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STYPTIC ACTIVITY OF SIDDHA POLY HERBAL FORMULATION SATHIKKAI PODI (SP) FOR MENORRHAGIA IN WISTAR ALBINO RATS

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ABSTRACT

Objective: The aim of the study was to explore the styptic activity of Siddha polyherbal formulation Sathikkai podi for menorrhagia in wistar albino rats. **Methods:** The Siddha polyherbal formulation Sathikkai podi indicated for Menorrhagia was prepared based on GMP (Good Clinical Practice) guidelines. Study procedure was approved by Institutional Animal Ethics Committee (IAEC). The experimental animals were measured for Clotting time (CT), Bleeding time (BT), Prothrombin time (PT), Activated partial thromboplastin time (APTT). And then, findings were compared with the standard drug. **Results:** The findings revealed that test drug Sathikkai podi at higher dosage 200 mg/kg (Group III) had equal effect on Styptic activity with percentage protection of 94.6% when compared with the standard drug Tranexamic acid about 40 mg/kg (Group IV) with percentage protection 94.6%. However, the test drug Sathikkai podi at a higher dosage 200 mg/kg (Group III) with a percentage protection 94.6% was highly effective when compared with lower dosage about 100 mg/kg (Group II) with a percentage protection 49.16%. Hence, the study resulted that the Siddha polyherbal formulation Sathikkai podi has an optimistic Styptic activity with more therapeutic value. **Conclusion:** The study concluded that the Siddha polyherbal formulation Sathikkai podi has a promising Styptic activity, probably due to the presence of biologically active phytocompounds. However, it is important to admit that there are some scientific evidences of the potential actions of these phytocompounds in Styptic activity.

KEYWORDS: Siddha system, Sathikkai podi, Mennorrhagia, Styptic activity, Tranexamic acid, Wistar albino rats.

INTRODUCTION

The Siddha system of medicine is the oldest traditional treatment system generated from Dravidian culture and it is flourished in the period of Indus Valley Civilization.[1] It is an ancient system that is practiced in Tamil Nadu in South India and other Tamil-speaking regions of the world. Siddha system of medicine focuses on addressing the root cause of the disease rather than treating the disease symptoms.[2] Herbal plants play an important role in preventing and treating of human diseases.[3] Herbal medicine derived from plant extracts are being increasingly utilized to treat a wide variety of clinical diseases, though little knowledge about their mode of action is available. There is a growing interest in the pharmacological evaluation of various plants used in Indian Traditional System of medicine".[4] The Siddha Sutra emphasizes the line of usage of medicines as "*Verpaaru thazhaipaaru minginikaal Mellamella parpachenduram paare*" meaning, it has been suggested to use the pure herbs in liquid, powder, tablet, or paste form first. If such is not able to manage the illness, doctors will employ the combination of Purified animal products, metals, and minerals in addition to the herbs.[5]

Since the system uses multiple combinations of medicines, increasing the possibility of adulteration and replacement, a minimal amount of quality control, usage of current technologies for the generation of standards is needed for these medications to be accepted globally. One such ways include standardization of Siddha medicines which ensures the safety and quality through various scientific parameters. Depending on the type of medicine, the product has to be examined for its suitable parameters.[6] Siddha system of Medicine has unique combination of medicines, which have solution to the present scenario of excessive or prolonged menstrual bleeding. In Siddha, the symptoms of Menorrhagia can be correlated to Perumbadu specifically Pitha Perumbadu, according Yugi Vaidhiya Sindhamani.[7] Also, various Siddha medicines indicated for Perumbadu were also evident in Siddha literature. With that importance, one such herbal formulation Sathikkai podi which is mentioned in Gunapadam part -1, K.S.Murugesa Muthaliyar[8] for Menorrhagia, has been analysed for its Physicochemical and High-Performance Thin Layer Chromatography in order to promote its credibility through scientific way.

MATERIALS AND METHODS

The polyherbal preparation, Sathikkai podi, was identified in the canonical text "Gunapadam part -1, K. S. Murugesa Muthaliyar ". The ingredients for this formulation are included in Table -1.[9-14]

Table 1: Ingredients of SP.

Ingredients	Botanical name	Quantity
Sathikkai	*Myristica fragrans*	4 grams
Sanal	*Crotalaria juncea*	4 grams
Elam	*Elettaria cardamomum*	4 grams
Kirambu	*Syzygium aromaticum*	4 grams
Chithiramoola ver	*Plumbago zeylanica*	4 grams
Soodan	*Cinnamomum camphora*	4 grams

Collection, Identification and Authentication of the drug

All necessary plant materials were procured from a raw drug shop located at Parry's Corner in Chennai, Tamil Nadu. These materials were subsequently verified and confirmed by botanical (GSMC/MB 634-638) and pharmacological experts at the Government Siddha Medical College Hospital in Arumbakkam, Chennai – 106.

Purification of the drugs

All the drugs mentioned here were purified as per the Siddha literature. All impurities such as sand and dust have been removed.

Preparation of the drug procedure

- The purified raw drugs listed in Table 1 were meticulously ground into a fine powder using a mortar and pestle.
- The above mentioned purified powders were taken in the equal ratio of 4 grams and mixed well.
- This powder, named Sathikkai podi, was then stored in an airtight container for safekeeping.

Ethical approval

Before the initiation of preclinical evaluation, ethical approval for the study procedure was obtained from Institutional Animal Ethics Committee (IAEC) at Department of Pharmacy, C. L. Baid Metha college of Pharmacy, Thorapakkam, Chennai-6000092. All the study

procedure were performed as per the guidelines and ethical principles of ethics committee for experimentation using animals under proper care and control.

Test procedure

Animals were randomized into four groups of six animals each(Wistar albino rats).

Group I received vehicle

Group II received SP 100mg

Group III received SP 200mg

Group IV served as standard. (Tranexamic acid-TA)

The animals were administered the test drug orally and the blood sample were collected periodically for evaluation

Clotting time (CT)

The tail of the animal is warmed for 1 min in water at 40°C, dried and cut at the tip with a razor blade. A 25 µl sample of capillary blood was collected into a microhematocrit glass capillary. The chronometer was started when the blood is first made contact with the glass capillary tube. The blood left to flow by gravity between the two marks of the tube, 45 mm apart, by tilting the capillary tube alternately to +60° and -60° angles with respect to the horizontal plane until blood ceased to flow (reaction end point).

Bleeding time (BT)

The tail of the rat is warmed for 1min in water at 40°C and then dried. A small cut was made in the middle of the tail with a scalpel. Bleeding time started and noted when the first drop touched the circular filter paper and checked at 30 s intervals until bleeding stops.

Prothrombin time (PT)

0.1 ml of plasma mixed with 0.2 ml of PT reagent (calcium thromboplastin) maintain 37^{o}C, and observe the animals until formation of the fibrin clot. The time should be noted.

Activated Partial Thromboplastin time (APTT)

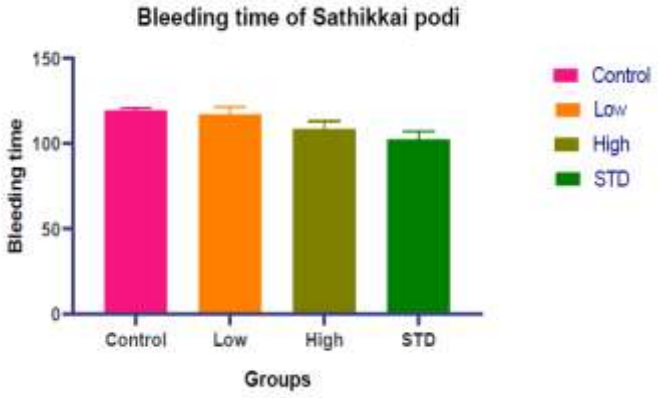
0.1 ml of plasma with 0.1mi of APTT reagent (cephalin-karolin suspension) incubated 37^{o}C for 5 minutes and then adds 0.1ml of 0.025ml cacl2 solution, until formation of the fibrin clot visually detected. The time should be noted.

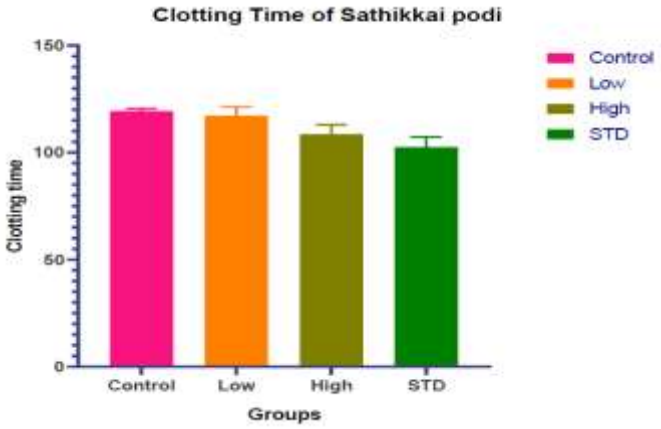
Fibrinogen time

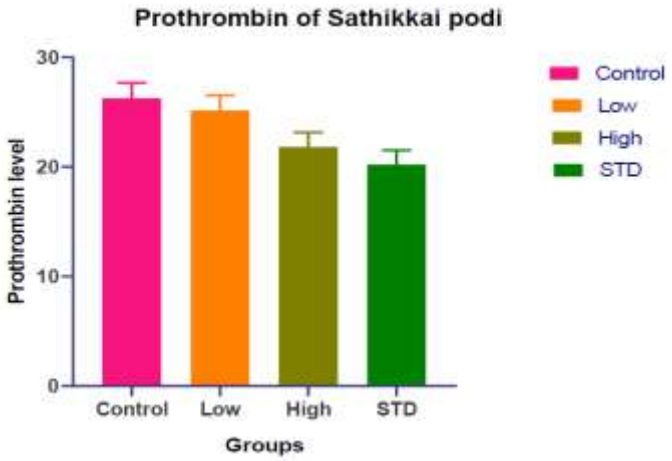
0.25ml of animal blood plasma add 0.05 ml of saline, and incubated 37^{o}C. After 30sec add 0.1ml of streptokinase solution, wait for 30sec, then add 0.1ml of bovine thrombin added. Start the stopwatch note at which time the fibrinogen clot formed.

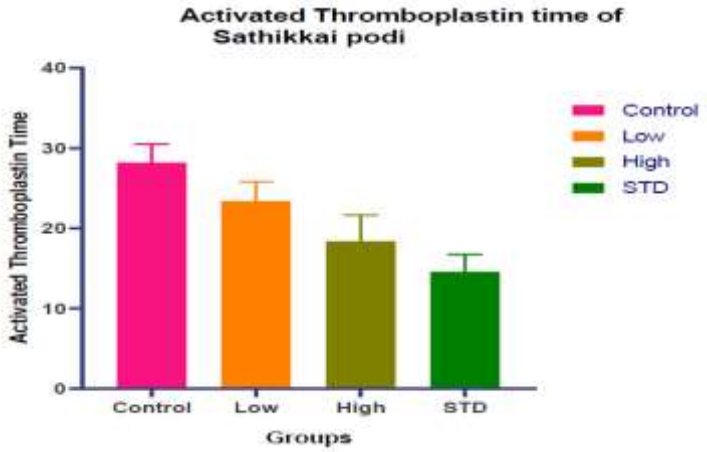
RESULTS

S. no.	Groups	Bleeding time (sec)	Clotting time (sec)	Prothrombin time	Activated Thromboplastin time	Fibrinogen time
1	Control	83.12±3.02	119.4±1.24	26.26±1.41	28.2±2.32	197.4±1.42
2	Low dose	95.43±2.21	117.2±4.11	25.14±1.38	23.4±2.41	175.2±2.11
3	High dose	87.2±3.11	108.6±4.44	21.81±1.34	18.4±3.24	146.6±3.34
4	Standard	83.48±3.14	102.6±4.71	20.2±1.32	14.6±2.12	116.7±2.43









DISCUSSION

Wistar albino rats is used widely as a working model in the search for new Styptic activity drug. From the results obtained, the test drug at the lower dose of 100 mg/kg with mild inhibition when compared to standard drug with percentage protection of 49.16%at 5th h. However, at higher dose, the test drug Sathikkai podi had equal effect with percentage protection of 94.6%, when compared with standard drug Tranexamic acid contains the percentage protection of 95.11% at 5th h. This ensured a Styptic activity of Siddha polyherbal formulation Sathikkai podi in Wistar albino rats. Researchers have been focusing on isolating and characterizing styptic activity compounds from polyherbal preparations in recent years. The goal of this study was to demonstrate the efficacy of SATHIKKAI PODI against MENORRHAGIA. It is strongly recommended to consider natural products for the treatment of infections, as multidrug-resistant pathogens responsible for nosocomial infections pose a significant threat to public health.

CONCLUSION

From the results and discussion, the Siddha polyherbal formulation Sathikkai podi has potent Styptic activity without any adverse effects. This activity mainly due to the presence of phytocompounds of herbal drugs present in Sathikkai podi. By this the current study concluded and ensured the Styptic activity of the Siddha polyherbal formulation Sathikkai podi. Hence, it will be a promising drug of choice for the management and treatment of Menorrhagia.

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