

## Phytochemical Screening of a Polyherb: Seeraga Chooranam

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### ABSTRACT

Herbal medicines are useful for healing and curing a variety of diseases from the ancient period. The phytochemicals present in the medicinal plants possess a defense mechanism against various diseases. Phytochemicals are chemical compounds that occur naturally in plant sources. Seeraga chooranam of herbal origin was selected and investigated for its phytochemicals by subjecting it to the phytochemical screening. Based on the standard literatures seeraga chooranam was screened for the presence of phytochemicals like alkaloids, saponins, tannins, steroids, cardiac glycosides, etc.,. Seeraga chooranam is a polyherb composed of a variety of herbs. In this study phytochemical screening was performed using both solvent and aqueous extracts which showed the presence of saponins, flavonoids and terpenoids in both the extract and absence of alkaloids, tannins, steroids and cardiac glycosides. The presence of the phytocompounds ensured that this has medicinal value. Herbs has medicinal properties has medicinal properties which can be used to treat various diseases like diabetes, pneumonia, cardiac disease etc. The phytochemicals have a strong role like antitumor, antioxidant, anti-inflammatory, anti-cancer, anti-viral, antibacterial and analgesic properties. In many developing countries, a large proportion of the population believe that traditional medicine has the potential to meet their health care needs.

**Keywords:** Polyherb, Phytochemicals, Seeraga chooranam.

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### INTRODUCTION

Herbal medicines commonly known as the traditional system of medicine have been used in medical practices since antiquity<sup>1</sup>. Medicinal plants have been identified and used from the ancient times to cure a variety of diseases. Plants synthesise a wide variety of chemical compounds which has specific biological functions that defends against a variety of diseases. Natural products are the source of synthetic and traditional herbal medicine. In herbal medicinal system the importance of indigenous plants has been described against many diseases. Our mother nature serves as an important source for the cure of all the ailments. However, the potential of higher plants as a source for new drugs is still largely unexplored<sup>2</sup>. The traditional system of using medicinal plants for curing many diseases dates back to the age of Rig Veda. Many microbial diseases can be cured by medicinal plants without any side effects<sup>3</sup>. Infection with various microorganisms is one of the leading cause for a number of diseases<sup>4</sup>. World Health Organisation stated that most of the population depends on traditional medicine for primary health care needs<sup>5</sup>. According to WHO guidelines, an herbal product need to be evaluated for its safety before its release into the market<sup>6</sup>. The importance of plants is well known to us and the plant kingdom is a treasure house of potential drugs and nowadays awareness has been created about the importance and the use of medicinal plants. Drugs derived from the plants are easily available, efficient, less expensive, safe, and rarely have side effects. The plants which have been selected for medicinal use over thousands of years constitute the most obvious choice

of examining the current search for therapeutically effective many new drugs such as anticancer drugs etc.,<sup>7</sup>. India is known for its rich diversity of medicinal plants and these plants were utilized as therapeutic agents. Current research is mainly focused on medicinal plants because the bioactive compounds and the medicinal power mainly depend on phytochemical constituents that have great pharmacological significance. The phytochemical constituents, natural bioactive compounds, nutrients and fibers present in medicinal plants, fruits and vegetables defend us from various ailments<sup>8</sup>. The medicinal plants are useful for healing as well as for curing many human diseases because of the presence of phytochemical compounds<sup>9</sup>. Phytochemicals are primary and secondary compounds. In specific chlorophyll, proteins and common sugars are included in primary constituents and secondary compounds have terpenoids, alkaloids etc.,<sup>10</sup>. Phytochemicals are the substances that produce many beneficial effects associated with a diet that includes lots of fruits, vegetables and grain which fights against various diseases. Arthritis, nausea etc., are some of the diseases which can be treated with the help of herbal medicine. There are a variety of food items where the phytochemicals are found in an enormous amount like cabbage, apples, garlic and many more. A Siddha system of medicine is the oldest, traditional and holistic system with which is being practiced by a large population in south India. The development of this traditional system of medicines with perspectives of safety, efficacy and quality will help not only to preserve the traditional heritage but also to rationalize the use of natural products in health care<sup>11& 12</sup>.

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Table 1: Polyherbal formulation of seeraga choornam

S.No	Siddha Name	Botanical Name
1	Seerakam	<i>Cuminum cyminum</i>
2	Sarkarai	<i>Sucrose</i>
3	Elumicham pazha saru	<i>Citrus limon</i>
4	Karumbu saru	<i>Saccharum officinarum</i>
5	Musumusukkai saru	<i>Mukia scabrella</i>
6	Nellikai saru	<i>Emblica officinalis</i>
7	Thulhualai saru	<i>Solanum trilobatum</i>
8	Veppam pattai saru	<i>Melia azadirachta</i>
9	Thumbai elai saru	<i>Leucas aspera</i>

Table 2: Results of seeraga choornam

S.No	Phytochemicals	Result	
		Solvent Extract	Aqueous Extract
1	Alkaloids	-	-
2	Tannins	-	-
3	Saponins	+	+
4	Flavonoids	+	+
5	Steroids	-	-
6	Cardiac glycosides	-	-
7	Terpenoids	+	+

+ = Positive; - = Negative

The siddha medicines could be categorized into two classes based on the mode of application: internal medicine which can be used through the oral route and external medicine includes certain forms of drugs and also certain applications (nasal, eye and ear drops). Herbal drugs have found wide spread use in many countries not only because they are easily available and are cheaper but an important reason has been the notion that they are safer than synthetic drugs which may not always be true<sup>13</sup>. Not only in form of drugs even in cooking, many indigenous plants are used as the major ingredient<sup>14</sup>. The Asian and African countries popularised the use of herbs or traditional medicines in their health care system and also for the production of the new drugs. Siddha medicine (chooranam), a mixture of powdered herbs which helps in body regulation and nowadays the same is formulated into tablets in order to fix the dose for easy intake which makes it more convenient for the people. Chooranam enhances many parameters including health complexion and many more. No doubt that these types of chooranam have a promising future and very effective to treat a variety of diseases. Seeraga chooranam, composed of multiple herbs such as *Cuminum cyminum*, *Emblica officinalis*, *Melia azadirachta* as mentioned in the table 1. The cumin plant (*Cuminum cyminum*), the main ingredient helps to get relieved from indigestion problem. In addition, this component has a multiple role in the treatment of a variety

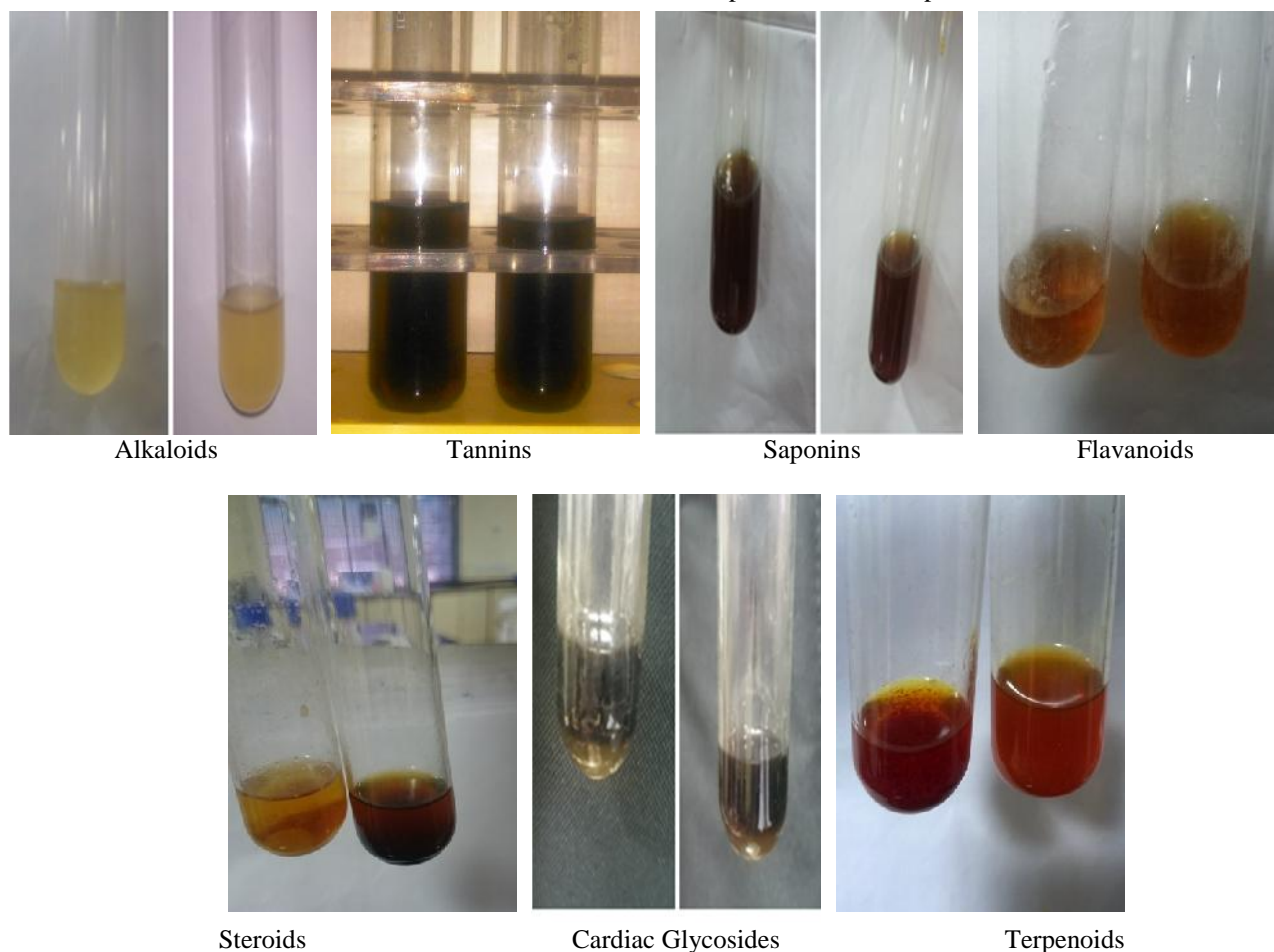


Figure 1: Results showing the presence of phytochemicals

of problems. Similar to this even the other compounds present helps to recover from many medical problems. This study was performed to investigate the presence of different phytochemicals in seeraga choornam.

## MATERIALS AND METHODS

### *Sample collection*

The sample was collected from local siddha market in packed form.

### *Solvent extract preparation*

10g of air dried chooranam powder was extracted with 100ml of organic solvent (methanol) and kept on a rotary shaker at 190-220rpm for 24hrs. The supernatant was collected and solvent was evaporated to make the final volume one-fourth of the original volume and stored at 4<sup>0</sup>c in air tight bottles<sup>15</sup>

### *Aqueous extract preparation*

The aqueous extract is prepared by soaking 100g of chooranam powder in 200ml of distilled water for 12hours. The extracts were filtered using whatmann filter paper (125mm).<sup>16</sup>

### *Phytochemical Screening*

The qualitative tests were carried out in both the extracts of chooranam adopting the standard procedures described by Harborne(1973), Softwara(1993) and Trease and Evans(1989).<sup>17, 18, 19</sup>

### *Tests for Alkaloids*

To 2ml of the chooranam extract, 2N of HCl was added and the aqueous layer formed was decanted. To that few drops of Mayer's reagent was added. Formation of cream precipitate revealed the presence of alkaloids.

### *Test for Tannins*

About 0.5g of the air dried choornam was boiled in 20ml of distilled water in a test tube and was then filtered. A few drops of 0.1% ferric chloride was added and observed for brownish green or blue - black colouration.

### *Test for Saponins*

2g of chooranam powder was boiled in 20ml of distilled water in a water bath and filtered. 10ml of the filtrate was mixed with 5ml of distilled water and shaken vigorously for a stable persistent froth. The frothing was mixed with 3 drops of olive oil and was shaken vigorously and then observed for the formation of emulsion.

### *Test for Flavonoids*

To 2ml of extract few drops of alcohol and magnesium was added. Few drops of concentrated hydrochloric acid was added to the solution and boiled. A yellow coloration observed indicated positive result for flavonoids.

### *Test for Steroids*

To 0.5ml of extract of the chooranam, 2ml of acetic anhydride and 2ml sulphuric acid was added. The colour change from violet to blue or green indicates the presence of steroids.

### *Tests for Cardiac glycosides*

The extract of the chooranam was reduced to dryness. 50mg of this was dissolved in 2ml chloroform and sulphuric acid was added to form a layer and the colour at the interphase was recorded. Brown ring at interphase indicates the presence of cardiac glycosides.

### *Tests for Terpenoids*

2ml of extract was treated with 1ml of 2, 4-dinitrophenyl hydrazine dissolved in 100ml of 2M HCl. A yellow-orange colouration showed the presence of terpenoid.

## RESULTS AND DISCUSSION

Natural products are the source of synthetic and traditional herbal medicines. Medicinal plants are those which possess specific substance that can be used as therapeutics. Herbal drugs are easily available, cheaper and are safer than synthetic drug. The curative properties of medicinal plants are perhaps due to the presence of various secondary metabolites such as alkaloids, flavonoids, glycosides, saponins etc.,<sup>20</sup>.

In this study a polyherbal formulation was evaluated for its phytochemical constituents and the presence of significant secondary metabolites were inferred. The presence of the different phytochemicals in the chooranam has a very promising future in the treatment of various diseases and this possess the following properties like antitumour, antioxidant, anti-inflammatory, anti-cancer, anti-viral and analgesic properties. The drugs used in medicine today are derivatives of plants and it is important because of the presence of bioactive constituents like saponins, tannins, alkaloids, flavonoids, steroids, etc. The present study carried out on the seeraga chooranam revealed the presence of the medicinally active constituents as showed in figure 1. This proved that the composition present in these polyherbs is very effective in the treatment of various diseases because this contains phytochemicals in an appreciable amount.<sup>21</sup> The phytochemical characteristics of the chooranam was investigated and summarized in table 1. Flavanoids, saponins, terpenoids steroids were present in the sample whereas the compounds like alkaloids, tannins, steroids, cardiac glycosides were absent. Based on the evaluation it can be accepted that the presence bioactive phytocomponents possess a good medicinal value. The medicinal values possessed by various phytochemicals increases the efficacy the chooranam like alkaloids can be used for treating cough and has anti-tumour, analgesic property, Steroids contains anti-inflammatory activity, Cardiac glycosides can be used in the treatment of cardiac diseases, and Tannins possess antiviral<sup>22</sup> and antibacterial activity<sup>23</sup> whereas flavonoids possess anti-oxidant activity, anti-cancer activity<sup>24</sup>. These bioactive compounds are found in medicinal plant parts which are precursors for the synthesis of useful drugs.

## CONCLUSION

Herbal medicines are considered as an important and useful therapeutic agent for humans. It is used not only to maintain but also to improve the health conditions. Intake of herbal medicines is always found to be safe and effective. The phytochemical screening of the polyherb showed the presence of flavonoids, saponins and terpenoids which has medicinal value and can be used for the treatment. Investigation of this polyherb revealed the presence of specific compounds. It's the nature, the important source from which the researchers derive the useful products that helps in the medicinal field. Thus, use

of herbal medicines is beneficial for humans as it can be used to treat various diseases without any harmful effects.

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