SJIF Impact Factor: 5.464

WORLD JOURNAL OF ADVANCE HEALTHCARE RESEARCH

ISSN: 2457-0400
Volume: 7.
Issue: 10.
Page N. 56-60
Year: 2023

Review Article www.wjahr.com

PHYSICO & PHYTO – CHEMICAL ANALYSIS OF AYA CHENDOORAM (SIDDHA MEDICINE)

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Received date: 30 July 2023 **Revised date:** 20 August 2023 **Accepted date:** 10 Sept. 2023

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ABSTRACT

Aya chendooram is a herbo-mineral combination. It is widely used in pandu roga an attempt had been made to investigate the physico & phyto chemical study to extract the aya chendooram. **Methods:** Preliminary Physico Phytochemical studies was done using standard procedure with aqueous, chloroform, ethanol, methanol and acetone extracts of Aya chendooram. The different extracts of aya chendooram were extracted by Soxhlet apparatus (Hot percolation method). **Results:** The results of the test showed that gum and mucilage were present and absence of alkaloids, carbohydrate, flavonoids, tannins, diterpenes, phenols and quinine, Saponin. Extract values revealed the solubility and polarity particulars of the metabolites in the Aya chendooram. As we know, Pandu is one among Kaphaja vyadhis. Vitiated Kapha in Twacha produces Shweta avabhasata and vitiated Vata in the body is responsible for producing laksanas of Pandu roga like Karshya, DhatuKshaya, Shaithilya etc., to nullify the Kapha and Vata these dravya in aya chendooram are very much important.

KEYWORDS: Aya chendooram, physico & phyto chemical study, Anemia, pandu.

INTRODUCTION

Herbo mineral preparation have been a practiced in Indian medicines from thousands of years. Indian system is one of the oldest system of medicine in the world. Ayurveda and siddha is indigenous system of medicine is an integral part of Indian culture. It has established its position as a unique health care system with a holistic approach to any complex health conditions The main aim of Ayurveda and siddha is to maintain the health of the healthy person and to cure the illness of a sick person. The ancient acharyas from centuries used herbal and mineral products for preventing and curing various ailments. Both Ayurveda and siddha is based on its own unique and original concepts and fundamental principles of panchamahabhuta that sustainment of a healthy body depends upon the proper function of Dosha, Dhatus and Mala.

Pandu roga is a Varnopalakshita Vyadhi of Rasavaha Srotas characterized by pallor of body Alaparaktata, Alpakmedaska, Nissarata, Shitilindriya & vaivarnya which strikingly resembles with “Anaemia” of modern science ‘A reduction below normal in the concentration of Hemoglobin or red blood cells in the blood’ there is a reduction in oxygen transporting capacity of blood. aya chenduram (siddha medicine) are preparation intended to used in pandu roga and proven haematinic action.

AIMS AND OBJECTIVES

To detail study about Phyisco & Phyto-Chemical analysis of Aya chendooram.

MATERIAL AND METHODS

Source of data

1. Classical text books of Ayurveda & siddha
2. Texts books of Modern science
3. Published article from periodical journals and other magazines.

DETAIL STUDY OF INGREDIENTS OF AYA CHENDOORAM

s.no	Name of the drug	Botanical name
1	Loha	Ferrum
2	Haritaki	Terminalia chebula
3	Amlaki	Emblica officinalis
4	Bibitaki	Terminalia bellirica
5	Guduchi	Tinospora cordifolia
6	Jambu	Syzygium cumini
7	Pala charu	Citrus aurantifolia

AMALAKI[1] – Emblica Officinalis
LATIN NAME: Emblica Officinalis
FAMILY: Euphorbiacea

VERNACULAR NAME
Hindi: Amla, Kannada: Nellikayi, Tamil: Nellikkai, Nelli. Telugu: Usirika. English: Indian Gooseberry.
Synonyms: Dhatri,shripahala, amrithaphala, sheetaphala.
Part used: Fruit pulp.

Pharmacodynamics
Rasa: Lavana varjitha,Amla pradhana pancharasa
Guna: Ruksha
Veerya: Sheeta
Vipaka: Madhura
Doshagnata: Kapha PIttahara

HARITAKI[2] -Terminalea Chebula
Latin name: Terminalea chebula
Family: Combertaceae

VERNACULAR NAME
Hindi: harad,Kannada: Alalekayi,Tamil: Kadukkai,Telugu: Karaka, Karakkaya, English: Chebulic Myrobalan
Synonyms: Abaya, pathya, kayastha
Part used: Fruit

Pharmacodynamics
Rasa: Lavana varjitha kashaya pradhana pancha rasa
Guna: Laghu, ruksha
Veerya: Usna
Vipaka: Madhura
Doshagnata: Tridoshahara
Contraindications: Pregnancy, severe exhaustion, dehydration, emaciation, pitta prakopa conditions.

BHIBITAKI[3] – Termenelia bellarica
Latin name: Terminalea bellarica
Family: Combertaceae

VERNACULAR NAME
Hindi: Beheda, Kannada: Tare kayi, Telugu: Thanikkaya, Tamil: Thanrikkai, Malayalam: Thannikka, English: Beleric myrobalan,
Synonyms: Akshaphala, Kalidruna, Karaphala
Part used: Fruit

Pharmacodynamics
Rasa: Kashaya
Guna: Laghu, ruksha
Veerya: Usna
Vipaka: Madhura
Doshagnata: Kaphahara

GUDUCHI[4] -Tinospera Cordifolia
Latin name: Tinospera Cordifolia
Family: Menispermaceae

VERNACULAR NAME
Hindi: Gileo, Gurcha, Kannada: Amirtaballi, Telugu: Thippateega, Tamil: Seendil koodi, Seendal, Malayalam: Chittamrutu.
Synonyms: Amritha, Jeevanthi, Madhuparni.
Part used: Mula and Kanda (Root and Stem)

Pharmacodynamics
Rasa: Tikta
Guna: Guru, Snigdha
Virya: Usna
Vipaka: Madhura
Doshagnata: Tridoshasamaka

JAMBU[5] – Syzygium Cumini
Latin name – Syzygium cumini
Family: Myrtaceae

VERNACULAR NAME
Hindi: Jamun, Rajajamun, Kannada: Neralebeeja, Jambunerale, Telugu:Alla Nereduchettu, Neredu chuttu, Tamil: Naval, Malayalam: Naval, Njaval, English: Jambul Tree.
Synonyms: Maha jambu, Maharasa, Phalendra.
Part used: Fruit, Bark, Leaf, Seed.

Pharmacodynamics
Rasa: Madhura, Amla, Kashaya
Guna: Guru, Ruksha
Virya: Seeta
Vipaka: Katu
Doshagnata: Kaphapittasamaka

NIMBUKAM[6] – Citrus Medica
Latin name: Citrus Medica
Family: Rutaceae

VERNACULAR NAME
Hindi: Kagaji nibu, Kannada: Nimbe hannu, Telugu: Nimma pandu, Tamil: Elumichai
Malayalam: Erumichairakam, English: lemon,
Synonyms: Rajanimba, Patratwak
Part used: Fruit

Pharmacodynamics
Rasa: Amla
Guna: Laghu, Tikshna
Virya: Anusna
Vipaka; Madhura

Doshagnata: Tridoshaghna

LOHA BHASMA (AYA)

Lauha Bhasma is calcined iron. It is an inorganic preparation. The process of Lauha Bhasma preparation involves several steps. Loha Bhasma is extensively used in Ayurveda. It increases hemoglobin level, gives strength and cures anemia, edema. Iron is tonic that gives vigour and longevity, Lauha Bhasma is useful in anemia (Panduroga), chlorosis, visarpa, heart's affections, phthisis, scrofule general debility, sexual debility, Bright's disease. Pranieha (diabetes). Yakshnia (tuberculosis), Krimi Roga (worm infestation). Kshinatwa (cachexia). Sthaulya (obesity), Grahani (bowel syndrome). Agnimandya (dyspepsia), Shula (spasmodic pain), Visha (poisoning), blood impurity, jaundice. liver and spleen complaints, paia, asthma, piles skin diseases.

Method of Preparation

Method of Putapaka: Loha Churna processed with Sthali Paka is washed with water and mixed with Triphala Kvatha and ground well. Thin flat cakrikas are prepared. dried and placed in sharava Samputa. The Sandhi is sealed, dried and subjected to Gaja Puta.

Composition of Lauha Bhasma

Lauha Bhasma has following composition

- Ferris oxide Fe_2O, 87.930%
- Ferrous oxide FeO 2.850%
- Silica SiO_2 7.338%
- Phosphorous pentoxide P_2O, 0.338%
- Magnesia MgO 0.083%
- Lime CaO 0.363%
- Potash K_2O 0.012%

METHOD OF PREPARATION

Purified iron is mixed with triphala chooranam and guduchi chooranam in equal quanity is dipped in jambu swarasa for 3 months after that processed iron is marana with nimbu swarasa then made into puta.

PHYSICOCHEMICAL ANALYSIS OF AYA CHENDOORAM

The preliminary physicochemical screening test was carried out for AYA CHENDOORAM as per the standard procedures mentioned hereunder.

1. Loss on Drying: An accurately weighed 1g of AYA CHENDOORAM formulation was taken in a tarred glass bottle. The crude drug was heated at 1050C for 6 hours in an oven till a constant weight. The Percentage moisture content of the sample was calculated with reference to the shade dried material.

2. Determination of total ash: Weighed accurately 2g of AYA CHENDOORAM formulation was added in crucible at a temperature 6000C in a muffle furnace till carbon free ash was obtained. It was calculated with reference to the air dried drug.

3. Determination of acid insoluble ash: Ash above obtained, was boiled for 5min with 25ml of 1M Hydrochloric acid and filtered using an ash less filter paper. Insoluble matter retained on filter paper was washed with hot water and filter paper was burnt to a constant weight in a muffle furnace. The percentage of acid insoluble as was calculated with reference to the air dried drug.

4. Determination of water soluble ash: Total ash 1g was boiled for 5min with 25ml water and insoluble matter collected on an ash less filter paper was washed with hot water and ignited for 15 min at a temperature not exceeding 4500C in a muffle furnace. The amount of soluble ash is determined by drying the filtrate.

5. Determination of water soluble Extractive: 5gm of air dried drug, coarsely powered AYA CHENDOORAM was macerated with 100ml of distilled water in a closed flask for twenty-four hours, shaking frequently. The Solution was filtered and 25 ml of filtrated was evaporated in a tarred flat bottom shallow dish, further dried at 1000C and weighted. The percentage of water soluble extractive was calculated with reference to the air dried drugs.

6. Determination of alcohol soluble extractive: 1 gm of air dried drug coarsely powdered AYA CHENDOORAM was macerated with 20 ml alcohol in closed flask for 24 hrs. With frequent shaking, it was filtered rapidly taking precaution against loss of alcohol 10ml of filtrate was then evaporated in a tarred flat bottom shallow dish, dried at 1000C and weighted. The percentage of alcohol soluble extractive was calculated with reference to air dried drug.

The observed values of the physic-chemical properties are given below.

S.No	Parameters	Percentage
1	Loss on drying	0.7119%
2	Total ash value	86.4077%
3	Acid insoluble ash	75.6731%
4	Water soluble ash	3.3521%
5	Water soluble extraction	7.1273%
6	Alcohol soluble extraction	5.2636%

PRELIMINARY PHYTOCHEMICAL SCREENING OF *AYA CHENDOORAM*

The preliminary phytochemical screening test was carried out for each extracts of ***AYA CHENDOORAM*** as per the standard procedure mentioned hereunder.

1. Detection of alkaloids

Extracts were dissolved individually in dilute Hydrochloric acid and filtered.

a) Mayer's Test: Filtrates were treated with Mayer's reagent (Potassium Mercuric Iodide). Formation of a yellow colour precipitate indicates the presence of alkaloids.

b) Dragendroff's Test: Filtrates were treated with Dragendroff's reagent (Potassium Bismuth Iodide). Formation of a red precipitate indicates the presence of alkaloids.

c) Wagner's Test: Filtrates were treated with Wagner's reagent (Iodine in Potassium Iodide). Formation of brown/reddish precipitate indicates the presence of alkaloids.

2. Detection of carbohydrates.

Extracts were dissolved individually in 5 ml distilled water and filtered. The filtrates were used to test for the presence of carbohydrates.

a) Molisch's Test: To 2 ml of plant sample extract, two drops of alcoholic solution of α- naphthol are added. The mixture is shaken well and few drops of concentrated sulphuric acid is added slowly along the sides of test tube. A violet ring indicates the presence of carbohydrates.

b) Benedict's Test: Filtrates were treated with Benedict's reagent and heated gently. Orange red precipitate indicates the presence of reducing sugars.

3. Detection of saponins

Foam Test: 0.5 gm of extract was shaken with 2 ml of water. If foam produced persists for ten minutes it indicates the presence of saponins.

4. Detection of phenols Ferric Chloride Test:

Extracts were treated with 3-4 drops of ferric chloride solution. Formation of bluish black color indicates the presence of phenols.

5. Detection of tannins Gelatin Test:

The extract is dissolved in 5 ml of distilled water and 2 ml of 1% solution of Gelatin containing 10% NaCl is added to it. White precipitate indicates the presence of phenolic compounds.

6. Detection of Flavonoids

a) Alkaline Reagent Test: Extracts were treated with few drops of sodium hydroxide solution. Formation of intense yellow color, which becomes colorless on addition of dilute acid, indicates the presence of flavonoids.

b) Lead acetate Test: Extracts were treated with few drops of lead acetate solution. Formation of yellow color precipitate indicates the presence of flavonoids.

7. Detection of diterpenes Copper Acetate Test

Extracts were dissolved in water and treated with 3-4 drops of copper acetate solution. Formation of emerald green color indicates the presence of diterpenes.

8. Test for Quinones

Extract was treated with sodium hydroxide blue or red precipitate indicates the presence of Quinones.

9. Gum and Mucilage

To 1ml of extract add 2.5ml of absolute alcohol and stirring constantly. Then the precipitate was dried in air and examine for its swelling properties. Swelling was observed that will indicate presence of gum and mucilage.

The Preliminary phytochemical studies of aqueous extract of ***AYA CHENDOORAM*** were done using standard procedures. The results were presented in tables. The present study reveals that the bioactive compounds were present in all the extracts of ***AYA CHENDOORAM*.**

S.No.	Phytochemicals	Test Name	H2O Extract
1	Alkaloids	Mayer's Test Dragendroff's Test Wagner Test	-ve -ve -ve
2	Carbohydrates	Molisch's Test Benedict Test	-ve -ve
3	Saponin	Foam Test	-ve
4	Phenols	Ferric Chloride Test	-ve
5	Tannins	Gelatin Test	-ve
6	Flavonoids	Alkaline Reagent Test Lead acetate	-ve -ve
7	Diterpenes	Copper Acetate Test	-ve
8	Quinones	Test for Quinones	-ve
9	Gum & Mucilage	Test for Gum & Mucilage	+ve

+ve/-ve present or absent if component tested

DISCUSSION

- The observed values of the physio chemical properties Loss on drying(0.7119%)
  Total ash value(86.4077%) Acid insoluble ash(75.6731%) Water soluble ash(3.3521%) Water soluble extraction(7.1273%) Alcohol soluble extraction(5.2636%)
- In Aya chendooram formulation the phytochemicals properties like gum and mucilage were present and absence of alkaloids, carbohydrate, flavonoids, tannins, diterpenes, phenols and quinine, Saponin.
- Kaphahara and Vatahara dravyas in aya chendooram its is very much benfical in treating pandu roga

CONCLUSION

Loha (Aya) and jambu Swarasa and nimbu swarasa are main ingredients in this yoga and hence the name Aya Chendooram mentioned in Siddha literature kannusamiyam vaithyasegaram. Action of the medicine mainly depends upon its constituents like Rasa, Guna, Veerya, Vipaka, Prabhava etc.

Jambu- rasa is kashaya,Madura,amla.rakta is the seat of pitta kashaya, Madura decreases pitta and hence every impurities in the blood is relieved by the rasas kashaya rasa has sthambana property by which the Fe content can binded jambu is ruksha guna it is again pitta hara in nature.it has the dosha karma kapha pitta hara.

Nimbu is deepana pacana in nature so it clears Aamathwa and makes the dhatuwagni proper it is found that citric acid has the property to increase aborption of iron, which will reduce anemic condition. Both nimbu and jumbu has krimighna property by which the intestinal worms eliminated, wrom infestation is one of the main causes of anemia.

There is a possible chance of absorption of iron from the cast vessel because of the properties of citric acid and again made in to 1 putta due to micro particles (Rekha pooranatuvam) it easy absorbed in the body which may be a reason for the better result of this preparation in iron deficiency anemia.

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