A Literature Review of Bhaskaralavana Churna for Ajeeranam in Indigenous Medicine

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ABSTRACT

The Sri Lankan Indigenous Medicine is a mixture of the Ayurveda, Siddha, Unani and Desheeya Chikitsa. Bhaskaralavanachurna is one of the important drugs in Ayurvedha hospitals in Sri Lanka. Therefore we selected this drug to literature review related it’s ingredients for “Ajeeranam”. This study was done at Unit of Siddha Medicine, University of Jaffna from October 2019 to January 2020. Data for the literature review were collected from relevant books, peer review journals and websites. It is consists scientific names; habitat; vernacular names; parts used; organoleptic characters; phytochemicals such as volatile oil and starch were highly found in these medicinal plants. 100% Na, 50% Mg, 25% Ca, and 25% Cl were found in these minerals. Based on morphology 7 (50%) plants were herbs. From these plants, 3 (21.42%) of the species were found in Piperaceae family; 11 (78%) were cultivated in Ceylon; 5 species (35.75%) were used as fruits and 3 (21.42%) were used as seeds. These plants contain pungent taste [10 (45%)]; Salty [4 (18%)], bitter [3 (14%)] , astringent [2 (9%)] , sweet [2 (9%)] and sour [1 (5%)]; hot potency [14 (78%)], cold potency [3 (17%)] and hot and cold [1 (5%)]; pungent efficacy [16 (89%)] and sweet [2 (11%)]; pharmacological actions such as carminative [14 (77.7%)], stomachic [12 (66.6%)], stimulant [7 (38.8%)] and astringent [3 (16.6%)]; Phytochemicals such as volatile oil [8 (57.14%)] and starch [4 (28%)] were highly found in these medicinal plants. 100% Na, 50% Mg, 25% Ca, and 25% Cl were found in these minerals. This literature review provides useful documented evidence related it’s ingredients for Ajeeranam. There is need further laboratory study and toxicity study about this drug in future.

Keywords: Ajeeranam, Bhaskaralavanachurna, Herbomineral, Indigenous medicine.

1. Introduction

The Sri Lankan Indigenous Medicine is a mixture of the Ayurveda, Siddha, Unani and Desheeya Chikitsa [35]. Siddha medicine is an ancient system of medicine prevalent in South India [28]. The system is said to have emerged in antiquity from highly evolved consciousness of siddhars. They possessed super natural powers [34].

In Siddha medicine, the individual is microcosm of the universe. The human body consists of the five primordial elements and 7 physical constituents [28]. Vatham, pitham, kapham are three humors which are life constituents of the human body [23]. Disturbance and imbalance of humours leads to disease [34].

Treatment is aim at restoring balance to the mind and body system [28]. Siddhars can be classified the medicine type into three groups such as herbal products, mineral products and animal products [34]. There are 32 types of internal and 32 external medicines in siddha medicine [4].

Chooranam is one of the internal medicine which is the fine powder of drug. The raw drugs are purified separately then pounded separately, sieved mixed according to the given ratio. It is purified by pittavial process [4]. Bhaskaralavana churna is one of the internal medicine in the category of churnam which is the herbo mineral preparation which consist totally 18 ingredients, from this 14 were herbs and 04 were minerals [3].

Bhaskara Lavana churna is one of the most important drugs in Ayurvedha hospitals in Sri Lanka [5]. It was given for ajeeranam such as indigestion, gas flatulence, gastritis, loss of appetite, abdominal pain and constipation in the dose of 500 mg-1500 mg, bd, before meal with hot water/Butter milk [3],[33]. Butter milk has high nutrient value and cooling properties (97.5 g moisture) [25].
2. Methodology

2.1. Study design

A literature review of Bhaskaralavana churna for ajeeranam in indigenous medicine.

2.2. Place and study period

Library at Unit of Siddha Medicine, University of Jaffna, Sri Lanka from October 2019 to January 2020.

2.3. Research instrument

Data entry form.

2.4. Data collection

Data for the literature review were collected from relevant books, peer review journals and websites with the help of data entry form which consists botanical names/scientific names, habitat, family, vernacular names, parts used, organoleptic characters, phytochemicals, and pharmacological actions for the ingredients of this drug.

2.5. Statistical analysis

Collected data were analyzed by simple statistical method with the help of MS Office 2010.

3. Results and discussion

3.1. Taxonomic position of the medicinal plants

Fourteen plants species belonging to 8 families which had been documented as remedies for ajeeranam were used for review. The taxonomic position of the individual plants is summarized in table 1. Plant taxonomy is the science that finds identifies, classifies, describes, and names of the plants [9].

3.2. Family distribution of the medicinal plants

A plant family is simply a collection of plants that share characteristics grouped together. Plants can be categorized by similar features such as overall appearance, seed groupings, flower, shape and to show their relationship to one another [35]. Families of the selected medicinal plants are shown in table 1.

| Botanical/ Scientific/ Chemical names | Vernacular names | Family names/ types of minerals |
|--------------------------------------|-----------------|-------------------------------|
|                                      | Tamil name      | English name | Sinhala name | Sanskrit name |                      |
| Coriander sativum                    | Koththamalli    | Coriander    | Kottamalli   | Ababika       | Umbliferae          |
| Piper longum                         | Thipilli        | Long pepper  | Tipilli      | Chapala       | Piperaceae          |
| Piper longum                         | Thipilli moolam | Long pepper  | Tipilli      | Chapala       | Piperaceae          |
| Nigella sativa                       | Karuncheeragam  | Black cumin  | Kaluduru     | Bhashpika     | Ranunculaceae       |

Table 1. Taxanomic positions of the medicinal plants and family distribution of the medicinal plants
| Species                  | Part Used         |
|--------------------------|-------------------|
| Mesua ferrea             | Sirunagampoo      |
| Abies webbiana           | Thalisapthri      |
| Cinnamomum verum         | Illavangam        |
| Cinnamomum tamala        | Illavangam        |
| Garcinia cambogia        | Korukkai          |
| Elettaria cardamomum     | Aealam            |
| Cuminum cyminum          | Seeragam          |
| Piper nigrum             | Milagu            |
| Punica granatum          | Maathulai oodu    |
| Zingerber officinale     | Sukku             |
| Sodium chloride          | Kariyuppu         |
| Black salt               | Pitalavanam       |
| Asphalte                 | Kallupu           |
| Sodium chloride impura   | Induppu           |

From these medicinal plants, 21.4% of the species were found in Piperaceae. Umbelliferae, Lauraceae, Guttiferae and Zingiberaceae were 14.28% each other. Punicaceae, Coniferae, and Ranunculaceae were 7.14% each other.

### 3.3. Parts of the medicinal plants used for Bhaskaralavana Churna

Medicinal properties derived from plants may come from many different parts of a plant including leaves, roots, barks, seeds, fruits, and flowers.

![Fig.1. Parts of the medicinal plants used for Bhaskara lavana Churna](image)

The different parts of these plants contain different active ingredients and organoleptic characters [11]. The review revealed that parts used for Bhaskaralavana Churna were fruits 35.71%, seeds 21.42%, leaves 14.28% and root, bark, dry rhizome and flowers were 7.14% each other [1],[8].

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3.4. Morphology of medicinal plants used for Bhaskaralavana Churna

Plant morphology is the study of the physical form and external structure of plants. It is the study of the internal structure of plants. Plant morphology is useful in the visual identification of plants [10]. Based on the morphology of medicinal plants 50% plants were classified to be herbs, 35.71% trees and 14.28% shrub [1],[8].

3.5. Habitat of the medicinal plants used for Bhaskaralavana Churna

The review indicates that 11 (78.5%) plants are cultivated in Ceylon and 3 (21.42%) plants are not cultivated in Ceylon. They are cultivated in foreign countries [2],[8].

3.6. Siddha properties of medicinal plants and minerals of this Churna

The drugs used by Siddha medicine are classified on the basis of five properties: taste, character, potency, efficacy and action [12]. Taste has got a significant place in Siddha medicine. Tongue experiences these tastes when a drug is administrated orally. Six tastes are sweet, salty, pungent, bitter and astringent. Potency is described as an active constituent of the drug which is responsible for the pharmacological activity of the medicinal herbs and other drugs. The drug has cold and hot potency. It is said to be the post absorptive taste which is an important aspect [13],[14].These plants contains siddha properties such as pungent taste 71.4%, bitter 21.4% and sour, sweet and astringent were 7.1% each other. Minerals also have taste, potency and efficacy which are responsible for its pharmacological actions. These minerals were salty taste, hot potency and pungent efficacy. Table 2 shows its organoleptic characters of this medicinal plant and minerals of this drug [4].

| Sl. No. | Botanical names    | Parts used | Tastes    | Potency (Hot/cool) | Efficacy (vipakam) |
|--------|--------------------|------------|-----------|--------------------|-------------------|
| 1      | Coriander sativum  | Seed       | Pungent   | Hot and cool       | Pungent           |
| 2      | Piper longum       | Fruit      | Pungent   | Hot                | Pungent           |
| 3      | Piper longum       | Root       | Pungent   | Hot                | Pungent           |

Fig.2. Morphology of medicinal plants
3.7. Pharmacological actions of the medicinal plants and minerals of this drug

Action is the function of the drug. A drug has more than one action [13],[14]. The specific pharmacological actions of the medicinal plants and minerals which were utilized for the Bhaskaralavana are listed in Table 3. According to this table, carminative 66.6%, stomachic 61.1%, stimulant 38.8%, digestive 5.5%, astringent 16.6%, refrigerant 5.5%, laxative 5.5% , diuretic11.1%, astringent 16.6% and alterative and tonic were 11.1% each other.

3.8. Phytochemicals contents of this drug

Phytochemicals are non-nutritive chemicals that have disease preventive properties which are active principle for function of the drug [15]. Common Phytochemicals of these plants such as volatile oil 57.1%, essential oil 7.1%, fixed oil 14.2%, starch 28.5%, resin 28.5%, tannin 21.4%, fatty oil 21.4% and gums 14.2%. The minerals contain Ca, Mg, Na and Cl [2],[8]. Table 3 shows pharmacological actions and phytochemicals of ingredients of this drug.

| Sl. No. | Botanical name/ Chemical name | Pharmacological actions | Phytochemicals |
|---------|--------------------------------|-------------------------|----------------|
| 1       | Coriander sativum              | Carminative, stomachic, stimulant, diuretic, aromatic refrigerant, tonic, antibilious | Coriandrol, volatile oil, malic acid, mucilage, tannin, barboneol, d-pinene |
| 2       | Piper longum                   | Carminative, Stimulant, Diuretic, Alterative            | Piperine, volatile oil, starch, resin, fatty oil and gum |
| No. | Plant Name             | Properties                        | Active Constituents                                                                 |
|-----|------------------------|-----------------------------------|-------------------------------------------------------------------------------------|
| 3   | *Piper longum*         | Stomachic, expectorant            | Piperine, volatile oil, starch, resin, fatty oil and gum                             |
| 4   | *Nigella sativa*       | Carminative, stomachic, diuretic, | Volatile oil, essential oil, fixed oil, Arabic acid, melanthin, carvone, terpepene, nigelline, connigelline |
|     |                        | emollient                         |                                                                                     |
| 5   | *Mesua ferrea*         | Astringent, carminative           | Essential oil, mesoul                                                                |
| 6   | *Abies webbiana*       | Carminative, stomachic, expectorant, tonic | Volatile oil, taxol, tannin, ephedrine                                              |
| 7   | *Cinnamomum verum*     | Carminative, stimulant            | Sapponins, flavonoids, tannin, phenolic acid                                        |
| 8   | *Cinnamomum tamala*    | Carminative, stomachic, stimulant, | Tannins, alkaloids, flavonoid, terpenoids                                            |
|     |                        | diaphoretic                       |                                                                                     |
| 9   | *Garcinia cambogia*    | Carminative, digestive             | Hydroxycitric acid, polyphenols, kaemperol                                          |
| 10  | *Elettaria cardamomum* | Carminative, stimulant, stomachic | Volatile oil, fixed oil, cineole, barneol, terpinyl acetate, barneol, starch         |
| 11  | *Cuminum cyminum*      | Carminative, astringent, aromatic  | Fatty oil, cumin, cuminol, thymine, cymene, resin, mucilage                         |
| 12  | *Piper nigrum*         | Carminative, stimulant, acrid     | Piperine, piperidine, volatile oil, oleo resin                                       |
| 13  | *Punica granatum*      | stomachic, astringent             | Gallo tannins, gallic acid, punicalins, punicalagins                                 |
| 14  | *Zingerber officinale* | Stomachic, carminative, stimulant | Zingerone, gingerol, volatile oil, gingeberol, gingerine                             |
| 15  | *Sodium chloride*      | Stomachic, laxative, Antacid      | Na, Mg, Cl, Ca                                                                      |
| 16  | *Black salt*           | Antacid, Carminative, stomachic, | Antacid, Carminative, stomachic, laxative, alterative, tonic                        |
|     |                        | laxative, alterative, tonic       | Na                                                                                    |
| 17  | *Asphalte*             | Antacid                           | Na, Cl                                                                               |
| 18  | *Sodiumchloride impura*| Carminative, antacid, stimulant,  | Carminative, antacid, stimulant, stomachic, digestive, refrigerant, purgative       |
|     |                        | stomachic, digestive, refrigerant, | Na, Mg, Ca                                                                           |
|     |                        | purgative                         |                                                                                     |
Fig. 3. Total number of ingredients and its taste

- Pungent taste is the highest form of the ingredients

Fig. 4. Total number of ingredients and potency

- Hot potency is the highest with fourteen in total number

Fig. 5. Total number of ingredients and its vipakam

- Pungent is the highest form of the ingredients
4. Conclusion

This literature review provides useful documented evidence related to its ingredients for ajeeranam in the indigenous medicine.

5. Suggestions

There is a need for further laboratory study and toxicity study about this drug in future.

Authors’ contributions

This work was carried out in collaboration between both authors. Author JK and YD designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Author NRM and NN manage the literature searches and analysis of the study. Both authors read and approved the final manuscript.
Declarations

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Competing Interests Statement

The authors declare no competing financial, professional and personal interests.

Consent for publication

Authors declare that they consented for the publication of this research work.

Ethical Approval

Based on Institutional guidelines.

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