without any supervision. With proper hygiene, it could be applied to the eyes anywhere and anytime, depending upon the need.

Timira: The term *Timira* is derived from root ‘*Tim*’ (meaning the increase of watery substance in the eye or loss of light perception) with ‘*Unadi*’ suffix ‘*Kirach*’ to form the *Timira*.^[8] *Timira* according to the *Shabda kalpa dhruma* means, darkness, which corresponds to the blackout. *Timira roga* is explained to be a *ghoratama netra vikara*, which could manifest due to the dosha vikriti or as an *upadrava*. The 6 types of *timira* as told by *Sushrutacharya* include *Vataja*, *Pittaja*, *Kaphaja*, *Raktaja*, *Sannipataja* and *Samsargaja* types.^[9] *Timira*, is an eye disease, explained by *Sushrutacharya* (*Uttaratantram* 7/11-15) under the division of *Drishtigata rogas*.^[10] *Acharya* says, *timira* is that condition, where the vitiated *doshas* enter into the *trideeya patala* of the *drishti mandala*, which renders the *rogi* to see *urdhwa* but not *adhah drishti*. Here, the *rogi* sees even the *mahat roopas* as *vaasasa chhaadita*, and visualizes a person in a way like he lacks his *karna*, *nasa* and *akshi*. When the *doshas* are *adhah sthita*, *sameepastha* objects will not be visible, when *urdhwa sthita*, *doorasthita* objects will not be visible, when *parshwasthita*, the *rogi* cannot see the objects that are in the *parshwa*, when the *doshas* are in the entire *drishti*, the objects appear *sankula* and when they are in the *drishti madhya*, one object appears as two. Such a condition is called as *timira*.^[11] *Timira* is a broad term used to describe the diseases in the *Drishti mandala*, which constitutes the lens and the retina. *Acharya Sushruta* while explaining the anatomy of the eye in the *Uttaratantram*^[12], says there are 6 *patalas* in the eye of which 2 are *Vartma patalas* (*bahya patalas*), and the rest 4 (*drishti patalas*) are:

- i) *Prathama patala* = *Tejojalaashrita patala*
- ii) *Dwiteeya patala* = *Mamsaashrita patala*
- iii) *Triteeya patala* = *Medaashrita patala*
- iv) *Chaturtha patala* = *Asthyaashrita patala*

Timira is considered to be *Sadhya*^[13] (not completely curable, but manageable). *Timira* in modern could be correlated to the lens changes and one of the most common disorders related to the lens is Cataract. The term cataract refers to the development of any opacity in the lens or its capsule. The current preparation is assessed to be beneficial as a prophylaxis, especially in case of age-related or senile cataract which is the commonest type of acquired cataract affecting equally

the persons of either sex usually above the age of 50 years.^[14] It could also be assessed to have an effective action in preventing metabolic cataracts that occur due to endocrine disorders and biochemical abnormalities. Cataract, especially the senile or the ‘Age-related cataract’ is one of the most common ophthalmic conditions that usually occur after the age of 50 years. Cataract that develops before the age of 45 years is termed as ‘Pre-senile cataract’, which could be due to diabetes mellitus or myotonic dystrophy or hereditary conditions. According to statistics, more than 90% of the individuals above the age of 70 years develop senile cataract.

The symptoms of *timira* as told by *Sushrutacharya* could be correlated to the floaters in the eye. According to the National Eye Institute, “Floaters are small dark shapes that float across your vision. They can look like spots, threads, squiggly lines, or even little cobwebs. Floaters move as your eyes move — so when you try to look at them directly, they seem to move away. When your eyes stop moving, floaters keep drifting across your vision”. The causes of floaters are considered as “Eye infections, Eye injuries, Uveitis (inflammation in the eye), Bleeding in the eye, Vitreous detachment (when the vitreous pulls away from the retina), Retinal tear (when vitreous detachment tears a hole in the retina), Retinal detachment (when the retina gets pulled away from the back of the eye)”.^[15]

Presbyopia, another most common age related conditions, also can be included under the umbrella of *timira*. It is also called as the eye sight of old age. Presbyopia is not an error of refraction but a condition of physiological insufficiency of accommodation leading to a progressive fall in near vision. It is caused mainly due to 2 reasons- age related changes in the iris and /or age related decline in the ciliary muscle power.^[16]

This study is an attempt to prepare the *palandanjana* and analyze the drug action of *shweta palandu* in the form of *anjana*, in the prevention of lenticular changes in the eye.

METHODOLOGY

PREPARATION OF THE PALANDANJANA

Materials required

a. Ingredients

- i. *Shweta palandu* = 18.5 kg (Juice extracted = 10 lts)
- ii. Gauze vartis/wicks (8 cm X 3 cm) = 1050 in number
- iii. *Tila taila* = 4.25 litres
- iv. Unsalted butter = 80 grams

b. Equipments used:

- i. Mud lamps
- ii. Clean, sterile cotton cloth (35 cm x 35 cm) = 2
- iii. *Sharaava* / mud plate
- iv. Stainless steel plates
- v. Stainless steel vessels
- vi. Air tight glass container
- vii. Match box

viii. Clean pair of gloves = 10

Method of preparation

The preparation method can be divided into 5 parts as follows:

1. Preparation / Extraction of *Shweta palandu swarasa* i.e., White onion juice
2. Preparation of gauze *vartis*
3. Preparation of *palandu vartis*
4. Ignition and Collection of *shweta palandu masi*
5. Preparation of *anjana*

Extraction of Shweta palandu swarasa

- 2 kg of white onions was taken each time.
- The outer cortex was peeled off neatly, tunic and basal root was cut off.
- The remaining inner part was cleaned with water and kept aside.
- Two ways were adopted in the extraction process, as follows:
- ❖ In *Khalva yantra*



I. White Onions/Shweta Palandu

Preparation of the gauze vartis

- Clean and sterile gauze was taken and made into pieces of approximately, 8 cm x 3 cm.
- These pieces were then twisted to make as a *varti* / a wick.
- 1050 numbers of such *vartis* were made.



III. Gauze pieces

Preparation of Palandu vartis

- Prepared gauze *vartis* and freshly prepared *palandu swarasa* were kept ready.
- 1050 *vartis* were kept along with *swarasa* extracted from 3.5 kg of *palandu*.
- All the *vartis* were dipped and soaked in the extracted *swarasa* and left for a minimum of 20 – 30 minutes.
- Thoroughly soaked *vartis* were then hung over a clean string.
- The *vartis* were then allowed to dry under the shade.

- White onions were chopped into very small pieces.
- Chopped pieces were put inside a clean *khalva yantra* and pound thoroughly to make it into a fine paste / *kalka*.
- *Kalka* so obtained was then taken in a clean cotton cloth, made into a *pottali*.
- This *pottali* was then squeezed to extract the fresh *swarasa* / juice.
- Extracted *swarasa* was then collected in a clean vessel.

❖ In an electric mixer

- White onions were cut into 4 parts each and put into an electric mixer.
- It was made into a fine paste / *kalka* without adding water.
- Acquired paste was made as a *pottali* as said earlier and *swarasa* was squeezed out into a clean container.



II. Swarasa of white onions

- Once the *vartis* have dried completely, a fresh batch of *swarasa* was prepared and the *vartis* were soaked again as before and dried under the shade.
- The procedure was repeated consistently for 7 times.
- After 7 times, when the *vartis* had dried completely and become hardened, the *vartis* were collected.



IV. Drying of soaked vartis under the shade



V. Completely dried Palandu vartis

Ignition and Collection of Palandu Masi

- Clean and sterile mud plates / small *sharavas* were taken into which *tila taila* was poured up to the neck and the dried *vartis* were dipped for 10 – 15 minutes and placed as wicks.
 - Later, the *vartis* made as wicks were lit, and a clean stainless steel plate was placed over the flame.
 - Small other plates were kept around the flame so as to collect the *masi* and reduce wastage.
 - The wicks were burnt until they had completely charred out, and 4 – 5 layers of *masi* had been collected.
- Once the plate had cooled down completely, a clean and sterile blade was taken and the adhered *masi* was scrapped out and collected in a clean *khalva yantra*.
 - The collected *masi* was then triturated till it turned into a fine powder, devoid of any lumps.
 - It was then measured using proper scale, which was noted to be 13.5 grams.
 - This finely powdered masi was then transferred into a clean and sterile air tight glass container.



VI. Mud lamps



VII. Mud lamps filled with Tila taila



VIII. Completely dried vartis soaked in Tila taila



IX. Igniting the vartis to collect the masi



X. Masi collected in the plate



XI. Collection of Masi after scrapping



XII. Storage of the masi in a glass container

Preparation of the anjana

- The *masi* collected was taken in a clean *khalva yantra*; 80 grams of unsalted butter was put into it and was continuously triturated for about 1 hour, till a homogenous, smooth and fine mixture.
- Once the mixture attained the consistency of *anjana*, it was neatly packed in clean air tight plastic containers.
- 30 such containers were taken, each one filled with 3 grams of *anjana* and kept for usage.

Dosage and mode of application^[17]

- This *anjana* is to be applied in *anjana maatra pramana*.
- Prepared *anjana* should be taken in *anjana maatra* on an *anjana shalaaka* and should be uniformly applied from the *kaneenika sandhi* (inner canthus) to the *apanga sandhi* (outer canthus), or from the *apanga sandhi* to the *kaneenika sandhi* (outer to the inner canthus).
- *Anjana* is not to be applied in excess towards the canthi as told by *Acharya Sushruta*.
- The time for the application of this *anjana* is *pratah kala*.

Indications

Based upon the drug action, the *palandanjana* can be assessed to be effective in maintaining the *doshas* in the

eyes, thus preventing the manifestation of *timira roga*, especially the *kaphaja timira* and the *netra rogas* that could possibly take *ashraya* in the *prathama*, *dwiteeya* and *triteeya patalas* of the *drishti mandala*. Hence, it could be used as a prophylactic medicine to prevent cataract, presbyopia and/or any other ophthalmic diseases involving the lenticular changes. As far as the curative aspect is concerned, due to its *guna-karmas* and *prabhava*, it can be assessed to be beneficial in doing the *kapha dosha vilayana* in case of *kaphaja timira*, incipient and immature cataract.

Other yogas mentioned in the classics

Some of the other yogas mentioned in the treatment of *timira*, especially *kaphaja timira* are, *rasakriyanjana*, *sroto anjana*^[18], *Parijatadi anjana*^[19], *Neelotpaladyanjana*^[20], *Shankhadyanjana*^[21], *Mamsyadi anjana*^[22], *Marichadi anjana*^[23], *Timirantaka anjana*^[24], *Tutthanjana*^[25], *Rasendranjana*^[26], *Kanaadyanjana*^[27] etc.

RESULTS

A pilot study was conducted on 5 patients, of different age groups and the following results were observed after regular usage for 48 days.

Age of the Individual	Condition prevalent	Immediate effect on application	Effect after 48 days
74 years/ Female	Immature cataract with disturbed vision even with spectacles and floaters	Mild burning sensation lasting for less than 2 minutes	75% reduction of floaters. Ability to view without disturbance with spectacles.
76 years/ Male	Immature cataract on the right eye, mature cataract on the left eye.	Mild burning sensation, lasting for less than a minute	Clear vision with reduced disturbance on the right eye, no significant changes on the left eye.
46 years/ Female	Presbyopia since 3 years, disturbed near vision	No burning sensation, cooling effect lasting for less than 3 minutes	25% improvement in viewing near objects and reading, without spectacles
50 years/ Male	Presbyopia since 4 months, no use of spectacles	Mild burning sensation lasting for less than a minute, cooling effect lasting for less than 3 minutes	70% improvement in reading and viewing near objects without spectacles
44 years/ Female	No complaints	No burning sensation, cooling effect lasting for less than 5 minutes	Clarity of vision and neatness of eyes.

From the above results, we may consider the prepared *Palandanjana* to be considerably effective in reducing the symptoms in cases of immature and incipient senile cataract and presbyopia and also in preventing the progression and/or development of cataract and presbyopia. Based on these results, we may assess the *Palandanjana* to have a good effect in other ophthalmic conditions involving lenticular changes.

DISCUSSION

Palandanjana can be assessed to have its drug action in conditions of lenticular changes especially as a prophylactic in cases of Cataract, based on various

parameters such as, the different methodologies adopted, drugs used along with *palandu* and their contribution in yielding the final result. This could be categorized into two divisions as

- A. Role of Ayurveda Principles
- B. Biochemical analysis

A. Role of Ayurveda principles**Role of Masi Kalpana**

Masi kalpana, also termed as the medicinal charcoal, is one of the most widely used forms of medicines in *Ayurveda*, used both internally and externally. *Masi* is prepared using two methods as told by *Acharya Sharangadhara*. They are, i) *Antardhooma* and ii)

Bahirdhooma.^[28] *Masi kalpana* may be formulated by using two different types of drugs i) Herbal/plant origin such as *triphala masi*, *ashwagandha masi* and ii) Animal origin such as *hastidanta masi*, *mayurapiccha masi*, *sarpa masi* etc. *Masi kalpana* could be correlated to the process of carbonization in the modern science.

In this preparation too, the formation of *masi* is a significant step, wherein the soaked gauze pieces are burnt and carbonized to get a potential product which becomes the fundamental form of medicine, for getting the desired *Anjana*. The use of *Masi kalpana*/carbonisation technique is unique to the Ayurveda science and since the alkaloids in the shweta palandu aren't reduced to ashes in the process, but are only passed through the intermittent stage of carbon, the potency and the qualities remain intact. Therefore, the present preparation could be analyzed to have a desirable effect in cases of cataract and presbyopia and various other kaphaja netrarogas, which could affect the drishti, based on the drug action and the pharmacokinetics that is involved.

Noting about the treatment of floaters, there are no safe and proven methods to cure the symptom of eye floaters caused by vitreous syneresis or posterior vitreous detachment.^[29]

Role of Tila Taila

Tila taila is one of the most common drugs used in the therapies and formulations in the practice of Ayurveda. While some therapies and formulations use *tila taila* as the main medicine, others use it as a base for external modalities and for the preparation of other medicines. Some of the main features/*gunas* of *Tila taila* include, **Rasa:** *Madhura, tikta, kashaya*; **Guna:** *Ushna, vyavayi, tikshna, vikasi, lekhana, guru*; **Veerya:** *Ushna*; **Vipaka:** *madhura*; **Doshakarma:** *Vataghneshu uttamam*^[30] (*C.Su 13*) *kaphapaham*^[31] (*Bhavaprakasha*).

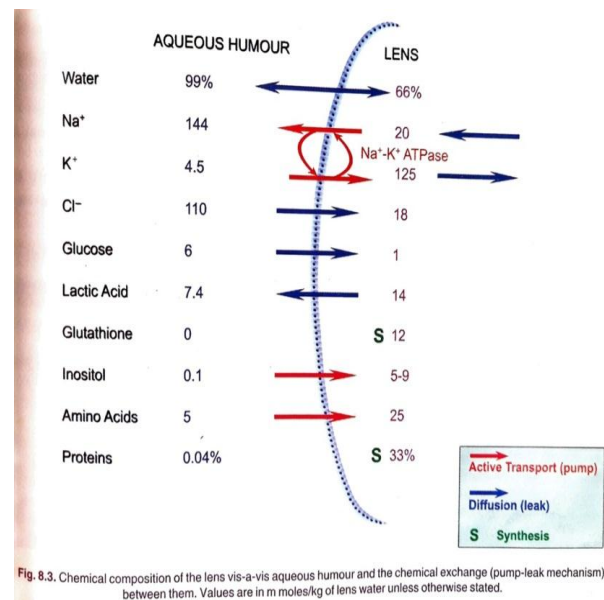
According to an article 'Tila taila- a review', published in the WJPMR(09/09/2018), it is quoted "Sesamum indicum seed oil (tila taila) has high stability due to the presence of high levels of natural antioxidants.....Flavonoids and phenols give it antioxidant properties also saponins which are antioxidant, anti-cancer and immunity booster. Tannin present in oil makes it antibacterial, antiviral, and astringent".^[32] Due to the presence of the above mentioned properties, *tila taila* is made use in this particular preparation wherein the *vartis* are soaked in the *tila taila* for 20 minutes and lit in the form of lamps, by using *tila taila* as a fuel. During the process of soaking and further, the burning, the properties of the *tila taila* along with the basic nature of *taila* to improve the existing qualities of the drug with which it acts (*yogavahi*)^[33], the *ushanata*, *tikshnata*, and the *lekhana gunas* are strengthened which help in giving the property of *kaphanasha* to the *masi* that gets collected post-burning.

Role of Navaneetha

Navaneetha, the butter is one of the most commonly used *dravyas* as not only a food product, but also in the preparation of various medicinal formulations. Almost all the classics of Ayurveda describe about the properties, benefits and uses of *navaneetha*. In the *Brihat Trayees*, *Acharya Charaka* and *Acharya Vagbhata*^[34] explain about the actions of *navaneetha*, while *Acharya Sushruta* explains its properties along with the actions. According to *Sushrutacharya* (*S.Su 45/92*), freshly prepared *navaneetha* is said to be *laghu, sukumara, madhura, kashaya, ishadamla* and *sheetala*.^[35] Due to its *laghu guna, navaneetha* when used to prepare the *anjana*, and when applied to the eyes, does not cause eyestrain. Due to its *sheetala guna*, it balances the *ushna veeryata* of the *palandu* and *tila taila*, thus protecting the eyes from *pitta vriddhi* and its result of *ushnata*. Due to its *kashaya rasa*, it also helps in pacifying the *kapha dosha*. Also, there are many classical preparations that use *navaneetha* for the preparation of the *anjanas* and other medicines, and proved to be beneficial in various diseases of the eye.

B. Biochemical Analysis of Shweta Palandu

Before getting into the biochemical analysis, it is important to understand the nutritional demands of the lens. As stated by the Comprehensive Ophthalmology, "Glucose is very essential for the normal working of the lens. The crystalline lens, being an avascular structure is dependent for its metabolism on chemical exchanges with the aqueous humour".^[36]



Onions are known to be rich 4 main components or phytochemicals which play their own roles in the medical usage, especially in the field of ophthalmology. They are as follows:

1. Glutathione
2. Quercetin
3. Pectin
4. Allyl Propyl Disulphide

- 1. Glutathione** is a water soluble compound known to act against the oxidative pathology of the cataract formation. Due to its anti-oxidant property, it is made use in various eye drops and hence its presence in onion is a significant contributory factor in this preparation. The modern Ophthalmologists in the US have developed an eye drop for the treatment of Cataract called, Lanosterol. But, according to the American Optometric Association (Dec 4, 2015), "Lanosterol is known to reverse cataracts, but wasn't water soluble enough to be included in an eye drop solution and had to be injected into the eye". Hence, glutathione is considered to be more effective than lanosterol.^[37]
- 2. Quercetin** is a flavonoid, a category of anti-oxidant compound. According to the University of Wisconsin-Madison researchers on onions, which contain quercetin, "More pungent onions exhibit strong anti-platelet activity" (National Onion association – Onion health research). Therefore, it could be useful in treating the clotting symptoms in the eyes too.^[38] Though the quantity of quercetin in the white onions is less when compared to yellow and red varieties^[39], (A/c to the article "Total phenolics, antioxidant and xanthine oxidase inhibitory activity of three coloured onions" – 2 March 2016), its action of being anti-oxidant cannot be neglected.
- 3. Pectins**, a group of polysaccharides. According to the Reviews on Indian Medicinal Plants, Volume 2, by Indian Council of Medical Research, New Delhi (2004), "Pectins from white onions were found superior to those from red onions in terms of jelly grade".^[40] As per an article published in the Research gate – 'In-situ gelling ophthalmic drug Delivery system: Formulation and evaluation (Jan 2014), it states, "In the present study, natural polysaccharides (pectin alone/in combination with sodium alginate) or a pectin derivative were used to formulate in-situ gelling eye drops".^[41]
- 4. Allyl propyl disulphide** is a volatile, pale yellow oregano sulphur liquid compound, with a strong pungent odour^[42] (wiki), proved to be insoluble in water. According to the New Jersey Department of Health and Senior services on Hazardous substance fact sheet (January 2001), contact of Allyl propyl disulphide with eyes and skin causes irritation and hence considered as a hazardous compound.^[43] The question that now arises is, how can such a hazardous compound containing drug, the onion, be used to prepare a medicine for the eyes? The answer to this is the "*Samskara*" or the methodology used in its preparation. One of the most significant steps in the preparation of the *palandanjana*, is the process of *Masi nirmana*, which in terms of modern science is called carbonization. During the process of carbonization of any given substance/drug, it is

noted that, any possible volatile component in it, would evaporate. According to an article on Carbonization published in the Science Direct (01/09/1992), "During carbonization, majority of volatilisation occurs".^[44]

Therefore, when the *vartis* soaked in the onion juice are burnt to carbon to collect the *Masi*, this particular volatile liquid evaporates leaving behind no irritation. Hence it is safe and non-hazardous.

While considering the above 4 potential compounds that are present in the onion, the thermal reactions are to be considered, taking the procedure into consideration. According to a study, glutathione, quercetin and pectins are considered to be thermo-stable, while allyl-propyl disulphide is proved to be thermo-labile.

According to the Reviews on Indian Medicinal Plants, Volume 2, by Indian Council of Medical Research, New Delhi (2004), onion is also said to have anti-microbial property as it states "The anti-microbial activity of onion and garlic is mainly due to the alkyl thiosulphinates and sulphides". Not that only, the text also states that "The crude extract of the bulbs revealed 62.64% inhibition against groundnut mosaic virus in vitro".^[45] With all these potential properties and activities, onions, here white onions are used for the preparation of the eye medicine, in the form of collyrium.

CONCLUSION

Ayurveda stands on the basic principle of Swasthasya swasthya rakshanam, Aaturasya vikara prashamanam. Therefore, primary importance is given to prevent a disease and so does the present article. Acharya Charaka considers life to be a combination of Shareera, Indriya, Sattva and Atma.^[46] Indriyas constitute Karmendriya, jnanendriya and the manas. Among the Jnanendriyas, Netra is considered as the pradhanatama indriya^[47], situated in the uttamanga, and hence given foremost importance. The preparation of palandanjana, is done with the core intension of preventing the manifestation of the lenticular disorders of the eye and hence helping in protecting the eyes from pathologies leading to blindness. From the above illustrations, taking into consideration the guna-karmas, samskaras, prabhava and vikriti, palandanjana is expected to perform as a prophylactic and cosmetic, and to some extent, as a curative medicine in conditions of lenticular changes, with special reference to cataract and presbyopia.

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