Journal of Medicinal Plants Studies
www.PlantsJournal.com

ISSN (E): 2320-3862
ISSN (P): 2394-0530
https://www.plantsjournal.com
JMPS 2024; 12(3): 103-105

Received: 09-03-2024
Accepted: 12-04-2024

Manish Singh
MD Scholar Department of Rog Nidana Evam Vikriti Vigyana, Govt. Ayurvedic College and Hospital, Kadamkuan, Patna, Bihar, India

Anish Kumar
Guide and Assistant Professor, Department of Rog Nidana Evam Vikriti Vigyana, Govt. Ayurvedic College and Hospital, Kadamkuan, Patna, Bihar, India

Corresponding Author:
Manish Singh
MD Scholar Department of Rog Nidana Evam Vikriti Vigyana, Govt. Ayurvedic College and Hospital, Kadamkuan, Patna, Bihar, India

A study of source of dopamine in Kapikachhu

Manish Singh and Anish Kumar

Abstract
One kind of monoamine neurotransmitter is dopamine. It serves as a chemical messenger that carries messages from our brain's nerve cells to the rest of our body. Dopamine is a key neurotransmitter that drives us to take action and improves our day-to-day activities. One of the molecules in our brain that drives behavior is dopamine, which determines our mood, memories, and even how we move and behave today. Dopamine is found in nature and is supplied to humans by the ayurvedic medications kapikachhu or mucuna. Mucuna is referred to as "the dopamine bean" because it naturally contains levodopa, which is a precursor to dopamine and is a powerful mood enhancer.

Keywords: Dopamine, levodopa, mucuna, kapikachhu

Introduction
Mucuna pruriens, or kapikachhu in Sanskrit, is a nutritive tonic and adaptogen that is widely used to sustain healthy sexual energy, feed the nerve system, and tone and strengthen the reproductive organs. Mucuna is a creeping vine that is native to tropical parts of Africa, the Caribbean, and India, especially in the tropics [1]. It belongs to the family Fabaceae, which is made up of legumes. It is distinguished by its fuzzy, fuzzy flowers that are lavender or purple in color and by its fuzz-covered pods that hold several large beans [2]. The names kapikachhu and atmagupta mean "one who starts itching like a monkey" and "secret self," respectively, suggesting the worth of the seed hidden within the allergenic seedpod [3].
This plant is often known as cowhage in English, and it is also occasionally called "magic velvet bean," suggesting that it has magical qualities [4]. When there is strong ama (toxicity), congestion, or an acute ailment, *Mucuna pruriens* should be avoided. If Mucuna, any of its ingredients, or other members of the Fabaceae (pea) family are known to cause allergies, it should be taken cautiously during pregnancy and during nursing.

Pharmacological effects of *Mucuna pruriens* extracts
The Mucuna plant has therapeutic qualities in all of its sections (Sathiyanarayanan and Arulmozhi, 2007). Research on M.pruriens extracts both *in vitro* and *in vivo* have shown the presence of compounds with a wide range of pharmacological effects, such as anti-inflammatory, anti-diabetic, neuroprotective, and anti-oxidant qualities. These effects are likely caused by the presence of L-dopa, a precursor to the neurotransmitter dopamine (Misra and Wagner, 2007). L-dopa, which makes up around 5% of the phenolic chemical content of mucuna seeds, is recognized to be the primary one (Vadivel and Pugalenthi, 2008). Since L-dopa is a medication used as a first-line therapy for Parkinson's disease, mucuna is currently the subject of much research. According to some research, when given to Parkinson's patients, L-dopa extracted from M. pruriens offers several benefits over manufactured L-dopa because the latter can have a number of negative consequences.

Antitumor Activity: The antiepileptic and anti-neoplastic activity of methanol extract of *Mucuna pruriens* root [5].

Anti-Parkinson's Activity: Because the powdered seeds have a high content of L-DOPA [6], it is therapeutically utilized to treat Parkinson's disease and hyperprolactinemia. Since it helps treat Parkinson's disease, some of its qualities are most likely related to high dopa concentrations. Analgesic, antipyretic, and antidiabetic drugs (Iauk *et al*., 1993) are used in the treatment of Parkinson's disease. It has recently been discovered that the seed powder has anti-Parkinsonism properties, most likely as a result of the presence of L-DOPA.

Dopamine is the neurotransmitter in the brain, as is often known [7-11]. Because dopamine cannot pass across the blood-brain barrier to reach the site of action, its concentration in brain tissue is decreased.

Chemistry

The plant's seeds have a 3.1-6.1% L-DOPA content. The strain of M. pruriens var. pruriens has the most L-DOPA. M. pruriens variety seeds exhibited an average of 52.11% degradation of L-DOPA into harmful quinones and reactive oxygen species [12].

Nirukti of Kapikacchu Kapi

It causes purities for monkeys if monkeys sit on the trees where this creeper is twining around the stem, the pods may produce itching (*Kacchu)* on hip of monkeys [13].

Ayurvedic Properties [14, 15]

Preparation [16]

- **Rasa:** Madhur, Tikta
- **Guna:** Guru, Snighdha
- **Veerya:** Ushna
- **Vipaak:** Madhur
- **Karma:** Vatahar and Pittahar

Some Important

- Vanari vatika
- Ashwagandha ghrita
- Shatavari modak
- Kameshwar modak
- Mahakameshwar modak

Therapeutic Uses

- Vatavyadhi (e.g. Parkinsons disease
- Worms - The hair on fruit of *Kapikachhu* with jaggery
- Mucana helps in improving the libido.
- *Kapikachhu* helps in making our nervous system work to the optimum level.
- It is very helpful in increasing the muscle mass of the body naturally.
- Very beneficial in increasing the sperm count when using with milk and sugar.
- Increases the stamina in the body.
- It significantly ameliorates psychological stress and seminal plasma lipid peroxide levels along with improved sperm count and motility [17].

Discussion

Kapikachhu balances the three Doshas by reducing Vata and increasing Pitta and Kapha. It also causes the body to create dopamine, the happy hormone that makes people feel better naturally. These medications are beneficial for medicine because they have five primary healing or doshic effects. Firstly, it possesses the Gunas, or attributes, of Snigdha (unctuousness or oiliness) and Guru (heaviness during digestion). Second, this plant is one of those whose rasa, or taste, is both sweet and sour (bitter), making it useful for internal usage in a variety of diseases. Thus, this herb is a secret treasure of Ayurveda.

Conclusion

The most potent ayurvedic Rasayana is Kapikacchu. In Ayurveda, Kapikacchu is frequently used as an aphrodisiac and to promote reproductive system activities by giving organs more vigor and tone. In women, kapikahhu has a significant role in fertility and affects both sexes equally. The whole body is nourished by kapikachhu, which also acts as a vata rejuvenator. It is a natural source of levodopa, which is a necessary precursor to the neurotransmitter dopamine, demonstrating its magical properties [18-20].

References

1. Pole S. Ayurvedic Medicine: The Principles of Traditional Practice. Churchill Livingston Elsevier; c2013. p. 77, 206.
2. Lampariello LR, Cortelazzo A, Guerranti R, Sticozzi C, Valacchi G. The Magic Velvet Bean of *Mucuna Pruriens*. Journal of Traditional and Complementary Medicine. Medknow Publications & Media Pvt Ltd; c2012 Oct. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3942911/.
3. Gogte VM. Ayurvedic Pharmacology & Therapeutic Uses of Medicinal Plants. Reprint. Chaukhambha Publications; c2009. p. 329-330.
4. Lampariello L, *et al*. The Magic Velvet Bean of *Mucuna Pruriens*.
5. Pulikkalpura H, Kurup R, Mathew PJ, Baby S. Levodopa in *Mucuna pruriens* and its degradation. Scientific Reports. 2015 Jun;5(1):11078. DOI:10.1038/srep11078. PubMed PMID: 26058043; PubMed Central PMCID: PMC4460905.
6. Vaidya RA, Allorkar SD, Seth AR, Panday SK. Activity of bromoergocryptine, *Mucuna pruriens* and L-Dopa in the control of hyperprolactenaemia. Neurology (India). 1978;26:179-86.
7. Joglekar GV, Bhide MB, Balwani JH. An experimental method for screening antipruritic agents. British Journal of Dermatology. 1963 Mar;75(3):117.
8. Manyam BV, Dhanasekaran Mhare TA. Effect of anti-parkinson drugHP-200 (*Mucuna pruriens*) on the central mono-aminergic neuro-transmitters. Phytother Res. 2004;18:97-101. DOI:10.1002/ptr.1407. PubMed PMID: 15022157.
9. Vaidya RA, Sheth AR, Aloorkar SD, Rege NR, Bagadia VN, Devi PK, *et al*. The inhibitory effect of the cowhage plant-Mucuna pruriens-and Ldopa on chlorpromazine-induced hyperprolactinaemia in man. Neurol India. 1978;26(4):177-8.
10. Hussain G, Manyam BV. *Mucuna pruriens* proves more effective than L-DOPA in Parkinson's disease animal model. Phytother Res. 1997;11:419-423.
11. Gupta M, Mazumder UK, Chakraborti S, Bhattacharya N, Rath S, Bhawan SR, *et al*. Hypoglycemic and antihyperglycemic activity of Aege marmelos seed extract in normal and alloxan induced diabetic rats. Journal of Ethnopharmacology. 2006;107:374-379.
12. Sharma PV. Dravya Guna Vijyana. Part 1. 2nd ed. 1998. p. 569-571.
13. Chunekar KC, Pandey GS. Bhavaprakash Nighantu with Vidyotini Hindi Commentary. Chaukhambha Sanskrit Sansthana; 2009. p. 356-358.
14. Sharma PV, ed. Dhanvantray Nighantu; c1982. p. 43.
15. Mishra S. Bhaishjyaratnavali with Hindi Commentary Siddhiprada. Chaukhambha Surbharti Prakashan; c2011. p. 1141-1149.
16. Nadkarni AK. Indian Materia Medica. Popular Prakashan Pvt. Ltd.; c1976. p. 818-820.
17. Kapikacchu contributed to improve anti Parkinsonism activity and creates tolerability in animals. Indian drugs.

1996;33(9):465-472.
18. Katzenschlager R, Evans A, Manson A. *Mucuna pruriens* in Parkinson's disease: a double blind clinical and pharmacological study. Journal of Neurology, Neurosurgery and Psychiatry. 2004;75:1672-1677.
19. Shukla KK, *et al*. *Mucuna pruriens* reduces stress and improves the quality of semen in infertile men. eCAM. 2010;7(1):137-144.