WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
Coden USA: WJPRAP Impact Factor 8.453
Volume 14, Issue 22, 540-549. Research Article ISSN 2277–7105

ROLE OF MUSTA ARAGWADHADI KASHYA IN CHILDHOOD NUTRITIONAL OBESITY

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Article Received on 18 Oct. 2025,
Article Revised on 08 Nov. 2025,
Article Published on 16 Nov. 2025,

https://doi.org/10.5281/zenodo.17616286

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How to cite this Article: Dr. Ankita, Dr. Shrinidhi Kumar K., Dr. Aisha Amrin Jahan Qadari (2025). Role Of Musta Aragwadhadi Kashya In Childhood Nutritional Obesity. World Journal of Pharmaceutical Research, 14(22), 540–549.

ABSTRACT

Introduction: Childhood nutritional obesity is a growing global health challenge associated with lifestyle, dietary habits, and metabolic imbalance. In Ayurveda, *Sthaulya* (obesity) is described as a *Santarpanajanya Vyadhi*, caused by overnutrition and derangement of *Kapha Dosha*, *Medo Dhatu* and *Agni*. *Musta Aragwadhadi Kashya*, a classical Ayurvedic formulation, possesses *Lekhana* (scraping), *Medohara* (anti-obesity), and *Agnideepana* (digestive fire–enhancing) properties, making it potentially beneficial in managing nutritional obesity in children. **Method:** This review compiles and analyzes information from classical Ayurvedic texts, pharmacological studies, and contemporary research databases to evaluate the therapeutic relevance, pharmacodynamic actions, and possible biomedical correlations of *Musta Aragwadhadi Kashya* in the context of childhood nutritional obesity. Literature sources were reviewed for data on the formulation's ingredients, pharmacological activities, and experimental or clinical evidence related to obesity and metabolism. **Result:** The ingredients, *Musta (Cyperus rotundus)* and *Aragwadha (Cassia fistula)*, possess digestive, detoxifying, antioxidant, and lipid-lowering properties. Evidence suggests they enhance *Agni*, reduce *Medodhatvagni Mandya* (sluggish fat metabolism), and improve lipid utilization. Studies on similar herbal formulations report improved body weight and lipid profiles without adverse effects. **Discussion:** The multi-targeted actions of *Musta*

Aragwadhadi Kashya align with both Ayurvedic and modern concepts of obesity management. **Conclusion:** *Musta Aragwadhadi Kashya* demonstrates promising potential as an Ayurvedic intervention for childhood nutritional obesity. Its pharmacological profile supports the classical Ayurvedic rationale for its use in *Sthaulya* management.

KEYWORDS: *Santarpanajanya Vyadhi, Sthaulya, Meda, Kapha Dosha.*

INTRODUCTION

Childhood obesity has emerged as a major global health concern, with a steadily increasing prevalence due to sedentary lifestyles, unhealthy dietary patterns, and reduced physical activity. Nutritional obesity in children not only predisposes them to metabolic disorders such as diabetes mellitus, dyslipidemia, and hypertension in later life but also affects their physical and psychological well-being at an early age. Modern management primarily focuses on dietary restriction, physical exercise, and pharmacotherapy; however, these approaches often yield limited success in children due to issues of compliance, safety, and long-term sustainability. Adults with a Body Mass Index (BMI) of 25 or above are classified as overweight, while those with a BMI of 30 or higher are considered obese. In children, overweight and obesity are defined as having a BMI at or above the 85th and 95th percentiles, respectively, for their age and sex. These rates are rising rapidly worldwide, posing a significant public health concern.[1] In March 2024, World Obesity Day came with the release of the most recent World Obesity Atlas by the World Obesity Federation. The Atlas estimates that 33 million Indian children, or almost 9% of the country's under-20 population, were overweight or obese in 2020. It is anticipated that these rates will rise by 6.2% every year.[2]

In Ayurvedic classics, *Sthaulya* (obesity) has been described as a *Santarpanajanya Vyadhi*—a disorder resulting from overnutrition and impaired metabolism. The pathogenesis involves vitiation of *Kapha Dosha* and *Medo Dhatu*, leading to excessive accumulation of *Medas* (adipose tissue) and reduced functional efficiency of *Agni* (digestive and metabolic fire). Ayurveda offers a holistic approach to obesity management through *Ahara* (diet), *Vihara* (lifestyle), and *Aushadha* (herbal medication), aiming not only at weight reduction but also at restoring metabolic balance.

AIM AND OBJECTIVES

To explore the role of *Musta Aragwadhadi Kashya* in the management of childhood nutritional obesity.

METHOD

A qualitative literature review was conducted using classical Ayurvedic texts and modern research from databases such as PubMed, AYUSH Research Portal, and Google Scholar.

Ingredients of *Musta Aragwadhadi Kashya.*

S.No.	Drug Name	Latin Name	Family	Part Used
1.	*Musta*[3]	*Cyperus rotundus* Linn	Cyperaceae	*Kanda*
2.	*Aragwadh*[4]	*Cassia fistula* Linn.	Leguminosae	*Phalmajja*
3.	*Patha*[5]	*Cissampelos pareira* Linn	Menisperrnaceae	*Moola*
4.	*Amlaki*[6]	*Emblica officinalis*	Euphorbiaceae	*Phala*
5.	*Vibhitaki*[7]	Terminalia bellirica Roxb.	Combretaceae	*Phala*
6.	*Hartitaki*[8]	*Terminalia chebula* Retz	Combretaceae	*Phala*
7.	*Devdaru*[9]	*Cedrus deodara* Roxb.Loud	Pinaceae	*Kandasaar*
8.	*Gokshura*[10]	*Tribulus terrestris* Linn.	Zygopyllaceae	*Phala*
9.	*Khadir* [11]	*Acacia catechu* Willd	Leguminosae	*Khadirsaar*
10.	*Nimba* [12]	*Azadirachta indica* A.Juss	Meliaceae	*Patra*
11.	*Haridra* [13]	*Curcuma longa* Linn	Zingiberaceae	*Kanda*
12.	*Tvak*[14]	*Cinnamomnm zeylanicum* Breyn	Lauraceae	*Tvak*
13.	*Vatsak*[15]	*Holarrhena antidysenterica* Linn.Wall.	Apocynaceae	*Tvak*

Rasa Panchaka* of contents of *Musta Aragwadhadi Kashya

S.No.	Drug Name	*Rasa*	*Guna*	*Virya*	*Vipaka*	*Doshaghnata*
1.	*Musta*[16]	*Kanda*	*Katu, Tikta, Kashya*	*Sheeta*	*Katu*	*Pittakaphahara*
2.	*Aragwadh*[17]	*Madhura, Tikta*	*Guru*	*Ushna*	*Madhura*	*Vatapittashamak*
3.	*Patha*[18]	*Katu,Tikta*	*Laghu, Tikshna*	*Ushna*	*Katu*	*Tridoshashamak*
4.	*Amlaki*[19]	*Madhura, Amla, Katu, Tikta, Kashaya*	*Laghu, Ruksha*	*Sheeta*	*Madhura*	*Tridoshashamak*
5.	*Vibhitaki*[20]	*Kashya*	*Laghu, Ruksha*	*Ushna*	*Madhura*	*Kaphapittajit*
6.	*Haritaki*[21]	*Madhura, Amla, Katu, Tikta, Kashaya*	*Laghu, Ruksha*	*Ushna*	*Madhura*	*Tridoshashamak*
7.	*Devdaru*[22]	*Tikta*	*Laghu, Snigdha*	*Ushna*	*Katu*	*Kaphavatashamak*
8.	*Gokshura*[23]	*Madhura*	*Guru,*	*Sheeta*	*Madhura*	*Vatanut*

			Snigdha			
9.	*Khadir*[24]	*Tikta, Kashya*	*Laghu, Ruksha*	*Sheeta*	*Katu*	*Kaphapittahara, Medohara*
10.	*Nimba*[25]	*Tikta*	*Ruksha*	*Sheeta*	*Katu*	*Pittanashaka*
11.	*Haridra*[26]	*Katu, Tikta*	*Ruksha*	*Ushna*	*Katu*	*Kaphapittanut*
12.	*Tvak*[27]	*Madhura, Katu, Tikta*	*Laghu, Riksha, Tikshna*	*Ushna*	*Katu*	*Kaphavatahata*
13.	*Vatsak*[28]	*Tikta, Kashya*	*Laghu, Ruksha*	*Sheeta*	*Katu*	*Kaphapittashamak*

Mustak

The anti-obesity potential of the aqueous tuber extract of *Cyperus rotundus* L. (ATECR) in obese rats fed a high-fat cafeteria diet (HFCD) was reported by Athesh et al. The outcome demonstrates the substantial weight loss activity.[29]

Aragwadh

The capacity of *Casia. fistula* extract to efficiently control lipid metabolism and generate antioxidant effects explained the potential mechanisms underlying the observed results, attributing reduced LDL levels to enhanced hepatic LDL receptor binding enabled by polyphenolic extracts.[30]

Patha

A substantial amount of polyphenols (1, 1-diphenyl-2-picrylhydrazyl) were found in the 50% ethanol extract of *Cissampelos. pareira* roots, which also shown potent antioxidant qualities both in vitro and in vivo.[31]

Amlaki

Emblica officinalis fruit juice is an effective hypolipidemic agent. It reduces aortic plaques. It is effective in low-density lipoprotein (LDL) oxidation and cholesterol levels.[32]

Vibhitaki

Oral administration of the ethanolic extract (500 mg/kg) of *Terminalia bellirica* fruits successfully lowers body weight, lipid parameters, and organ weight when compared to AD-induced control rats. Thus, Terminalia bellirica fruits could be used in obesity treatment.[33]

Haritaki

Alkaloids, phytosterols, tannins, ellagic acid, gallic acid, chebulinic acid, chebugalic acid, and corilagin are all found in *Haritaki*. The hypolipidemic action of *Haritaki* may be caused by the high concentration of saponins, phytosterols, corilagin, and chebulinic acid.[34]

Devdaru

A *Cedrus deodara*. in newborn rats with obesity caused by monosodium glutamate, deodara ethanol and acetone extracts showed antihyperlipidemic properties. Rats administered 200 mg/kg of ethanol extract and acetone extract lost 6.54% and 6.73% of their body weight, respectively, in comparison to the monosodium glutamate control. The weights of the kidney, liver, spleen, and heart also significantly decreased.[35]

Gokshura

In Wistar albino rats, the hypolipidemic effect of the TT fruit aqueous extract was assessed. It was discovered that a dose of 580 mg/kg of the extract reduced cholesterol-induced hyperlipidemia, with blood levels of high density lipoprotein (HDL) rising and cholesterol, triglycerides, low density lipoprotein (LDL), very low density lipoprotein (VLDL), and atherogenic index (AI) decreasing. The presence of phenolic compounds may cause hypolipidemic activity by increasing lipoprotein lipases in muscles and decreasing their activity in adipose tissues. This suggests that plasma triglycerides are used by muscles for energy production rather than adipose tissue for energy storage.[36]

Khadir

The diabetic rat was administered 200 mg/kg and 400 mg/kg of *A. catechu* hydroethanolic leaf extract for 30 days. Diabetic rats were shown to have significantly higher levels of triglycerides, LDL, serum total cholesterol, and VLDL cholesterol. The amount of HDL serum was much lower in the diabetic rats compared to the normal rats. The plant extract's flavonoids are what raise HDL levels.[37]

Nimba

High-fat and fructose-fed diabetic rats showed elevated blood levels of TG and FFA, TC, and a changed lipoprotein profile (increased LDL-C and VLDL-C and decreased HDL-C). Because of its antihyperlipidmic properties, the treatment of *A. indica* leaf extract in the current investigation returned the altered lipid profile to normal rats.[38]

Haridra

A diet containing 0.5% curcumin for eight weeks dramatically reduced serum levels of low-density lipoprotein (LDL), very low-density lipoprotein (VLDL), total cholesterol, and triglycerides in rat models of hyperlipidemia, potentially by boosting the activity of hepatic cholesterol-7a-hydroxylase and increasing cholesterol catabolism.[39]

Tvak

Rats fed 15% cinnamonomum powder for 35 days showed a reduction in low-density lipoproteins, triglycerides, and total cholesterol.[40]

Vatsak

Ethanolic extract of HA significantly reduced plasma glucose levels in rats with euglycemia half an hour after glucose was given. The body weight of the diabetic rats dropped during the trial. Total cholesterol, triglycerides, AST, ALT, urea, and serum creatinine were decreased in the EHA-treated group.[41]

DISCUSSION

Acharya Charaka has mentioned *Musta Aragwadhadi Kashaya* for the treatment of *Santarpana Janya Vyadhi* (diseases due to over nutrition).[42] *Musta Aragwadhadi Kashaya* (decoction) is having *Lekhana, Anulomana* and *Laghu-Ruksha, Tridoshahara* properties, which normalize the *Meda Dhatu*, harmonize the discordance of *Dosha* and *Srotas*, liquefies the *Ama* and *Picchila Mala* and thus eradicates it from the body. Thus, the regulated *Jatharagni* checks the excessive growth and accumulation of *Meda Dhatu* and thereby cause *Lakshana Upashamana* (symptomatic relief) of the disease *Sthaulya*. *Sthaulya* is a *Meda* and *Kapha* dominant disorder. *Musta Aragwadhadi Kashaya* eliminates those excessive *Kapha* and *Meda*, removes the *Avarana* of *Vayu* in *Koshta* and corrects the *Agni Vaigunyata* (derangement). This leads to a decrease in the production of *Ama*. Moreover, it corrects the *Meda Dhatvagni* as well. Therefore the formation of *Uttardhatu* (Subsequent tissues) is increased, while the formation of *Meda Dhatu* is decreased, thus subsiding the symptoms of *Sthaulya*.

CONCLUSION

Musta Aragwadhadi Kashya demonstrates significant potential as an adjuvant intervention in the management of childhood nutritional obesity. Its pharmacological attributes—*Deepana*,

Pachana, *Lekhana*, and *Medohara*—facilitate the regulation of metabolic processes, enhancement of digestive efficiency, and reduction of excess adiposity in children.

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