



NATIONAL JOURNAL OF RESEARCH IN AYURVED SCIENCE

Article Received Date: 23/07/2026 Reviewed on Date: 16/09/2026 Accepted on: 21/09/2026

***Samangadi Churna* in the management of attention deficit hyperactivity disorder (ADHD): A critical review integrating classical Ayurvedic concepts with contemporary evidence.**

Rasika R Desale^{*1}, Raghavendra Pandilwar²

¹PG Scholar, ²Associate professor, Department of Kaumarbhritya, YMT Ayurvedic Medical College and Hospital, Kharghar, Maharashtra, India

***Corresponding Author:** drasikardesale5201@gmail.com

ABSTRACT

Background. Attention-deficit/hyperactivity disorder (ADHD) is a common childhood neurodevelopmental disorder marked by persistent inattention and/or hyperactivity-impulsivity affecting daily functioning. Although Ayurveda has not directly described equivalent for ADHD, its manifestations may be explored through concepts such as *Unmada*, *Manas*, *Buddhi*, *Manovaha Srotas*, and *Medhya-Rasayana*. *Samangadi Churna*, a classical Ayurvedic formulation described Kashyapa Samhita, Sutrasthana, Lehaadhyaya. in containing *Samanga*, *Triphala*, *Brahmi*, *Bala*, *AtiBala*, and *Chitraka*, is traditionally administered with *Go-Ghrita* and *Madhu* for supporting *Medha*, *Ayu*, and *Bala*. This review critically examines its possible relevance in ADHD management in light of classical Ayurvedic principles and available contemporary evidence.

Objective. To review the classical description, evaluate the potential pharmacological rationale, assess the available contemporary clinical evidence on *Samangadi Churna* in attention-deficit/hyperactivity disorder (ADHD), and identify directions for future research.

Methods. A narrative review was undertaken following the principles of the SANRA (Scale for the Assessment of Narrative Review Articles) framework. Classical information was obtained from the *Kashyapa Samhita*; *Sutrasthana*; *lehaadhyaya*, while contemporary literature was searched through PubMed/MEDLINE, Google Scholar, and relevant full-text databases. The search employed combinations of the terms “*Samangadi Churna*,” “*Samangadi Leha*,” “attention-deficit hyperactivity disorder,” “ADHD”, “*Unmada*,” “*Medhya-Rasayana*,” and “*Bacopa monnieri*.”

Review summary. ADHD is not described as a distinct disorder in classical Ayurvedic texts; however, its clinical manifestations may be conceptually correlated with *Unmada*, particularly the disturbance of *Dhi*, *Dhriti*, and *Smriti* associated with *Manovibhrama*. Within this framework, *Samangadi Churna*, described in the *Kashyapa Samhita*, contains *Samanga*, *Triphala*, *Brahmi*, *Bala*, *AtiBala*, and *Chitraka* and is administered with *Go-Ghrita* and *Madhu*, with classical emphasis on supporting *Medha*, *Ayu*, and *Bala*. Its therapeutic rationale can therefore be viewed within a *Medhya–Balya–Rasayana* properties. Contemporary evidence, however, is predominantly available for individual ingredients rather than the complete formulation. *Bacopa monnieri* has demonstrated cognitive and behavioural effects in human studies, including those addressing attention and hyperactivity, whereas *Rubia cordifolia*, *Sida cordifolia*, *Abutilon indicum*, and *Plumbago zeylanica* are supported mainly by preclinical evidence involving antioxidant, neuroprotective, neurotransmitter-related, and digestive mechanisms. *Triphala* has also been investigated for antioxidant, anti-inflammatory, and microbiome-related effects. Although the gut–brain axis is increasingly recognised as a potential area of relevance in ADHD, evidence remains evolving. Overall, direct clinical evidence for the efficacy of *Samangadi Churna* in ADHD requires major clinical trials.

Conclusion. *Samangadi Churna* demonstrates a rational basis within classical Ayurvedic principles and may have potential through the combined effects of its

constituent ingredients. However, current evidence requires more research to establish its efficacy as a treatment for ADHD. Further research should focus on formulation standardization, paediatric safety, dose optimization, and well-designed randomized controlled trials employing validated ADHD assessment tools.

Keywords: *Samangadi Churna*; Attention Deficit Hyperactivity Disorder; ADHD; *Unmada*; *Manovaha Srotas*; *Medhya*; *Rasayana*; *Brahmi*; *Bacopa monnieri*; Ayurveda; pediatric neurodevelopment.

1. INTRODUCTION

Attention-Deficit/Hyperactivity Disorder (ADHD) is a common neurodevelopmental disorder of childhood, characterised by difficulties in attention, hyperactivity, and impulsivity that may impair academic, social, and behavioral functioning. A global meta-analysis estimated ADHD prevalence at approximately 7.6% among children aged 3–12 years.¹ Its aetiology is multifactorial, involving genetic, neurobiological, prenatal, environmental, and psychosocial influences, with altered dopaminergic and noradrenergic signaling implicated in its clinical manifestations.² Although conventional pharmacological therapies are effective, concerns regarding adverse effects and individual treatment response have encouraged interest in complementary approaches.³

ADHD is diagnosed clinically using the criteria outlined in the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)*⁴. In children, six or more symptoms out of 9 symptoms of inattention and/or hyperactivity–impulsivity should be

present for at least six months, with several symptoms having been evident before 12 years of age. These symptoms should occur in two or more settings, such as home and school, and result in clinically significant impairment in social, academic, or daily functioning.

Current ADHD care is multimodal and age-dependent. Contemporary guidance supports behavioural interventions, parent training and school-based supports, with medication playing an important role for many school-age children and adolescents. For preschool-aged children, behavioural approaches are emphasized before medication; for older children, medication and behavioural/classroom interventions may be combined according to individual need. Pharmacotherapy can be effective but may produce adverse effects such as appetite suppression and sleep disturbance⁵, and treatment selection requires monitoring and individualized titration. These realities do not establish a need to replace standard care; rather, they provide a rationale for investigating additional evidence-based approaches that could potentially be used adjunctively.

Within Ayurveda, cognitive and behavioural functions are discussed through concepts such as Manas, Buddhi, Dhi and Smriti, while *Medhya* and *Rasayana* approaches are traditionally used to support mental function and general nourishment. *Samangadi Churna* as a classical formulation from *Kashyapa Samhita*, *Sutrasthana*, *Lehaadhyaya*, comprises *Samanga*, *Triphala*, *Brahmi*, *Bala*, *AtiBala*, and *Chitraka* and is administered with *Go-Ghrita* and *Madhu*. describes its

intended effects in relation to *Medha*, *Ayu* and *Bala*. Its proposed relevance to ADHD therefore rests initially on conceptual correspondence rather than on proof of diagnostic equivalence or clinical efficacy.

2. AIM

To evaluate *Samangadi Churna* with *madhu* and *Sarpi* as potent Ayurvedic comprehensive medication in Attention Deficit Hyperactive Disorder.

3. OBJECTIVES

1. To review the ingredients and Ayurvedic pharmacological attributes (*Rasa*, *Guna*, *Virya*, and *Vipaka*) of *Samangadi Churna*.
2. To analyse the potential individual and synergistic mechanisms of action of *Samangadi Churna* in relation to the symptoms and pathophysiology of ADHD.
3. To critically evaluate the available classical, pharmacological, and clinical evidence regarding the role of *Samangadi Churna* in ADHD.

4. MATERIALS AND METHODS

This narrative review was developed with reference to the SANRA (Scale for the Assessment of Narrative Review Articles) framework, with emphasis on the rationale and objectives of the review, literature identification, appropriate referencing, scientific interpretation, and *Balanced* presentation of evidence. A narrative approach was adopted because the available evidence on *Samangadi Churna* and its individual ingredients is limited and heterogeneous, precluding meaningful quantitative synthesis.

The classical basis of *Samangadi Churna* was reviewed primarily from the *Kashyapa*

Samhita, with relevant Ayurvedic concepts from the *Charaka Samhita* and *Sushruta Samhita* consulted for understanding *Unmada*, *Manas*, *Dhi*, *Dhriti*, *Smriti*, and *Medhya-Rasayana* and *Bhavaprakash Nighantu for Dravya guna and properties*. Contemporary literature was searched through PubMed/MEDLINE, Google Scholar, and relevant full-text repositories using combinations of the terms “*Samangadi Churna*,” “*Samangadi Leha*,” “attention-deficit/hyperactivity disorder,” “ADHD,” “*Unmada*,” “*Medhya-Rasayana*,” and the botanical names of relevant constituent herbs, including “*Bacopa monnieri*.”

Literature addressing the classical description and pharmacological attributes of *Samangadi Churna*, Ayurvedic concepts relevant to ADHD, clinical and experimental evidence on its individual ingredients, and contemporary evidence related to ADHD was considered. Peer-reviewed articles and relevant classical sources were prioritised, while commercial, promotional, and non-

5.2 Composition

substantive sources were excluded. The available evidence was critically interpreted with distinction between evidence for individual ingredients and evidence for the complete formulation. Owing to the narrative nature and heterogeneity of the available literature, no quantitative pooling or meta-analysis was undertaken.

5. SAMANGADI CHURNA: CLASSICAL REVIEW

5.1 Classical reference:

The primary classical reference for *Samangadi Churna*⁶ is described in the *Kashyapa Samhita, sutrasthan lehadhyaya*. The formulation is presented as containing *Samanga*, *Triphala*, *Brahmi*, *Dve Bale (Bala and AtiBala)* and *Chitraka*, with *Madhu* and *Go-Ghrita*. The *mula shloka* with *falshruti* reads:

समङ्गा त्रिफला ब्राह्मी द्वे बले चित्रकस्तथा ।

मधु सर्पिरिति प्राश्यं मेधायुर्बलवृद्धये ॥

का. सं. | सु.लेहअध्याय

Sr. No	Content	Botanical name	Family	Part used	Rasa	Vipaka/ Virya	Ayurvedic Karma
1)	<i>Samanga</i> ⁷	<i>Rubia cordifolia</i>	<i>Rubiaceae</i>	Root	<i>Tikta, Kashaya, Madhura</i>	<i>Katu/ Ushna</i>	<i>Raktashodhaka, Pittahara</i>
2)	<i>Amalaki</i> ⁸	<i>Emblica officinalis</i>	<i>Euphorbiaceae*</i>	Fruit	<i>Amla, Kashaya, Katu, Madhura, Tikhta,</i>	<i>Madhura/ Sheeta</i>	<i>Rasayana, Deepana, Pachana, Anulomana, Tridoshahara</i>
3)	<i>Haritaki</i> ⁹	<i>Terminalia chebula</i>	<i>Combretaceae</i>	Fruit	<i>Kashaya, Katu, Madhura, Tikhta, Amla</i>	<i>Madhura/ Ushna</i>	<i>Kaphapittanashak, Rasayan, laghupaki, Netrakar</i>

4)	Bhibhitaki ¹⁰	<i>Terminalia bellerica</i>	<i>Combretaceae</i>	Fruit	<i>Kashaya, Katu Madhura, Tikhta, Amla</i>	<i>Madhura/Ushna</i>	<i>Rasayan, Balya, Netrya, Tridosahar</i>
5)	Bramhi ¹¹	<i>Bacopa monnieri</i>	<i>Plantaginaceae</i>	Whole plant	<i>Kashaya, Tikta</i>	<i>Madhura/Sheeta</i>	<i>Rasayana, Deepana, Pachana, Anulomana, Tridosahara</i>
6)	Bala ¹²	<i>Sida cordifolia</i>	<i>Malvaceae</i>	Root	<i>Madhura</i>	<i>Madhura/Sheeta</i>	<i>Rasayana, Deepana, Pachana, Anulomana, Tridosahara</i>
7)	AtiBala ¹³	<i>Abutilon indicum</i>	<i>Malvaceae</i>	Root	<i>Madhura</i>	<i>Madhura/Sheeta</i>	<i>Medhya, Smritivardhaka</i>
8)	Chitrak ¹⁴	<i>Plumbago zeylanica</i>	<i>Plumbaginaceae</i>	Root	<i>Katu</i>	<i>Katu/Ushna</i>	<i>Balya, Brimhana, Vatashamaka, Rasayana</i>
7)	Goghrita ¹⁵			Animal Product	<i>Madhura</i>	<i>Madhura/Sheeta</i>	<i>Balya, Rasayana, Vatashamaka</i>
9)	Madhu ¹⁶			Animal Product	<i>Madhura, Tikta</i>	<i>Madhura/Sheetoshna</i>	<i>Medhavi, Vanhikruta, Pachaka, Vatapittahara</i>

5.3 Ingredient-wise pharmacognosy and contemporary evidence

5.3.1 *Samanga (Rubia cordifolia)*⁷

Samanga as *Rubia cordifolia* (*Rubiaceae*), using the root, and attributes *Raktashodhaka* and *Pittahara* actions. Modern literature on *R. cordifolia* describes a diverse phytochemical profile including anthraquinones, naphthoquinones, triterpenoids and cyclic hexapeptides. Experimental studies have reported antioxidant, anti-inflammatory and

neuroprotective activity. In a rat hippocampal oxygen–glucose deprivation model, *R. cordifolia* increased antioxidant defenses and reduced markers related to oxidative neuronal injury; these findings are preclinical and do not demonstrate benefit in ADHD. Another animal study reported attenuation of oxidative stress and neurochemical changes in a model of orofacial dyskinesia. These findings provide only mechanistic plausibility for inclusion in a multicomponent formulation.^{17,18}

5.3.2 *Triphala*^{8,9,10}

Triphala as the combination of *Amalaki* (*Embllica officinalis*), *Haritaki* (*Terminalia chebula*) and *Bibhitaki* (*Terminalia bellerica*), using fruits, and attributes *Rasayana*, *Deepana*, *Pachana*, *Anulomana* and *Tridosahara* actions. Modern reviews describe antioxidant, anti-inflammatory and immunomodulatory activities and potential effects on gastrointestinal function. Importantly, *Triphala* polyphenols can interact with gut microbial metabolism, providing a plausible digestive microbiome component to the formulation; *Triphala* polyphenols are beneficial to cognitive and psychological resilience by regulating 5-hydroxytryptamine (5-HT) and brain-derived neurotrophic factor (BDNF) receptors, gut microbiota, and antioxidant-related signaling pathways.^{19,20}

5.3.3 *Brahmi* (*Bacopa monnieri*)¹¹

Brahmi as *Bacopa monnieri* (Plantaginaceae), whole plant, as *Medhya* and *Smritivardhaka*. *Bacopa* is the ingredient in *Samangadi* with the strongest human evidence relevant to cognition and attention. A systematic review of randomized controlled human trials found evidence of improved memory free recall, although most included participants were adults and the evidence for other cognitive domains was less consistent. A systematic review focused on children and adolescents found significant improvements in some cognition, memory, hyperactivity and attention-deficit domains across five studies, while emphasizing the need for replication and better methodology. A later 14-week randomized double-blind placebo-controlled trial in boys aged 6–14

years investigated a standardized *Bacopa* extract for inattention and hyperactivity, providing more directly relevant pediatric evidence.^{21,22,23}

5.3.4 *Bala* (*Sida cordifolia*)¹²

Bala - *Sida cordifolia* (Malvaceae), root, with *Madhura Rasa*, *Guru-Snigdha Guna*, *Sheeta Virya* and *Madhura Vipaka*, and describes *Balya*, *Brimhana*, *Vatashamaka* and *Rasayana* actions. Preclinical studies have examined CNS and neuroprotective effects. In a rotenone-induced Parkinsonian rat model, selected *Sida* extracts attenuated oxidative damage and helped preserve dopamine levels, suggesting possible *neuromodulatory* activity. However, *Sida cordifolia* also requires particular safety attention because some preparations have been reported to contain ephedrine alkaloids. The FDA identifies *Sida cordifolia* among botanical sources of ephedrine alkaloids and has taken a restrictive regulatory position on ephedrine-alkaloid-containing dietary supplements. This does not establish the composition or risk of the *Samangadi* formulation, but it makes botanical authentication, alkaloid profiling and pediatric safety assessment especially important.^{24,25}

5.3.5 *AtiBala* (*Abutilon indicum*)¹³

AtiBala *Abutilon indicum* (Malvaceae), root, and attributes *Balya*, *Rasayana* and *Vatashamaka* actions. Contemporary evidence is predominantly pharmacological. Extracts of *Abutilon indicum* have demonstrated antioxidant and radical-scavenging activity in vitro, and leaf extracts have shown cytoprotective effects against experimentally induced oxidative stress.

These findings may support a general antioxidant rationale.^{26,27}

5.3.6 *Chitraka (Plumbago zeylanica)*¹⁴

Chitraka Plumbago zeylanica (*Plumbaginaceae*), root, and attributes Medhavi, Vanhikruta, Pachaka and Vatapittahara actions. Plumbagin is a prominent bioactive constituent. Experimental studies report antioxidant and anti-inflammatory effects, including modulation of inflammatory signaling in neurological models. At the same time, plumbagin has recognized toxicity concerns, and recent work has demonstrated that traditional Shodhana processing can alter plumbagin content and related constituents. Therefore, the use of *Chitraka* in a pediatric formulation requires authenticated raw material, defined processing where applicable, dose standardization and dedicated safety testing.^{28,29}

5.3.7 *Go-Ghrita*¹⁵

Medhya, *Balya* and *Rasayana* properties to *Go-Ghrita* and presents it as a supportive vehicle. These are classical *Ayurvedic* roles. A modern claim that ghee necessarily carries the whole formulation across the blood–brain barrier should not be stated as established fact: no formulation-specific pharmacokinetic study demonstrating BBB delivery of *Samangadi* constituents was identified. The appropriate publication-level wording is that the lipid vehicle may influence dissolution, absorption or distribution of some lipophilic constituents, a hypothesis requiring direct pharmacokinetic testing.³⁰

5.3.8 *Madhu*¹⁶

The *Yogavahi*, *Lekhana*, *Sandhana* and *Ropana* actions to *Madhu* and presents it as an administration vehicle together with *Go-Ghrita*. In this review, *Madhu* is treated primarily as a classical *Anupana* component of the *Samangadi Churna* formulation. *Madhu* contains oligosaccharides and polyphenols act as prebiotics, boosting beneficial gut bacteria (*Bifidobacterium*, *Lactobacillus*). Their fermentation produces Short Chain Fatty Acids and metabolites that strengthen the intestinal barrier and support blood–brain barrier stability.³¹

6. DISCUSSION

1. INGREDIENT-WISE

PHARMACOLOGICAL RATIONALE

Samanga is *Tikta–Kashaya Rasa*, *Katu Vipaka* and *Ushna Virya*, with *Raktashodhaka* and *Pittahara* actions. These properties support systemic and metabolic *Balance* in conditions involving *Pitta*, *Kapha* and *Rakta* dysfunction. Modern studies report antioxidant, anti-inflammatory and neuroprotective activities of *Rubia cordifolia* and its phytoconstituents. These effects may provide supportive protection against oxidative stress and neuroinflammation implicated in ADHD. However, evidence remains predominantly preclinical, with no direct clinical evidence in ADHD.

Triphala, comprising *Amalaki*, *Haritaki* and *Bibhitaki*, possesses *Rasayana*, *Deepana*, *Pachana*, *Anulomana* and *Tridosahara* properties. These actions may support *Agni*, digestion and systemic homeostasis, which are considered important for maintenance of *Medha* and *Smriti*. Modern studies demonstrate antioxidant, anti-inflammatory

and immunomodulatory effects, while its polyphenols may influence gut microbiota and gut–brain signalling. Thus, *Triphala* may provide antioxidant, metabolic and gut–brain support within *Samangadi Churna*.

Brahmi is a *Medhya Rasayana* traditionally associated with improvement of *Medha* and *Smriti*, making it particularly relevant to the attentional and cognitive deficits of ADHD. Among the ingredients, *Brahmi* has comparatively stronger human evidence. Its bacosides and related constituents exhibit antioxidant, neuroprotective and neuromodulatory activities, with clinical studies suggesting benefits in memory and selected cognitive and attention-related functions. Therefore, *Brahmi* may represent the principal cognition- and attention-oriented component of *Samangadi Churna*.

Bala possesses *Madhura Rasa*, *Guru–Snigdha Guna*, *Sheeta Virya* and *Madhura Vipaka*, with *Balya*, *Brimhana*, *Vatashamaka* and *Rasayana* actions. These properties suggest a nourishing and stabilizing role, particularly in *Vata*-related dysfunction. Preclinical studies suggest antioxidant, neuroprotective and possible dopaminergic effects, which may be relevant to ADHD neurobiology. However, evidence for ADHD is lacking, and the possible presence of ephedrine-type alkaloids necessitates careful botanical authentication, standardization and safety evaluation.

AtiBala is traditionally considered *Balya*, *Rasayana* and *Vatashamaka*, indicating a nourishing and restorative role. Contemporary studies have demonstrated antioxidant and cytoprotective activities. These effects may provide supportive

neuroprotection against oxidative stress associated with neuronal dysfunction. However, direct evidence of efficacy in ADHD is currently unavailable.

Chitraka possesses *Katu Rasa*, *Katu Vipaka* and *Ushna Virya*, with important *Deepana* and *Pachana* actions. These properties may support digestion and assimilation within the formulation and its *kaphashamak guna* can reduce the *Tama Guna* that is associated with inattention and lost symptoms in ADHD. Its major constituent, plumbagin, exhibits experimental antioxidant and anti-inflammatory activities that may provide mechanistic relevance to oxidative and inflammatory pathways implicated in ADHD. However, plumbagin also has recognized toxicity; therefore, authenticated raw material, appropriate processing, dose standardization and safety assessment are essential, particularly for paediatric use.

Go-Ghrita is traditionally regarded as *Balya*, *Rasayana* and *Medhya*-supportive, with *Madhura Rasa*, *Madhura Vipaka* and *Sheeta Virya*. It may provide a nourishing and stabilizing effect and serves as a classical vehicle for the formulation. From a modern perspective, its lipid matrix may influence the dissolution and absorption of lipophilic phytoconstituents. However, its ability to enhance blood–brain barrier delivery of *Samangadi* constituents has not been established and requires pharmacokinetic confirmation.

Madhu is traditionally used as a *Yogavahi* and supportive vehicle along with *Go-Ghrita*. It may improve palatability and facilitate administration of the formulation. Modern evidence suggests that honey-derived

carbohydrates and polyphenols can interact with the intestinal microbiota and influence gut–brain signalling. This may provide an indirect supportive mechanism, although such effects have not been specifically demonstrated for *Samangadi Churna* in ADHD.

2. PHARMACO-THERAPEUTIC RATIONALE OF SAMANGADI CHURNA

The therapeutic rationale of *Samangadi Churna* in ADHD is better understood as a multitarget, multimodal pharmacological action rather than the effect of a single active ingredient. ADHD is a heterogeneous neurodevelopmental disorder involving disturbances in attention regulation, executive function, inhibitory control, reward processing and motor activity.³² Current neurobiological models implicate, among other pathways, dysregulation of dopaminergic and noradrenergic signaling, altered cortical network function, oxidative stress, neuroinflammatory processes and interactions between the gut and brain. Therefore, a formulation containing several pharmacologically active a major role in attention, motivation, response inhibition and executive control. Although the ingredients of *Samangadi Churna* have not collectively been demonstrated to normalize these botanicals may theoretically influence multiple contributory pathways simultaneously.

Within this formulation, *Brahmi* provides the most direct cognition-oriented component, while *Samanga*, *Triphala* and *AtiBala* contribute antioxidant and potentially neuroprotective effects. *Bala* may provide a

traditional *Balya–Rasayana* and potentially neuroprotective component, whereas *Chitraka* contributes *Deepana–Pachana* activity together with experimentally observed anti-inflammatory effects. *Go-Ghrita* and *Madhu* function primarily as classical vehicles/supportive components and may influence the absorption, palatability and systemic disposition of the botanical constituents.

From a modern perspective, *Samangadi Churna* acts comprehensively rather than a single mechanism. Potential domains include cognitive modulation, antioxidant activity, inflammatory signalling, digestive function and the gut–brain axis thereby reduction in symptoms Hyperactivity- impulsivity and Inattention of ADHD³²

3. PROBABLE MODE OF ACTION

3.1 MEDHYA AND COGNITIVE EFFECTS

Bacopa monnieri provides the strongest direct conceptual bridge. Human trials and reviews suggest possible effects on memory and selected attention/behavioural outcomes, including in pediatric populations. The complete formulation may theoretically combine this with the supportive Ayurvedic actions of other constituents.

3.2 NEUROPROTECTIVE AND ANTIOXIDANT MECHANISMS

Rubia cordifolia, *Abutilon indicum*, *Sida cordifolia* and *Plumbago*-derived compounds have experimental antioxidant or neuroprotective signals. These findings make oxidative-stress modulation and plausible component of the formulation's effect in ADHD.

3.3 NEUROTRANSMITTER-RELATED MECHANISMS

Catecholaminergic signalling is central to contemporary ADHD neurobiology. Experimental *Sida cordifolia* studies have measured dopamine and related neurochemical changes in animal models, and humans but these results cannot be extrapolated to therapeutic normalization of neurotransmission in children with ADHD. Similarly, the presence of a neurotransmitter-related effect in an animal model has to be established for clinical efficacy or safety.

3.4 ANTI-INFLAMMATORY MECHANISMS

Several *Samangadi* constituents have experimental anti-inflammatory properties. Plumbagin, for example, has been investigated in neuroinflammatory models involving pathways such as TLR/NF- κ B. *Rubia cordifolia* and *Triphala* also have anti-inflammatory evidence. These leads to reduction of neuroinflammation and mediate the clinical effects of *Samangadi Churna* in ADHD.

3.5 GUT–BRAIN AXIS

The gut–brain axis is a biologically plausible research domain in ADHD. Systematic reviews have reported associations between ADHD and differences in gut microbial composition. *Triphala* has experimental and review evidence for interactions with gut microbiota and generation of microbiota-derived metabolites.^{33,34}

3.6 DIGESTIVE/AGNI-RELATED CONTRIBUTION

The formulation assigns *Deepana* and *Pachana* roles to *Triphala* and *Chitraka*. From an Ayurvedic perspective, supporting Agni and digestion Increases *uttarotar*

utkrusht dhatunirmiti and leads to Poshan of *Majja dhatu*. Modern evidence can support gastrointestinal and antioxidant properties of *Triphala*.

3.7 POTENTIAL SYNERGISTIC ACTION

Polyherbal synergy is plausible but must be demonstrated rather than assumed. The combined formulation could theoretically produce complementary actions across cognition, digestion, oxidative stress and inflammatory pathways. Conversely, combination therapy can also introduce pharmacokinetic interactions and additive toxicities. Therefore, the formulation itself—not simply its ingredients—must be tested for efficacy, safety, pharmacokinetics and batch-to-batch consistency.

10. CONCLUSION

Samangadi Churna is a classical polyherbal formulation with a *Medhya–Balya–Rasayana* rationale and traditional emphasis on supporting *Medha*, *Ayu*, and *Bala*. Its diverse ingredients possess digestive, antioxidant, neuroprotective, and cognition-related properties that provide a plausible basis for exploring its role in children with ADHD. The available evidence, particularly from *Bacopa monnieri* and other individual constituents, suggests potential for reducing selected cognitive and behavioural symptoms.

Based on its classical rationale and preliminary contemporary evidence, *Samangadi Churna* may have potential as an adjunctive therapy alongside standard ADHD management, particularly for addressing associated cognitive and behavioural symptoms. However, evidence specific to the complete formulation remains limited, and its

clinical efficacy cannot yet be considered established. Larger, well-designed clinical trials are required to confirm its effectiveness, safety, optimal dosage, and potential benefits as an adjunct to conventional treatment.

Future research should focus on formulation standardisation, paediatric safety assessment, dose optimisation, pharmacokinetic evaluation, and adequately powered randomized controlled trials using validated ADHD and functional outcome measures. Such studies may help establish the clinical relevance of the classical *Medhya-Rasayana* rationale and clarify the potential role of *Samangadi Churna* as an integrative component of ADHD management.

11. CONFLICT OF INTEREST

None declared.

12. SOURCE OF SUPPORT

Nil.

13. REFERENCES

1. Wang Z, et al. The global prevalence of ADHD in children and adolescents: a systematic review and meta-analysis. *J Glob Health*. 2023. PMID:37081447.
2. Centers for Disease Control and Prevention. Treatment of ADHD. Atlanta (GA): Centers for Disease Control and Prevention; 2026 Jul 30.
3. American Academy of Pediatrics. Clinical practice guideline for the diagnosis, evaluation, and treatment of attention-deficit/hyperactivity disorder in children and adolescents. *Pediatrics*. 2019;144(4):e20192528.
4. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5th ed. Arlington

(VA): American Psychiatric Publishing; 2013.

5. Cortese S. Pharmacologic treatment of attention-deficit/hyperactivity disorder. *N Engl J Med*. 2020;383(11):1050-6.
6. Tiwari PV, editor. *Kashyapa Samhita (Vridhahajivakiya Tantra)*. 1st ed. Varanasi: Chaukhambha Visvabharati; 1996. *Sutrasthana*, *Lehadhyaya*. p. 102.
7. Bhavamishra. *Bhavaprakasha Nighantu*. Chunekar KC, editor. Varanasi: Chaukhambha Bharati Academy; 2010. *Haritakyadi Varga*, *Manjistha*. p. 107-8.
8. Bhavamishra. *Bhavaprakasha Nighantu*. Chunekar KC, editor. Varanasi: Chaukhambha Bharati Academy; 2010. *Haritakyadi Varga*, *Amalaki*. p. 10-2.
9. Bhavamishra. *Bhavaprakasha Nighantu*. Chunekar KC, editor. Varanasi: Chaukhambha Bharati Academy; 2010. *Haritakyadi Varga*, *Haritaki*. p. 7-8.
10. Bhavamishra. *Bhavaprakasha Nighantu*. Chunekar KC, editor. Varanasi: Chaukhambha Bharati Academy; 2010. *Haritakyadi Varga*, *Bhibhitaki*. p. 9-10.
11. Bhavamishra. *Bhavaprakasha Nighantu*. Chunekar KC, editor. Varanasi: Chaukhambha Bharati Academy; 2010. *Guduchyadi Varga*, *Bramhi*. p. 447-8.
12. Bhavamishra. *Bhavaprakasha Nighantu*. Chunekar KC, editor. Varanasi: Chaukhambha Bharati Academy; 2010. *Guduchyadi Varga*, *Bala*. p. 352-3.

13. Bhavamishra. Bhavaprakasha Nighantu. Chuneekar KC, editor. Varanasi: Chaukhambha Bharati Academy; 2010. Guduchyadi Varga, *AtiBala*. p. 355-6.
14. Bhavamishra. Bhavaprakasha Nighantu. Chuneekar KC, editor. Varanasi: Chaukhambha Bharati Academy; 2010. Haritakyadi Varga, *Chitrak*. p. 21-3.
15. Bhavamishra. Bhavaprakasha Nighantu. Chuneekar KC, editor. Varanasi: Chaukhambha Bharati Academy; 2010. Ghrita Varga, *Gavyaghrita*. p. 755.
16. Bhavamishra. Bhavaprakasha Nighantu. Chuneekar KC, editor. Varanasi: Chaukhambha Bharati Academy; 2010. Madhu Varga, *Madhu*. p. 772-3.
17. Agarwal A, et al. *Rubia cordifolia*, *Fagonia cretica* Linn. and *Tinospora cordifolia* exert neuroprotection by modulating the antioxidant system in rat hippocampal slices subjected to oxygen-glucose deprivation. *BMC Complement Altern Med*. 2004;4:11. PMID:15310392.
18. Patil RA, Kasture SB. Protective effect of *Rubia cordifolia* on reserpine-induced orofacial dyskinesia. *Phytother Res*. 2012. PMID:22092272.
19. Peterson CT, Denniston K, Chopra D. Therapeutic uses of *Triphala* in Ayurvedic medicine. *J Altern Complement Med*. 2017. PMID:28696777.
20. Baliga MS, et al. *Triphala*: current applications and new perspectives on the treatment of functional gastrointestinal disorders. *Integr Med Res*. 2018. PMID:30034512.
21. Pase MP, Kean J, Sarris J, Neale C, Scholey AB, Stough C. The cognitive-enhancing effects of *Bacopa monnieri*: a systematic review of randomized, controlled human clinical trials. *J Altern Complement Med*. 2012. PMID:22747190.
22. Pase MP, et al. A systematic review of the Ayurvedic medicinal herb *Bacopa monnieri* in child and adolescent populations. *Complement Ther Med*. 2016. PMID:27912958.
23. Kean J, et al. Effects of *Bacopa monnieri* (CDRI 08®) in a population of males exhibiting inattention and hyperactivity aged 6 to 14 years: a randomized, double-blind, placebo-controlled trial. *Phytother Res*. 2022. PMID:35041248. doi:10.1002/ptr.7372.
24. Kasture S, et al. Ameliorative effect of *Sida cordifolia* in rotenone-induced oxidative stress model of Parkinson's disease. *J Ethnopharmacol*. 2013. PMID:23994302.
25. U.S. Food and Drug Administration. Information on select dietary supplement ingredients and other substances: ephedrine alkaloids. Silver Spring (MD): Food and Drug Administration.
26. Yasmin S, et al. Antioxidant potential and radical scavenging effects of various extracts from *Abutilon indicum* and *Abutilon muticum*. *Pharm Biol*. 2010;48(3):282-9. PMID:20645814.
27. Wu X, Dhanasekaran S. Protective effect of leaf extract of *Abutilon*

- indicum* on DNA damage and peripheral blood lymphocytes in combating oxidative stress. Saudi Pharm J. 2020;28(8):943-50. PMID:32792839.
28. Inhibition of the TLR/NF-κB signalling pathway and improvement of autophagy mediates neuroprotective effects of plumbagin in Parkinson's disease. PubMed. PMID:36589679.
29. Chemical basis of the traditional Ayurvedic detoxification process of the toxic medicinal plant *Plumbago zeylanica*. PubMed. PMID:39752382.
30. Mudigere D, Angadi R, Honwad S. Conceptual review of Ghrita w.s.r. to its Medhya Karma. J Ayurveda Integr Med Sci. 2021 Jan-Feb;6(1):274-8.
31. Schell KR, Fernandes KE, Shanahan E, Wilson I, Blair SE, Carter DA, et al. The potential of honey as a prebiotic food to re-engineer the gut microbiome toward a healthy state. Front Nutr. 2022 Jul 28;9:957932. doi:10.3389/fnut.2022.957932.
32. Clinical Trials Registry-India. A single-arm, open-label clinical trial to evaluate the efficacy of *Samangadi Churna* in the management of academic stress in adolescent age. CTRI/2024/11/076649. 2024.
33. Shirvani-Rad S, et al. The role of gut microbiota-brain axis in pathophysiology of ADHD: a systematic review. J Atten Disord. 2022. PMID:35048732. doi:10.1177/10870547211073474.
34. Gut microbiota composition and diversity in attention-deficit/hyperactivity disorder: a systematic review. Microorganisms. 2026. PMID:42354926. doi:10.3390/microorganisms14061301.

Conflict of Interest: None

Source of funding: Nil

Cite this article:

Rasika R Desale, Raghavendra Pandilwar. "Samangadi Churna in the management of attention deficit hyperactivity disorder (ADHD): A critical review integrating classical Ayurvedic concepts with contemporary evidence". (2026), Ayurlog: National Journal of Research in Ayurved Science, 14(04),

<https://www.ayurlog.com/index.php/ayurlog/article/view/1380>

Doi: <https://doi.org/10.52482/ayurlog.v14i03.1380>