

Thembili Pol Mal (*Cocos Nucifera* Var *Aurantiaca* Flower) Swarasa Against Menorrhagia (*Rakta Pradara*)-Review

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ABSTRACT

Menorrhagia is cyclical bleeding that occurs at regular intervals but is excessive in quantity or length. Rather than being brought on by an ovarian disorder, these disorders typically affect the uterus and its vascular system. It happens when the endometrium's area—the bleeding surface—increases. It is related to *Rakta Pradara*, in accordance with Ayurveda. Because molecular medicine has fewer side effects, the use of herbal medicine in the treatment of menorrhagia has increased. *Rakta Pradara* is frequently treated with the traditional drug *Cocos nucifera var aurantiaca*.

OBJECTIVE- To use *Cocos nucifera var aurantiaca Swarasa* as a natural cure to treat menorrhagia in women while avoiding the difficulties that can result from using molecular therapy.

METHODOLOGY: Data were gathered from published articles, online databases, and *Ayurvedic* literature. A survey of the literature was done on that flower *Swarasa* and then examined for its *Pancha Padārtha* (5 elements of herb) and pharmacological qualities regarding in the management of menorrhagia.

RESULTS: According to literature review *Cocos nucifera var aurantiaca* flower reveals the presence of alkaloids, flavonoids, tannins, phenols phytosterols anthraquinones and saponins. *Ayurvedic Pancha Padārtha* study has revealed that selected flower *Swarasa* has anti-inflammatory qualities because of their compatibility with anti-fibrinolytic and analgesic properties. According to the literature review selected flower *Swarasa* is useful in the treatment of menorrhagia.

Key words— *Cocos nucifera var aurantiaca*, Menorrhagia, *Pancha Padārtha*, *Rakta Pradara*, *Swarasa*

INTRODUCTION

Menorrhagia is characterized by severe, recurrent uterine bleeding or by chronic uterine bleeding lasting longer than seven days. Rarely is the traditional definition of menorrhagia—defined as more than 80 mL of blood loss per cycle—used in clinical settings. Women say that the actual amount of bleeding is less significant than the loss or diminution of everyday activities [1].

Heavy menstrual cycles are a typical clinical issue. The annual rate of general practitioner consultations is thought to be 20–4 per 1000 women. The Greek words men (month) and rhegynai (to break forth) are where the name menorrhagia comes from. Patients express concern about greater menstrual loss, the need for additional sanitary measures, or the passage of clots [2].

Menorrhagia can result from iatrogenic, local, or systemic diseases. Endocrine problems like hypothyroidism and anovulation, as well as coagulation issues like von Willebrand's disease and hemophilia, are examples of systemic ailments. Endometrial hyperplasia, endometriosis, pelvic

inflammatory disease, benign (leiomyomas, polyps), and malignant (endometrial, cervical) tumors are a few examples of local diseases. Iatrogenic illnesses may be brought on by external objects, such as intrauterine devices, or by improper anticoagulant therapy management. More than 50% of menorrhagic women have no known clinical etiology [2].

Artava Ati Pravrutti, Deerga Kala Pravrutti, Anruta Kala Pravrutti, Daha in Adho Vankshana Pradesha, Sroni, Prushta and Kukshi, Shoola in Garbhashaya, Angamardha are some of the characteristics of *Rakta Pradara*, one of the *Rakta Pradoshaja Vikara* [3]. According to *Rakta Pradara's Nidhana*, the exacerbated *Vata* withholds *Rakta* that has become vitiated for a variety of causes listed there; increasing the amount till it reaches *Rajovaha Srotas*, which then raises the *Rajas*. The *Srotas* involved are *Artavavaha Srotas* [4].

According to Ayurveda, *Rakta Pradara* is covered in *Charaka Samhitā, Susruta Samhitā* and *Bhavaprakasha*. According to *Charaka Ācharya*, *Rakta Pradara* is more dangerous for women who consume foods that are overly salty, sour, heavy, pungent, scorching, and fatty, as well as fatty meat, curd, vinegar, and wine [5]. Aches and pains throughout the body, particularly in the abdomen during menstruation, are common signs of this condition [6]. *Bhāvamishra* mention about four types of *Pradara* as *Vataja, Pittaja, Kaphaja* and *Thridoshaja* [7].

A *Cocos nucifera* var *aurantiaca*

The only species in the genus *Cocos*, which belongs to the monocotyledonous family *Arecaceae*, is *Cocos nucifera*. It is a plantation crop that primarily grows in Sri Lanka and tropical coastal regions. In Sri Lanka, *Cocos nucifera* is divided into three types: *Typica, Nana*, and *Aurantiaca*

In Sri Lanka, menorrhagia is treated with the inflorescence of the orange-colored variation *Aurantiaca* by practitioners of Ayurveda and conventional medicine. The extraction, purification, and characterisation of ethyl acetate soluble proanthocyanidins (EASPA) from the inflorescence of *Cocos nucifera* were done and female rats' levels of reproductive hormones were examined in order to determine the impact of EASPA, which was extracted from immature *Cocos nucifera* (var. *aurantiaca*) inflorescence. This finding provides a potential mechanism of action to explain how coconut inflorescence is used in Sri Lankan traditional medicine to reduce menorrhagia [8]. *Cocos nucifera* var *aurantiaca* has *Madhura Rasa, Guru Snigdha Guna, Sheeta Virya, Madhura Vipaka* and *Vata Pitta Hara* action

TAXONOMY

Table I: Taxonomy of *Cocos nucifera* var *aurantiaca*

Kingdom	Plantae
Division	Polypodiophyta
Class	Tracheophytes
Order	Arecales
Family	Arecaceae
Genus	Cocos
Species	nucifera

Table II: Common Names of *Cocos nucifera var aurantiaca*

English Name	King coconut
Sinhala Name	<i>Thembilli</i>
Tamil Name	<i>Tannamarm</i>
Sanskrit Name	<i>Dridphal</i>
Malayalam Name	<i>Tenga</i>
Hindi Name	<i>Narel</i>
Kannada Name	<i>Tengu</i>

B Morphology

1 Size:

King coconuts grow at the tops of 20 to 30-meter-tall palm trees, which are a bit shorter than other coconut palm varieties. They grow in clusters of up to 20 nuts, growing from smaller branches on a large stalk.

2 Leaves:

The leaves are pinnate leaves 4–6 m (13–20 ft) long, and pinnae 60–90 centimetres (2–3 ft) long; old leaves break away cleanly, leaving the trunk smooth

3 Fruit:

The king coconut fruit is a drupe, not a real nut, according to botany. It has three layers: the exocarp, mesocarp, and endocarp, just as other fruits. The shiny, typically yellow-orange outer skin is called the exocarp. The mesocarp is made of coir, a fiber with numerous conventional and industrial use. The “husk” of the king coconut is made up of both the exocarp and the mesocarp. The royal king coconut water, a multinucleate liquid endosperm, originally fills the endocarp. Endosperm cells build up along the walls of the endocarp up to 11 mm (3/8 in) thick as development progresses, beginning at the distal end. The edible solid endosperm (also known as “king coconut meat” or “king coconut flesh”) that they eventually produce hardens with time. Directly below the endosperm’s functional pore, the tiny, cylindrical embryo is encased in solid endosperm.

4 Flowers:

The king coconut tree is monoecious because it produces both the female and male flowers on the same inflorescence. It may be polygamomonoecious, nonetheless, and occasionally have bisexual flowers, according to some data. Compared to the male flower, the female blossom is much bigger. There is constant flowering. Although the majority of dwarf types are self-pollinating, coconut palms are thought to be predominantly cross-pollinated.

5 Roots:

The king coconut tree, in contrast to certain other plants, has a fibrous root system rather than a taproot or root hairs. Numerous thin roots that extend forth from the plant near the surface make up the root system. For stability, only a few of the roots bury themselves deeply in the ground. Fibrous or adventitious root systems are what distinguish grass species from other plant types. Roots that have decayed are regularly

replaced when the tree produces new ones.

C Phytoconstituents

Phytochemical analysis was conducted using extracts of *Cocos nucifera* flowers that were made in the manner previously mentioned. Alkaloids, flavonoids, tannins, and carbohydrates were all detected in the chloroform extract. The methanol extract revealed the presence of amino acids, alkaloids, flavonoids, and phenols. The ethanol extract includes tannins and phytosterols. The presence of flavonoids, phenols, tannins, and carbohydrates was evident in the hydroalcoholic extract. Alkaloids, flavonoids, phenols, tannins, and carbohydrates are all present in the aqueous extract. The numerous flower extracts from *Cocos nucifera* demonstrated that anthraquinones and saponins were absent [9].

Flavan-3-ol units make up the oligomers or polymers known as proanthocyanidins. While (+)-afzelechin and (-)-epiafzelechin have been recorded to a lesser extent, (+)-catechin, (-)-epicatechin, (+)-gallocatechin, and -epigallocatechin are the most prevalent flavan-3-ol units. Proanthocyanidins contain flavan-3-ol units that are primarily connected by C4 to C8 or occasionally C4 to C6 links. B-type proanthocyanidins are proanthocyanidins that only have these connections. The compounds are referred to as A-type proanthocyanidins when further ether linkages are discovered (often between C2 and C7). There are numerous proanthocyanidins

Phytochemicals are biologically active, non-nutritive chemical substances that are present naturally in plants and work as medicinal components to promote human health. Phenolic acids, carotenoids, flavonoids, and anthocyanins are the biologically active substances most commonly found in flowers. The presence of carotenoids and flavonoids, which also give the flowers antioxidant activity, is responsible for flower color. The most prevalent phytochemicals found in flowers were phenolic acids, anthocyanins, flavonoids, carotenoids, and carotenoids [10].

1 Anthocyanins:

The flavonoid group of plant pigments known as anthocyanins is what gives flowers their stunning colors. Major anthocyanins include pelargonidin 3,5-di-O-glucoside and cyanidin 3,5-di-O-glucoside [10].

2 Carotenoids:

Carotenoids, which are natural pigments that are a subclass of isoprenoid chemicals, give plants their yellow, orange, and red hues. Zeinoxanthin, violaxanthin, -cryptoxanthin, -carotene, and -carotene were also noted [10].

3 Flavonols:

Flavonols, a subclass of flavonoids that includes the widely distributed compounds myricetin, quercetin, isorhamnetin, and kaempferol [10].

4 Flavones:

Flowers include flavones in a variety of forms, including acacetin, chrysoeriol, apigenin, luteolin, and related lucosides [10].

5 Flavanols:

The primary flavanols discovered were catechin, epicatechin, epicatechin gallate, and epigallocatechin gallate derivatives [10].

D *Cocos nucifera* var *aurantiaca* for Rakta Pradara

There have been reports of biological activity and ethnomedical uses for several *Cocos nucifera* components. Its many extracts have been demonstrated to have antibacterial, radical scavenging, analgesic, anti-inflammatory, anthelmintic, and antiproliferative properties [11]. L-arginine has been proven to have a cardio protective impact in king coconut, which encourages relaxation. The king coconut also has hepatoprotective, anti-inflammatory, antipyretic, antihypertensive, hypoglycemic, and kidney regeneration properties [12]. The impact of the ethanol extract of coconut on indomethacin-induced stomach ulcer in Wistar rats, hypotonicity-induced hemolysis of human red blood cells, and egg albumin-induced inflammation in rat hind paws was investigated. The rats' right hind paw's subplantar surface was injected with 0.1 milliliters of undiluted fresh egg albumin (a phlogistic substance) to cause inflammation. Separate groups of rats received intraperitoneal injections of indomethacin (100 mg/kg) and coconut ethanol extract (100, 200, and 400 mg/kg) one hour before to generating inflammation. The haemolysis caused by distilled water was reduced by the coconut extract in a dose-dependent manner. This implies that the extract may have an anti-inflammatory and anti-ulcerogenic impact at low doses [13]. It has a wide range of medicinal effects, including as anti-inflammatory, anti-bacterial, anti-neoplastic, and anti-diabetic properties [14].

OBJECTIVES

The study was created to determine the activities of the selected flower *Swarasa* in the management of menorrhagia

METHODOLOGY

The review followed the PRISMA guidelines for systematic review. Main data records are with inclusion criteria of *Ayurvedic* authentic records *Vruhatri* and *Brhatryi*. The review on menorrhagia was conducted through recent scientific explanations and findings which published in official websites and indexed journals, articles, books, reports of WHO and encyclopedias. The gathered information was compared with traditional and modern scientific explanations using based on pharmacological characteristics, *Rasa* (taste), *Guna* (quality), *Veerya* (potency), *Vipāka* (last taste) and *Prabhāva* (specific action).

RESULTS AND DISCUSSION

Rakta Pradara is described in various ways by various *Āchāryās*. *Charaka Samhitā* *Susruta Samhitā* and *Bhāvaprakāsha* mention the etiologies, symptoms and types of *Rakta Pradara*. According to phytochemical study, it contains alkaloids, flavonoids, tannins, phenols phytosterols anthraquinones and saponins.

Rakta Pradara occurs due to the vitiation of *Vata Dosha* and then the *Rakta Dosha*. *Madhura Rasa* and *Madhura Vipaka* in *Cocos nucifera* var *aurantiaca* pacify *Vata Dosha*. Sweet is nourishing to the body, is wholesome, and promotes the male and female reproductive systems as well as body fluids, blood, muscle, fat, and bone. It lengthens life expectancy, calms the mind and all of the senses, and strengthens the body. *Guru* and *Snigdha Guna* contradictory to the qualities of *Vata Dosha*, hence pacify *Vata Dosha*. *Sheeta Virya* pacify vitiated *Rakta Dosha* and *Cocos nucifera* var *aurantiaca* has *Vata Pitta Hara* action.

Menorrhagia is mainly characterized by bleeding, pain and inflammation. *Cocos nucifera* var *aurantiaca* has anti-inflammatory, analgesic and anti-fibrinolytic actions according the review of previously published articles. So selected flower *Swarasa* is effective in the management of *Rakta Pradara*.

CONCLUSION

Menorrhagia as an important public health problem has been discussed in recent few decades worldwide. *Cocos nucifera* var *aurantiaca* useful in the control of menorrhagia according to the review of the literature

and the *Pancha Padārtha* examination. The previous studies of pharmacological effects have revealed that it has strong actions against menorrhagia. There is an urgent need to reduce the prevalence of menorrhagia among women worldwide.

REFERENCES

1. Apgar, B. S., Kaufman, A. H., George-Nwogu, U., & Kittendorf, A. (2007). Treatment of menorrhagia. *American Family Physician*, 75(12), 1813-1819.
2. Rees, M. (1987). Menorrhagia. *British medical journal (Clinical research ed.)*, 294(6574), 759.
3. Tadasad, S., Katti, B. H., Sajjanshetti, M. R., & Kannolli, G. N. (2018). Clinical evaluation of the effect of Khanda Kushmanda Avaleha in Rakta Pradara (Abnormal uterine bleeding). *Journal of Ayurveda and Integrated Medical Sciences*, 3(05), 36-44.
4. Shilpa, B. S., & Sridevi, M. (2022). Randomized open label comparative clinical study on the efficacy of combination of Chandana Churna and Shatapushpa Taila Nasya with Tranexamic Acid in Rakta Pradara (DUB). *Journal of Ayurveda and Integrated Medical Sciences*, 7(1), 12-17.
5. Sharma, R. K. (2005). *Charaka Samhita, Volume I, Chaukhamba Orientalis, Sanskrit series office.*
6. Sharma, P. V. (2010). *Susruta Samhita, Volume I, Chaukhamba Orientalis, Varanasi.*
7. Murthy, K. R. (2009). *Bhavaprakasha, 1st ed., Volume 2, Chowkhambhakrinadas Academy, Varanasi, India*
8. Padumadasa, C., Dharmadana, D., Abeysekera, A. M., & Thammitiyagodage, M. G. (2015). EFFECT OF ETHYL ACETATE SOLUBLE PROANTHOCYANIDINS FROM *COCOS NUCIFERA L.* INFLORESCENCE ON PROGESTERONE AND OESTROGEN LEVELS IN FEMALE RATS.
9. Shank, P. D., Slaga, T. J., & Snyder, P. W. (2020). Safety Assessment of *Cocos nucifera* (Coconut)-Derived Ingredients as Used in Cosmetics.
10. Kumari, P., & Bhargava, B. (2021). Phytochemicals from edible flowers: Opening a new arena for healthy lifestyle. *Journal of Functional Foods*, 78, 104375.
11. Padumadasa, C., Dharmadana, D., Abeysekera, A., & Thammitiyagodage, M. (2016). In vitro antioxidant, anti-inflammatory and anticancer activities of ethyl acetate soluble proanthocyanidins of the inflorescence of *Cocos nucifera L.* *BMC complementary and alternative medicine*, 16, 1-6.
12. Jayasinghe, M. D. Hewajulige IG. *Sri Lanka Journal of Food and Agriculture (SLJFA).*
13. Anosike, C. A., & Obidoa, O. (2010). Anti-inflammatory and anti-ulcerogenic effect of ethanol extract of coconut (*Cocos nucifera*) on experimental rats. *African Journal of Food, Agriculture, Nutrition and Development*, 10(10).
14. Arya Venugopal, R. K., & Joseph, D. (2017). *World Journal of Pharmaceutical Sciences.*