

A Review on Traditional Sri Lankan Ocular Remedy

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Abstract:

Sri Lanka developed its own medical system based on a series of prescriptions handed down from generation to generation over a period of 3000 years. Indigenous Medicine of Sri Lanka also called "DeshiyaChikitsa" was originated 8000-10000 years ago. The first Sri Lankan published medical book is "ArkaPrakashaya" by King Rawana. There are several ancestries in Sri Lanka that are continuing their special field of "DeshiyaChikitsa". Sri Lanka has its own special science of medical treatments since ancient times which employs indigenous and rare herbs. In an ancient Ola leaf book, there were many traditional formulas. There is not any database or compilation of traditional medicinal formulas in our hands. Therefore, this kind of study is an important need of the era. Thereafter could encourage society to cultivate and protect those medicinal valuable plants and herbs for their good health. Nawapatalawartha is a traditional Sri Lankan ocular remedy which is used to treat cataract. This study will be revealed about its pharmacological values and clinical usage.

Keywords—: DeshiyaChikitsa, NawapatalaWartha, Cataract

I. INTRODUCTION

The number of people with age-related eye diseases is assumed to be on the rise with increasing life expectancy. Cataract is still the major cause of visual impairment and blindness globally, but other age-related eye diseases, that is, age-related macular degeneration (AMD), glaucoma, diabetic retinopathy (DR), and degenerative myopia, are becoming the most important causes in developed countries. The most recent data published by World Health Organization (WHO) showed that the total number of persons with visual impairment worldwide in 2010 was estimated to be 285 million, including 39 million blind people, of whom around 80 percent are above the age of 50, with most of the causes being preventable. Several risk factors have been suggested for cataract, age-related macular degeneration, and glaucoma, yet few have been well established. Certain factors for these conditions are similar, including age, hypertension, prolonged exposure to sunlight, and nutritional factors such as Vitamin E. In Indigenous medicine, there is a special drug used for major eye diseases abundant in the society, Such as *Navapatalavarti*. In Sri Lanka, since 1980 this medicinal *varti* has been used yet. Therefore, it is very important to know about the action of this medicine including the qualities and medicinal actions (Ayurvedic properties) of plant materials and mineral materials that are formulated in *Navapatalavarti*. Therefore, the objective of this literary

study is to study the Medicinal action (Ayurvedic properties) of both herbal and mineral materials formulated in *Navapatalavarti*. There are twelve herbal materials, and five purified mineral materials are included in it. Considering the major disease conditions, *Navapatalavarti* is mostly used in cataract, Pterygium, Conjunctivitis, Contusion conditions of the eyes. For this literary study Indigenous medicinal books and web-based publications were used. Finally, through this study, it has been proved that most ingredients of *Navapatalavarti* have the action of Chakshushya (good for eye health). Therefore, through this literary study, it is better understood that *Navapatalavarti* can be used for a different type of eye diseases in indigenous medicine.

A. Pharmacological Review

Six formulas of Nawapatalavarti are used in Sri Lanka.

1) Formula – 01

Table 01 - Ingredients of *Navapatalavarti*

English Name	Sinhala Name	Scientific name	Quantity
Black cumin seeds	Karavee	<i>Nigella sativa</i>	1 part

White cumin seeds	Shwetha jeeraka	<i>Caramcavi</i>	1 part
Chebulic myrobalan	Aralu	<i>Terminalia chebula</i>	1 part
Belaric myrobalan	Bulu	<i>Terminalia bellarica</i>	1 part
Indian gooseberry	Nelli	<i>Emblica officinale</i>	1 part
Nutmeg	Wasawasi	<i>Myristica fragranace</i>	1 part
clove	Karabuneti	<i>Eugenia caryophyllus</i>	1 part
Nutmeg	Sadikka	<i>Myristica fragrans</i>	1 part
Rock alum	Shuddhagalma	Rock alum	1 part
Asbestos	ShuddhaGalnaha	Asbestos	1 part
alum	Shuddhaseenak	alum	1 part
Zinc carbonate	Ridithuttam	Zinc carbonate	1 part
liquorice	Valmee	<i>Glycyrrhiza glabra</i>	1 part
Rock salt	Shuddhasahindalunu	Rock salt	1 part
Mount atlas daisy	Akrapatta	<i>Ancyluspyrenthrum</i>	1 part
picrorrhiza	Katukarosana	<i>Picrorhizakurroa</i>	1 part
Butterfly pea	Ela katarolu seeds	<i>Clitoriaternatea</i>	1 part
Indian liquerice	Shuddhaelaolinda seeds	<i>Abruspreicatorius</i>	1 part
Indian beach	Karanda seeds	<i>Pongamia pinnata</i>	1 part

The above ingredients should be ground with the following juices respectively for preparing the NawapatalaVarthi.

First day - lime juice

Second day - Juice of Vitex nigundo leaves

Third day - Juice of Eclipta alba

Fourth day - breast milk

Fifth day - Juice of ginger

Sixth day - bee's honey

2)Formula -02

Table 02 - Ingredients of Navapatalavarti

English Name	Sinhala Name	Scientific name	Quantity
Black cumin seeds	Kaluduru	<i>Caram carvi</i>	1 part
White cumin seeds	Sududuru	<i>Cuminum cyminum</i>	1 part
Long pepper	Tippili	<i>Piper longum</i>	1 part
Nutmeg	Wasawasi	<i>Myristica fragrans</i>	1 part
clove	Karabuneti	<i>Eugenia caryophyllus</i>	1 part
Nutmeg	Sadikka	<i>Myristica fragrans</i>	1 part
Rock alum	Shuddhagalma	Rock alum	1 part
Asbestos	ShuddhaGalnaha	Asbestos	1 part
alum	Shuddhaseenak	alum	1 part
Zinc carbonate	Ridithuttam	Zinc carbonate	1 part

Above ingredients should be ground with the following juices

First day - lime juice

Second day - Juice of Vitex nigundo leaves

Third day - Juice of Eclipta alba

Fourth day - breast milk

Fifth day - Juice of ginger

Sixth day - bee's honey

3)Formula 3

Table 03 - Ingredients of Navapatalavarti

Sanskrit name	Sinhala name	Scientific name	Quantity
Black cumin seeds	Kaluduru	<i>Nigella sativa</i>	1 part
White cumin seeds	Suduru	<i>Cuminum cyminum</i>	1 part

Long pepper	Tippili	Piper longum	1 part
Nutmeg	Wasawasi	Myristica fragrans	1 part
Clove	Karabunati	Eugenia caryophyllus	1 part
Nut meg	Sadikka	Myristica fragrans	1 part
Rock alum	ShuddaGalma da	Rock alum	1 part
Asbestos	ShuddaGalnaha ra	Asbestos	1 part
Zinc carbonate	Rideethuththam	Zinc carbonate	1 part
Alum	Seenakkaram	Alum	1 part
licorice	Walmi	Glycyrrhiza glabra	1 part
Rock salt	Sahindalunu	Rock salt	1 part
Mount atlas daisy	Akrapatta	Ancyluspyrenthrum	1 part
picrorrhiza	Katukarosana	Picrorrhizakurrooa	1 part
Butterfly pea	Ela katarolu eta	Clitoriaternatea	1 part

Above ingredients should be grounded with the following juices.

First day - citrus lemon juice

Second day - juice of Vitex nigundo leaves

Third day - Juice of Eclipta alba leaves

Fourth day - Breast milk

Fifth day - Juice of Zingiber officinale

Sixth day - Bee's honey

4)Formula 4

Table 04 - Ingredients of Navapatalavarti

English name	Sinhala name	Scientific name	Quantity
Black cumin seeds	Kaluduru	Nigella sativa	1 part
White cumin seeds	Suduru	Cuminum cyminum	1 part
Long pepper	Tippili	Piper longum	1 part
Nutmeg	Wasawasi	Myristica fragrans	1 part
clove	Karabunati	Eugenia caryophyllus	1 part
Nut meg	Sadikka	Myristica	1 part

		fragrans	
Rock alum	ShuddaGalma da	Rock alum	1 part
Asbestos	ShuddaGalnaha ra	Asbestos	1 part
Zinc carbonate	Rideethuththam	Zinc carbonate	1 part
Alum	Seenakkaram	Alum	1 part
licorice	Walmi	Glycyrrhiza glabra	1 part
Rock salt	Sahindalunu	Rock salt	1 part
Mount atlas daisy	Akrapatta	Ancyluspyrenthrum	1 part
picrorrhiza	Katukarosana	Picrorrhizakurrooa	1 part
Butterfly pea	Ela katarolu eta	Clitoriaternatea	1 part

Above ingredients should be ground with only.

First day - Meevani (Bee honey)

Second day - Kohomba kola yusha (Azadiractaindika)

5)Formula 5

Table 05 - Ingredients of Navapatalavarti

English Name	Sinhala Name	Scientific name	Quantity
Black cumin seeds	Kaluduru	Nigella sativa	1 part
White cumin seeds	Sududuru	Cuminum cyminum	1 part
Long pepper	Tippili	Piper longum	1 part
nutmeg	Wasawasi	Myristica fragrans	1 part
clove	Karabuneti	Eugenia caryophyllus	1 part
nutmeg	Sadikka	Myristica fragrans	1 part
Rock alum	Shuddhagalma da	Rock alum	1 part
Asbestos alum	ShuddhaGalnaha ra	Asbestos	1 part
alum	Shuddhaseenakkaram	alum	1 part
Zinc carbonate	Ridithuttam	Zinc carbonate	1 part
liqouric	Valmee	Glycyrrhiza	1 part

e		glabra	
Rock salt	Shuddhasahindalunu	Rock salt	1 part
Mount atlas daisy	Akrapatta	Ancyluspyrenthrum	1 part
picrorrhiza	Katukarosana	Picrorhizakurroa	1 part
Butterfly pea	Ela katarolu seeds	Clitoriaternatea	1 part
Indian liquorice	Shuddhaelaolinda seeds	Abrusprecatorius	1 part
Indian beach	Karanda seeds	Pongamia pinnata	1 part

Above ingredients should be ground with the following juices

First day - Dehiyusha (citrus lemon)

Second day -Nika kola yusha (*Vitex nigundo*)

Third day -Kikiridiya kola yusha (*Eclipta alba*)

Fourth day -Thana kiri (Breast milk)

Fifth day -Iguruyusha (*Zingiber officinale*)

Sixth day -Meepani (Bee honey)

Seventh day -Kohomba kola yusha (*Azadiractaindica*)

6)Formula 6

Table 06 - Ingredients of *Navapatalavarti*

Sanskrit name	Sinhala name	Scientific name	Quantity
Black cumin seeds	Kaluduru	<i>Nigella sativa</i>	1 part
White cumin seeds	Suduru	<i>Cuminum cyminum</i>	1 part
Long pepper	Tippili	<i>Piper longum</i>	1 part
Nutmeg	Wasawasi	<i>Myristica fragrans</i>	1 part
clove	Karabunati	<i>Eugenia caryophyllus</i>	1 part
Nutmeg	Sadikka	<i>Myristica fragrans</i>	1 part
picrorrhiza	Katukarosana	<i>Picrorhizakurroa</i>	1 part
Chebulic myrobala	Aralu	<i>Terminalia chebula</i>	1 part
Belaric myrobala	Bulu	<i>Terminalia bellarica</i>	1 part
Indian gooseberr	Nelli	<i>Emblica officinale</i>	1 part

y			
Collyrium	Anjana	Collyrium	1 part
False calumba	Weniwel	<i>Coscinumfenestratum</i>	1 part
Garlic pear tree	Lunuwarana	<i>Cratevaadansonii</i>	1 part
Indrayan	Dummella	<i>Trichosanthes cucumerina</i>	1 part
Betel	Bulath	<i>Piper betle</i>	1 part
Red sandalwood	Rathhandun	<i>Pterocarpus santalinus</i>	1 part
King of bitters	Binkohomba	<i>Munronia pinnata</i>	1 part
Diamond flower	Pathpadagam	<i>Oldenlandiacorymbosa</i>	1 part
Indian costus root	Suwadhakotan	<i>Saussurealappa</i>	1 part
Cardomom	Enasal	<i>Elettaria cardomomum</i>	1 part
Clearing nut	Igini eta	<i>Strychnos potatorum</i>	1 part
Ginger	Wiyaliinguru	<i>Zingiber officinale</i>	1 part
pepper	Gammiris	<i>Piper nigrum</i>	1 part
Aleppo oak	Masakka	<i>Quercus infectoria</i>	1 part
Khas khas grass	Sawandaramul	<i>Vertiveriazizanioides</i>	1 part
Indian sarsparilla	Iramusumul	<i>Hemidesmus indicus</i>	1 part
Red cedar	Dewadara	<i>Cedrus deodara</i>	1 part
Sandalwood	Suduhandun	<i>Santalum album</i>	1 part
Golden eye grass	Binthalala	<i>Curculigoorchioides</i>	1 part
Satawari	Hathawariyala	<i>Asperugus racemosus</i>	1 part
Giant potato	Kiribaduala	<i>Ipomoea mauritiana</i>	1 part
Bael flower	Beli mal	<i>Aegle marmelos</i>	1 part
Bael root	Belimul	<i>Aegle marmelos</i>	1 part
muskroot	Jatamansha	<i>Nardostachys jatamansi</i>	1 part
Nut grass	kaladuru	<i>Cyperus rotundes</i>	1 part

Above ingredients should be ground with the following juices

First day -Iguruyusha (*Zingiber officinale*)

Second day -Meepani (Bee honey)

II DISCUSSION

Visual disorders have been represented as the most complex problem in the field of ophthalmology and have been of great interest since the dawn of human life on this earth. While immature Cataract is a physiological anomaly of accommodation, which is very common and almost occurs to all persons around 40 years of age cannot accommodate the near object distinctly due to loss of plasticity of the lens due to aging process. Navapatalawartha is a Sri Lankan indigenous medicine for cataract. It is used as a lekhananjana. Lekhananjana is recommended for immature cataract patients. It pacifies the vitiated doshas of the eye and clears the vision. Therefore, this navapatalawartha has a significant effect on the clearance of vision. The following table describes the pharmacological properties and actions of some drugs which are mostly used in formulas of Nawapatalawartha.

Table 07 – Pharmacological actions of some Ingredients of Navapatalawartha

Drug name	Properties according to Ayurveda	Special karma	Chemical composition	Pharmacological action
Cumin Cumin	Rasa - katu Guna- laghu, ruksha Virya - ushna Vipaka- katu Karma – Kapahavatha hara, Pitta vruddikara	Ruchya, Chakshushya Deepana, Grahni Sangrahi, Medhya, Garbhashavishuddikara Jwaragna, Pachana, Vrushya, Balya,	Thymol, Cuminaldehyde,	Anticancerous Antioxidant, Anti-inflammatory, Anti-aflatoxicogenic, Anti-fungal, Antidiabetic
Nigella sativa	Rasa- katu, Tiktha Guna- ruksha, lagu, Virya – ushna Vipaka- katu Karma- kaphavata	Rochana, Deepana, Daurgandyanashaka, Chakshushya, Pravarthati Arthawam, Sangrahi, Medhya, Vrushya, Gulma hara,	Cymine, Nigellone, Carvone, Limonene, Nigellimine, Thymoquinone	Useful in Nephrotoxicity and Hepatotoxicity, Analgesic, Anti-inflammatory

	hara, Pitta vruddikara	Chardihara,		
Piper longum	Rasa – katu Guna- laghuthiksha hana, Virya - ushna Vipaka- madhura	Deepaniya, Kanthya, Shiro Virechanopaga, Shitha prashamana, Shulaprashaman, Kasa hara, Hikkanigra hana Thruptigna, Vamanopaga	Piperine, Piperidine, Piperlonguminine	Anti-cancerous, Hepatoprotective Antioxidant, Anti-inflammatory, Anti-obesity, Anti-amoebic Immunomodulatory, Analgesic Anti hyperlipidemic
Myristica fragranace	Rasa – katu, Tikthha Guna – Laghu, Thikshana, Ushana Virya – Ushna Vipaka - Katu Karma – vathakaphashamaka	Hrudya, vathakapha hara, ruchikaraka, warnakrutha, krimihara Shothahara Krimigna Grahi Yakruduttejaka	1.8-Cineole, Acetic acid, Alphellendrine, Alpha-turpentine, Alpha-thujeine, amylodextrine, Myristicine, essential oil, Fat, Fiber, Macilic acid	Aphrodisiac, Anti-inflammatory Anodyne, Antipyretic, Antihelminthic, deodorant, Digestive, Carminative, Stomachic, Expectorant, Ophthalmic, Antiseptic, Antihypertoxic
Eugenia caryophyllus	Rasa – katutiktha Guna – laghu, snigdha Virya- sheetha Vipaka – katu Karma –	Thrushnapaka, waktrakleda dargan dyanashaka, nethrahitha m, deepana, pachana, ruchya, pittasra nashana	Euginol, Eugenyl acetate, beta-Caryophyllene, Alfa-humulene	Antibacteria, Antioxidant, Anticarcinogenic, Analgesic, Anti-inflammatory,

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	kapaha pitta hara			Antithrombotic Anesthetic
Picro rhiza kurro a	Rasa – tiktha Guna – ruksha, lagu Virya – sheetha Vipaka – katu Balance pitta and kapha	Bhedaniya, lekhaniya, sthnyashod hana, rechan iya, deepaniya, hrudya, kushta hara	D- mannitol , kutkiol, kutkin, k utkistero l, kutkosi de	Purgative, good for worm infestation

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