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PHYTOCHEMICAL SCREENING OF SIDDHA POLYHERBAL FORMULATION VISHAMIRTHA CHOORANAM

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ABSTRACT

Herbal medicines are useful for dog, cat, rat, centipede, snake bites 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. ***Vishamirtha Chooranam*** of herbal origin was selected and investigated for its phytochemicals by subjecting it to the phytochemical screening. Based on the standard literatures ***Vishamirtha Chooranam*** was screened for the presence of phytochemicals like Alkaloids, Flavonoids, Steroids, Terpenoids, Cucumarin, Phenol, Tanin, etc. ***Vishamirtha Chooranam*** is a polyherbal composed of a variety of herbs. In this study phytochemical screening was performed using both solvent and aqueous extracts which showed the presence of Alkaloids, Flavonoids, Steroids, Terpenoids, Cucumarin, Phenol, Tannin, Protein, Saponin, Sugar, Anthocyanin in both the extract and absence of betacyanin and cardiac glycosides. The presence of the phytocompounds ensured that this has medicinal value. 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: Vishamirtha chooranam, phytochemical, Siddha polyherbal formulation.

INTRODUCTION

Herbal medicines commonly known as the traditional system of medicine have been used in medical practices since antiquity.[1] Medicinal plants have been identified and used from the ancient times to cure a variety of diseases. Plants synthesize 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 Many microbial diseases can be cured by medicinal plants without any side effects.[3] Infection with various microorganisms is one of the leading causes for a number of diseases.[4] World Health Organization stated that most of the population depends on traditional medicine for primary health care needs.[5] According to WHO guidelines, an herbal product need to be evaluated for its safety before its release into the market.[6] 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.,[7] 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.[8] The medicinal plants are useful for healing as well as for curing many human diseases because of the presence of phytochemical compounds.[9] 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.,[10] 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 11 & 12.

MATERIALS AND METHODS

Ingredients of *Vishamirtha Chooranam*

1. Alingil pattai (Alangium salvifolium)
2. Nanju Murithan Kodi (Tylophora indica
3. Kuppai Meni (Agalipa indica)
4. Kodagasalai (Rungia repens)
5. Aadutheenda palai (Aristolochia brachelolata)
6. Kopuram thanki (Andrographis echioides)
7. Perunkizhangu (Aristolochia indica)

Purification

1. Alingil pattai (Alangium salvifolium)
2. Nanju Murithan Kodi (Tylophora indica
3. Kuppai Meni (Agalipa indica)
4. Kodagasalai (Rungia repens)
5. Aadu thinda palai (Aristolochia brachelolata)
6. Kopuram thanki (Andrographis echioides)
7. Perunkizhangu (Aristolochia indica)

All the 1-7 raw drugs are rinsed in water thoroughly and dried under shade.[5]

6.1.4. Preparation procedure

After purification, all the ingredients will be powder separately and take equal quantity of each powder. Then mixed thoroughly. Finally the chooranam will be store in dried Tight container.

Dosage: Trikadi (measurement of thirikadi: 800-1000mg) Adjuvant: water

Duration: 5-7 days Bid

Indication: Dog, Rat, Cat, Pesticide, Centipede and Snake bites

Sample collection

The sample was prepared and collected by pharmacology lab our institute.

Solvent extract preparation Test for alkaloids

Mayer's Test:, 2ml of mayer's reagent was added, a dull white precipitate revealed the presence of alkaloids.

Test for coumarins

To the test sample, 1 ml of 10% sodium hydroxide was added. The presence of coumarins is indicated by the formation of yellow color.

Test for saponins

To the test sample, 5 ml of water was added and the tube was shaken vigorously. Copious lather formation indicates the presence of Saponins.

Test for tannins

To the test sample, ferric chloride was added, formation of a dark blue or greenish black color showed the presence of tannins.

Test for glycosides- Borntrager's Test

Test drug is hydrolysed with concentrated hydrochloric acid for 2 hours on a water bath, filtered and the hydrolysate is subjected to the following tests. To 2 ml of filtered hydrolysate, 3 ml of choloroform is added and shaken, choloroform layer is separated and 10% ammomia solution is added to it. Pink colour indicates presence of glycosides.

Test for flavonoids

To the test sample about 5 ml of dilute ammonia solution were been added followed by addition of few drops of conc. Sulfuric acid. Appearance of yellow color indicates the presence of Flavonoids.

Test for phenols

Lead acetate test: To the test sample; 3 ml of 10% lead acetate solution was added. A bulky white precipitate indicated the presence of phenolic compounds.

Test for steroids

To the test sample, 2ml of chloroform was added with few drops of conc. Sulphuric acid (3ml), and shaken well. The upper layer in the test tube was turns into red and sulphuric acid layer showed yellow with green fluorescence. It showed the presence of steroids.

Triterpenoids

Liebermann–Burchard test: To the chloroform solution, few drops of acetic anhydride was added then mixed well. 1 ml concentrated sulphuric acid was added from the sides of the test tube, appearance of red ring indicates the presence of triterpenoids.

Test for Cyanine

A. Anthocyanin

To the test sample, 1 ml of 2N sodium hydroxide was added and heated for 5 min at 100°C. Formation of bluish green colour indicates the presence of anthocyanin.

Test for Carbohydrates - Benedict's test

To the test sample about 0.5 ml of Benedic's reagent is added. The mixture is heated on a boiling water bath for 2 minutes. A characteristic coloured precipitate indicates the presence of sugar.

Proteins (Biuret Test)

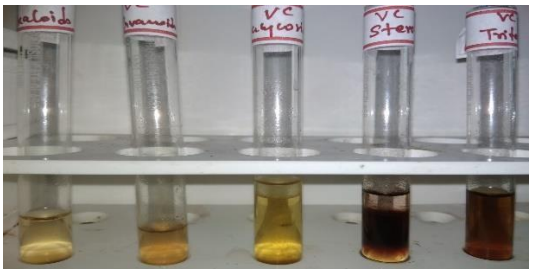
To extracts 1% solution of copper sulphate was added followed by 5% solution of sodium hydroxide, formation of violet purple colour indicates the presence of proteins.

Reference

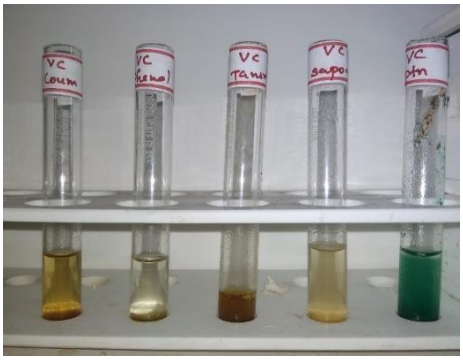
Brain KR, Turner TD. The Practical Evaluation of Phytopharmaceuticals. Bristol: Wright Scientechnica; 1975: 36-45

RESULTS AND DISCUSSION

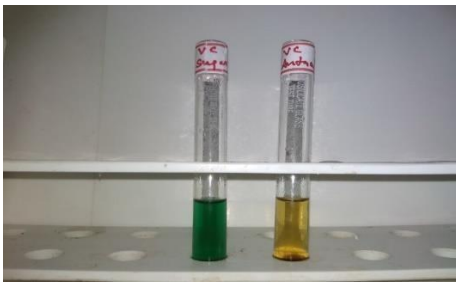
Test for Alkaloids, Flavonoids, Glycosides, Steroids and Triterpenoids



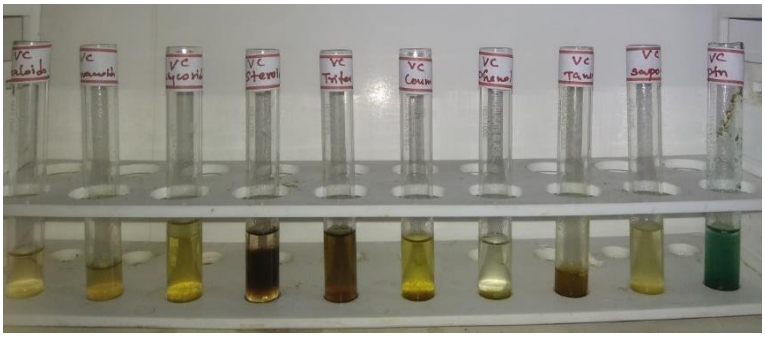
Test for Coumarins, Phenol, Tannins, Saponin, Proteins



Test for Antho Cynin and carbohydrates



RESULTS



S.NO	TEST	OBSERVATION
1	ALKALOIDS	+
2	FLAVANOIDS	+
3	GLYCOSIDES	-
4	STEROIDS	+
5	TRITERPENOIDS	+
6	COUMARIN	+
7	PHENOL	+
8	TANIN	+
9	PROTEIN	+
10	SAPONINS	+
11	SUGAR	+
12	ANTHOCYANIN	+
13	BETACYANIN	-

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.,[20] 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 ***Vishamirtha 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 ***Vishamirtha Chooranam*** revealed the presence of the medicinally active constituents as showed in figure 1.

This proved that the ***Vishamirtha Chooranam*** is very effective in the treatment of various diseases because this contains phytochemicals in an appreciable amount.[21] The phytochemical characterteristics of was in ***Vishamirtha Chooranam*** investigated and summarized in table 1. Alkaloids, 2. Flavanoids, 3. Steroids, saponins, 4. Terpenoids 5. Cucumarin, 6. Phenol, 7. Tanin, 8. Protein, 9. Saponin, 10. Sugar, 11. Anthocyanin were present in the sample whereas the compounds like cardiac glycosides, Betacyanin 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 ***Vishamirtha 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[22] and antibacterial activity[23] whereas flavonoids possess anti-oxidant activity, anti-cancer activity.[24] 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 polyherbal formulation of ***Vishamirtha Chooranam*** showed the presence of Alkaloids, Flavanoids, Steroids, Terpenoids, Cucumarin, Phenol, Tanin, Protein, Saponin, Sugar,. Anthocyanin which has medicinal value and can be used for the treatment. Investigation of this polyherbal formulation of ***Vishamirtha Chooranam*** 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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