iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 8 **Issue:** IX **Month of publication:** September 2020

DOI: https://doi.org/10.22214/ijraset.2020.31703

www.ijraset.com

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 8 Issue IX Sep 2020- Available at www.ijraset.com

ULAT KAMBAL (Pishach Karpas)- *Abroma augusta* : A Study on its Pharmacological Actions from an Ayurvedic Perspective

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Abstract: Ulat kambal commonly called as Devil's cotton in English is the plant belonging to Malvaceae family. Its latin name is Abroma augusta, an ethno medicinal plants with one or two species from Asia and Africa. Ulat kambal is termed as Pishach Karpas due to the morphological appearance of the flower. It is used by various traditional medicines across globe priorly as Emmengogue and in menstrual disorders like dysmenorrhea, amenorrhea, anovulation, sterility. Various studies are also carried out on its antidiabetic effect, in rheumatic pain, headache with sinusitis. This articles illustrates the pharmacokinetic of Ulat kambal emphasizing its role in menstrual disorders and understanding of its antidiabetic activity from a reverse pharmacological perspective.

Keywords: Ulat kambal, Rasa dhatu, Laghu , metabolisation, Arthava, Kleda etc.

I. INTRODUCTION

Ayurveda ,a comprehensive system of healthcare of great antiquity is based on experiential knowledge and grown with perpetual additions. According to Lok Purusha Samya Sidhanta, the substance present in the universe are alike to the substance present in the living body. The therapeutic process adopted by a physician is only to balance existing Mahabhutas in the Body. The main purpose of a Dravya is to mitigate a disease either at its onset or at its course. This process of dismantling the pathogenesis is called samprapti at any particular stage so as to avail the ultimate, desired therapeutic effect.

Ulat kambal is one of rarely used drug with a big canvas yet to be explored. The unavailability of drug in major areas is one of the reason for its sparse usage. Ulat kambal , Abroma augusta belongs to Malvaceae family. Ancient Ayurveda classics have not described Ulat kambal. We find its reference in "Ayurveda Vijnana" wherein the use of drug in the treatment of Rajovyapat Chikitsa.

II. AIM

A. To understand the pharmacokinetics of Ulat kambal from an ayurvedic perspective.

B. To study its gynaecological effects from available researches using the tool of Reverse Pharmacology .

II. METHODOLOGY

A thorough study was done from available literary data. Nighantus like Adarsh Nighantu, Bhavprakash Nighantu and reference books like Dravyaguna Vijnana books of D.S Lucas , K. Nisteshwar, L.Hegde, P.V Sharma, Dravyaguna Mimansa by Vd.Shriprasad Bavadekar , Published articles were referred.

A. Ulat Kambal[(1-6)]

Synonyms: Pivari , Yoshini
Vernacular names:
Latin name: Abroma augusta
Family: Malvaceae
Sanskrit name: Pishacha karpas
Hindi name: Ulat kambal, Kumal
English name: Devil's cotton
Kannada name: Bhangimara, Ulatkumal
Tamil name: Shivapputtuti
Telugu name: Bhangimana, Ulatkamal
Malyalam name: Sivapututta

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B. Habitat

Ulat kambal is cultivated all over India, more oftenly in the Tropical regions. Priorly,in the hotter and moist parts of Punjab ,Uttar Pradesh, Assam, Meghalaya , Arunachal Pradesh, Tripura etc. It is distributed in Malayan Archipelago.

C. Habit

A large shrub 1-2m tall or small tree of 5-6m high.
Stem- Vinaceous purple, softly pubescent.
Leaves-Alternate, simple,14-22*8-15cm
Ovate or palmately 3-5 lobed or angled with entire margins
Base -Cordate
Apex-Acuminate
Flowers-Attractive,vinaceous purple 5-7cm across,2-3 in extra axillary cymes
-staminal tube short
-staminodes petaloid
Fruit-A turbinate,5angled,5 locular and 5 winged abconical
-truncate capsule of 4-5cm long
Seeds-many and black in colour
Parts used- Mool (root), patra(leaves)
Properties-
Rasa- Katu, Tikta
Virya- Ushna
Vipaak- Katu
Guna- Laghu, ruksha,tikshna

D. Pharmacological Actions

Dosha- Kapha-Vaata shamak, Pitta vardhak
Dhatu- Raktadosha haram
Updhatu-Artavjanana

E. Specific Actions-Garbhashaya

Mode of Actions-

1) Garbhashayabalya
2) Garbhashayauttejak
3) Artava jananaom
4) Vedana sthapana
5) Purifies and detoxifies Aartava
6) Regulates menstrual flow
7) Checks dysmennorhea

F. Administration Time

From 3 days prior to menstrual flow to 2 days later to flow.

G. Indications

Rajorodh, Kasthartava, Yonivyapat

H. Chemical Constituents

Primarily the plant contains alkaloid.
Root bark- mixed oils,resins,Alkaloids,water soluble base.
Roots-Abromine, Friedelin,Abromasterol,choline,betaine
Leaves-Taraxerol and its acetate, beta sitosterol acetate
Stem bark- beta sitosterol, friedelin
Heat wood -beta sitosterol

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Seeds- Fixed oil like linoleic acid.
Formulations-'Swarasa' more potent than any other formulations.

I. Dosage

Mooltvak Choorna-1-3gms
Mooltvak Swaras- 30-50ml
Patra Swaras-10-20ml

J. Phenology

March- October

K. Toxicity [12]-

According to the studies conducted,in single dose the plant extract had no adverse effects indicating the medium lethal dose (LD_{50})could be greater than 2000mg/kg body weights in rats. In Acute toxicity study,no toxic symptoms were observed upto dose of 2gm/kg body weight. No neurological or behavioural changes could be noted. No mortality was found upto 14 days study.
Controversy-Few scholars have considered Abroma augusta as Karnikar.

L. Gynaecological Aspect[10]

Studies have shown that the ethanolic extract of leaves and stem's of Ulat kambal are known to be used in menstrual disorders and diseases of uterus (leucorrhea).
It shows contractile action on the uterus and is used for the treatment of dysmennorhea,amenorrhea, sterility,and other menstrual disorder. Powdered roots are used as abortifacient and anti fertility agents and its petroleum ether extract at a dose of 50mg/kg body weight showed anti implantation effect as well as abortifacient in mice. The aqueous extract of roots showed oxytoxic action. It also has been reported to show galactotrophic effect on lactating Albino rats.

Thus , we understand that Abroma augusta shows effects on-

1) Dysmenorrhea
2) Amenorrhea
3) Sterility
4) Anti implantation
5) Galactotrophic

M. Pharmacodynamic from an Ayurvedic Perspective with Respect to its Gynaecological Action

The total pharmacodynamic of a drug is known as karma. A drug cannot impart a new function to a new cell. A drug is potentially capable of altering the rate at which any bodily function proceeds.This is the role of exact Karma in any science. The Karma achieved on Dhatus or dooshya is by Langhan and Brumhana. Here , the laghu guna brings laghutwa in drug by either depleting the quantity or quality of tissue elements. Sometimes they are made to work or metabolise properly to convert themselves to the next dhatu. Similar aspect is seen in Brumhan karma where Guru guna is principal factor.
The karma on Dosha is carried by two processes i.e., Snehan and Rukshan. Ruksha guna of the drug controls the excessive secretions from various organs of the body including colon and respiratory systems.Drugs having ushna Guna or Ushna virya enhances the motility and secretion of various circulating and secreting channels.Tikshna guna has penetrating action which clears out the channels by its Bhedan action.
Katu rasa has specific dhatukarmas like Agnidipaka,clears the channels (Margan Vivrunoti).Tikta rasa is Dipan and Pachana ,kleda soshana (dries up excess kleda).
Katu Rasa[12] possess laghu ,ushna ,ruksha guna.Tikta rasa[12] possess Ruksha, shita, and laghu guna.Charak[12] states superiority of rasa wsr Guna ,where Katu rasa is moderately ruksha(dry),Tikta rasa is inferiorly ruksha (dry).Katu rasa is inferiorly Ushna in comparison to Lavana rasa and Amla rasa. The laghu guna is best in tikta rasa and moderate in katu rasa.
Rasa dhatu is the essence of nutrition that circulates in the body.Updhatu of Rasa is Artava.The nourishment to Arthava comes from Rasa dhatu. Therefore it takes one long month to get properly nurtured and get manifested during monthly periods. Primarily, any factors that prevents optimum metabolization of Ahar leads to malformation of its updhatu i.e., Arthava which results in menstrual disorders.

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Table No.1

S.no.	Conditions	Symptom	Ayurvedic perspective	Guna Necessary for Samprapti Vighattan
1.	Primary Dysmenorrhea	Spasmodic pain	Vattaja aartavdushti, Granthibhut Artavdushti	Ushna ,Tikshna
2.	Secondary Dysmenorrhea	Pain due to Associated pelvic Pathology	-	-
3	Oligomenorrhea	Menstrual flow is less than 50 ml	Kshinartava	Ushna guna,Laghu guna(Dipan,Pachan)
4	Amenorrhea	Absence of Menstrual flow	Raja nirmiti Asamyak	Ushna ,laghu guna (Katu - tikta rasa)

III. DISCUSSION

The[13] food transformation results in three byproducts : Mala(Waste),Sthula(Gross product)an anu bhaga (subtle part).In the gut the food is digested producing:

1.Mala bhaga: vit and mutra(Faeces and urine)

2.Sara bhaga:Rasa

The Rasa is further transformed by the Agni to:

Mala: Kapha

Sthula Bhaga:Rasa

Anubhaga-Rakta

This is circulated in the body through Rasa vaha strotas(channels carrying the nutritive essence to very part of the body).Then, it is further transformed into successive dhatus by Dhatvagni,thus the chain of transformation continues.

Factors causing Menstrual problems are improper metabolization of Ahar rasa resulting in non formation of Arthava or Arthava formed is not optimum. Secondly, any kind of blockage or obstruction of channels(Arthavavaha Strotas) in the flow of Arthava. Ulat Kambal has Tikta and katu rasa which are Dipan ,Pachana . This ensures the Jatharagni is ignited and metabolization is restored. Katu rasa clears the channels hence in etiologies where there is discontinuity in the flow ,this drug is a perfect choice.

It possess Laghu, Ruksha and tikshna guna . Laghu guna here works by preventing the stagnation or accumulation of only one dhatu and thus establishes proper metabolization by keeping a control on the Dhatu formation and thus Arthava formation. Thus, this drug for its laghu guna can be utilised in condition like oligomennorhea ,amennorhea where the formation of Arthava is hampered.

Ruksha guna checks excessive secretion from organs and body which creates hindrances due to the viscid and thick nature of it and causing persistence irritation . This explains the cause of Dysmenorrhea. Ulat Kambal when used in such condition, like dysmenorrhea, oligomenorrhea where the condition arises due to hindrance in the pathway.

Ulatkambal, a Samanpratyarabdh dravya as its Rasa virya vipaak is Katu-tikta ,Ushna ,Katu respectively. This,reflects the potency of its ushna guna ,katu vipaak . Thus by correcting the Agni, eliminating unwanted drava matter by its laghu guna and clearing the channels (strotas vivrunoti),normal menstrual cycle is restored.

Many researches reveals its antidiabetic activity especially in Type 2 Diabetes. Type 2 diabetes is primarily caused where there is failure in optimum metabolization of Ahar rasa for a long time. This abruption in formation of optimum quality of Rasa Dhatu causes production of Asamyak Rasa dhatu that initiates the cycle of formation of Asamyak other Dhatus, Updhatus and Mala. Herein,the Kleda aspect of Dhatus is not well metabolised. Thus, the Kleda i.e., the drava (liquid matter)in body increases resulting in manifestation of signs and symptoms of Type 2 diabetes.

In conditions where the Kostha and Agni are hampered, in long duration or in predisposed states(Khavaigunya), this dosa status can be simulated in dhatus viz. Rasa kleda-Rakta kleda-mamsa kleda etc. Here ,understanding of manifestation of disease is crucial to break the this chain.

Ulat kambal is one of the ideal drugs where the Manifestation of disease is due to above mentioned conditions. This explains the antidiabetic effect in type 2 diabetes. Also,researches[10] gives evidences of hypolipidemic activity, wound healing activity, antimicrobial activity.

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IV. CONCLUSION

Ulat kambal, Abroma augusta belonging to Malvaceae family .Also known as Pishach Karpas, is an ethnomedicinal plant found mainly in Punjab ,Uttar Pradesh, Assam, Meghalaya , Arunachal Pradesh,Tripura. It is Samanpratyayarabdh dravya with rasa as Katu, tikta, Vipaak as katu and Ushna virya. Its guna are Laghu , Ruksha , tikshna.

From the discussions above, primarily, we can use Ulat Kambal in Annawaha strotas vyadhis wherever the disease manifests due to impairment in process of digestion. Priorly in conditions which shows involvement of kleda as in wounds,growth of microbes, Diabetes mellitus.

Secondly, the impairment in circulation of matter(Vata,Ahar rasa) in the body due to obstruction caused by improper digested matter like Hyperlipidemia, hyperglycemia etc.

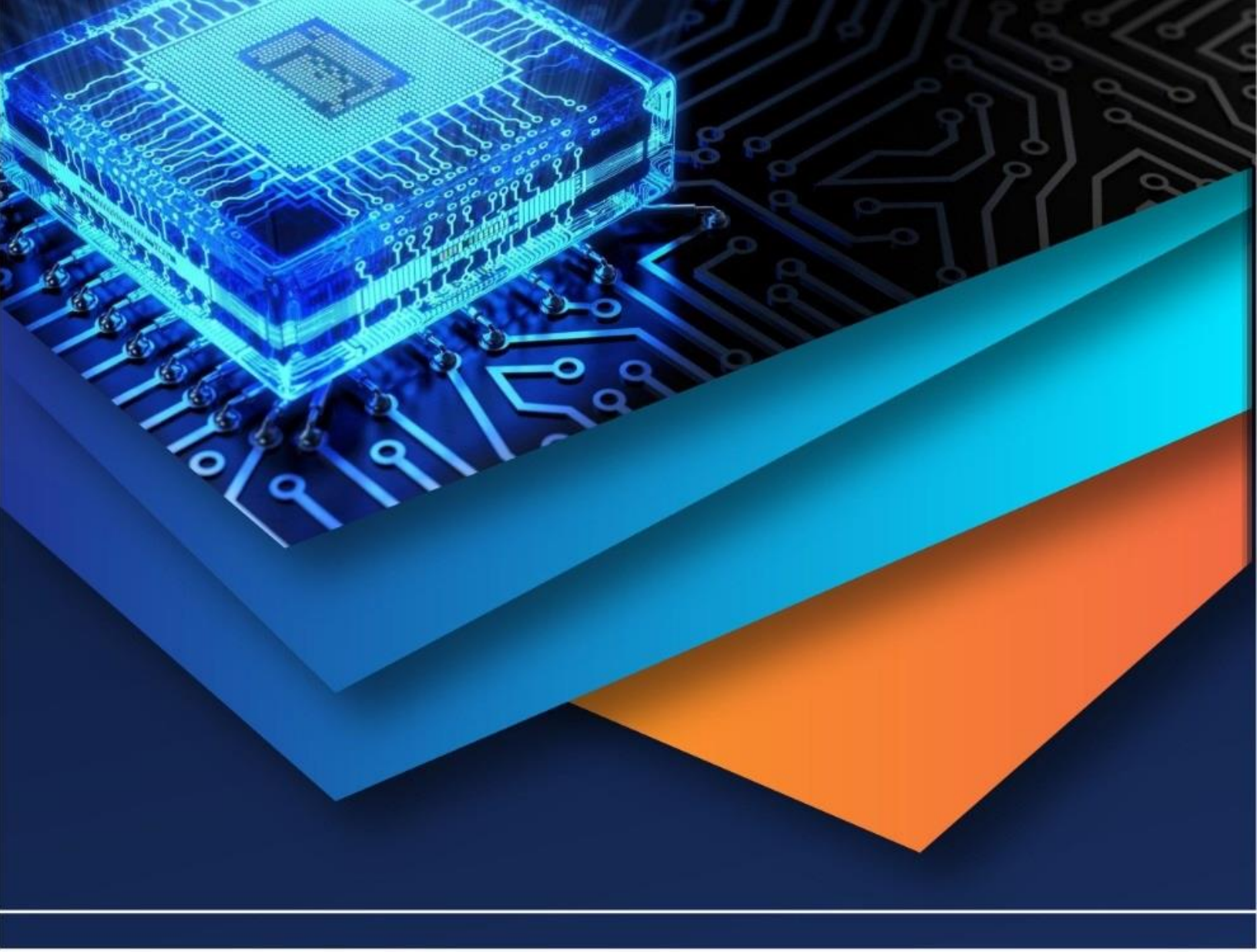
V. ACKNOWLEDGEMENT

I extend my Gratitude to Dr.Shriprasad Bavadekar sir who is always instrumental in teaching a systematic way of learning. I owe heartfelt gratitude to our senior Dr Manish Pamnani ,who instilled upon us the importance of dedication for undertaken work and continues to guide us thoroughly.

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