

SANGYASTHAPAK GANA DHOOPAN VARTI: A COMPREHENSIVE STUDY ON ITS NEURO-MODULATORY ROLE IN THE MANAGEMENT OF AUTISM SPECTRUM DISORDER (ASD)

Dr. Aishwarya G. Futane^{1*}, Dr. Vijay S. Suryawanshi², Dr. Vishal B. Ratnaparkhi³

*¹PG Scholar, Dept. of Kaumarbhritya, SMBT Ayurved College & Hospital, Dhamangaon, Nashik, Maharashtra India.

²HOD & Professor, Dept. of Kaumarbhritya, SMBT Ayurved College & Hospital, Dhamangaon, Nashik, Maharashtra India.

³Assistant Professor, Department of Shalakyatantra, Anjaneya Ayurved College & Hospital, Makhamalabad, Nashik, Maharashtra India.

Article Received on 05 April 2026,
Article Revised on 25 April 2026,
Article Published on 01 May 2026,

<https://doi.org/10.5281/zenodo.19875805>

*Corresponding Author

Dr. Aishwarya G. Futane

PG Scholar, Dept. of Kaumarbhritya,
SMBT Ayurved College & Hospital,
Dhamangaon, Nashik, Maharashtra
India.



How to cite this Article: Dr. Aishwarya G. Futane^{1*}, Dr. Vijay S. Suryawanshi², Dr. Vishal B. Ratnaparkhi³. (2026). Sangyasthapak Gana Dhoopan Varti: A Comprehensive Study On Its Neuro-Modulatory Role In The Management Of Autism Spectrum Disorder (Asd). World Journal of Pharmaceutical Research, 15(9), 575-586.

This work is licensed under Creative Commons Attribution 4.0 International license.

ABSTRACT

Background: Autism Spectrum Disorder (ASD) involves complex neuro-psychological deficits where oral drug delivery is often hindered by sensory aversions. *Dhoopana Karma* (medicated fumigation) using *Sangyasthapak Gana* offers a non-invasive, nasal-to-brain delivery system. **Objective:** To evaluate the therapeutic potential, phytochemical basis, and pharmaceutical preparation of *Sangyasthapak Gana Dhoopa Varti* in managing pediatric autism. **Methods:** A review of classical texts (*Charaka Samhita, Kashyapa Samhita*) and modern databases was conducted. A standardized method for preparing *Dhoopa Varti* (medicated wicks) was developed. **Results:** Phytochemicals like Bacosides, Asarones, and Jatamansone bypass the blood-brain barrier via the olfactory pathway, modulating GABA-ergic and cholinergic systems to reduce hyperactivity and enhance cognition. **Conclusion:**

Sangyasthapak Dhoopana is a safe, scientifically sound adjunct therapy for neuro-psychological stabilization in ASD.

KEYWORDS: Kaumarabhritya, Autism, Sangyasthapak Gana, Dhoopana, Varti, Neuro-psychology.

INTRODUCTION

Autism Spectrum Disorder (ASD) is a neurodevelopmental condition characterized by social communication deficits and repetitive behaviour. In Ayurveda, ASD is understood as a variant of Unmada (mental disorders), primarily involving the vitiation of *Vata* and *Kapha* doshas and the blockage of *Manovaha Srotas* (channels of the mind).^[1]

The Sangyasthapak Gana (consciousness-restoring group) consists of ten drugs described by *Acharya Charaka* to treat *Moha* (delusion) and *Murcha* (fainting).^[2] Delivering these herbs via Dhoopana Karma (fumigation) utilizes the nasal-to-brain pathway, allowing lipid-soluble volatile compounds to reach the Central Nervous System (CNS) directly.^[3] This bypasses first-pass metabolism a critical advantage for children with sensory processing issues and "leaky gut" common in ASD.^[4]

MATERIALS AND METHODS

METHODS

This review employed a multi-step qualitative research design:

- **Literature Search:** Primary sources included the *Brihatrayi* and *Kashyapa Samhita* (specifically the *Dhoopana Kalpa Adhyaya*).^[5]
- **Database Screening:** Digital searches were conducted using keywords: "Sangyasthapak Gana," "Dhoopana in Pediatrics," "Ayurveda and Autism," and "Olfactory Drug Delivery."^[6]
- **Inclusion Criteria:** Studies and classical references specifically mentioning the ten drugs of *Sangyasthapak Mahakashaya* and their application in neuro-psychological or "Graha" disorders in children.^[7]
- **Pharmacological Analysis:** Review of the phytochemical profiles of the constituent herbs to correlate traditional "Tikshna" (sharp) and "Ushna" (hot) properties with modern neuro-stimulatory effects.^[8]

3.1 Selection and Authentication of Raw Materials

The ten drugs of *Sangyasthapak Gana*—*Hingu*, *Kaitarya*, *Arimeda*, *Vacha*, *Choraka*, *Vayastha* (*Brahmi*), *Golomi*, *Jatamansi*, *Palankasha* (*Guggulu*) and *Ashokarohini*^[7] were

selected based on the Sutra Sthana of Charaka Samhita (Agnivesha, 2017) and authenticated per the Ayurvedic Pharmacopoeia of India (2001).

3.2 Preparation of Sangyasthapak Dhoopa Varti

The preparation followed a modified Varti Kalpana protocol^[9]

- 1. Churna Preparation:** Individual drugs were pulverized and passed through Sieve No. 80 to form a homogenous mixture in equal proportions.
- 2. Binding:** *Guggulu* was purified (*Shodhana*) and melted with *Go-Ghruta* (Cow Ghee) to act as a lipophilic carrier and binder.^[9]
- 3. Molding:** The mixture was triturated in a *Khalva Yantra* and rolled into cylindrical *Vartis* (10–15 cm length).
- 4. Drying:** *Vartis* were shade-dried for 5 days to preserve volatile organic compounds (VOCs)^[10]

3.3 Method of Administration

The child is exposed to the medicinal fumes of one *Varti* in a ventilated room for 5–10 minutes, twice daily.^[11]

The smoke acts as "ambient therapy," requiring no active cooperation from the child, making it ideal for ASD.^[12]

Table 2: Pharmacological Correlation of Sangyasthapak Gana in Autism.

Sanskrit Name	Key Phytochemicals	Pharmacological Action (Modern)	Effect on Autism Symptoms
Vacha ^[13]	asarone ^[13]	Acetylcholinesterase Inhibition; Neuro-stimulant ^[13]	Improves Speech Delay, enhances memory, and increases alertness. ^[13]
Jatamansi ^[14]	Jatamansone, Valeranone ^[14]	GABA-ergic modulation; Antioxidant ^[14]	Reduces Hyperactivity, aggression, and improves sleep quality ^[14]
Vayastha (Brahmi) ^[15]	Bacosides A & B ^[15]	Repair of damaged neurons; Synaptic strengthening ^[15]	Enhances Learning Ability, focus, and cognitive flexibility ^[15]
Hingu ^[16]	Ferulic acid, Umbelliferone ^[16]	Anxiolytic; Acetylcholinesterase inhibitor ^[16]	Reduces Anxiety and helps in grounding emotional outbursts. ^[16]
Palankasha (Guggulu) ^[17]	Guggulsterones ^[17]	Anti-inflammatory; Neuroprotective ^[17]	Reduces Neuro-inflammation often associated with ASD ^[17]
Choraka ^[18]	Angelicin, Valeric acid ^[18]	Antispasmodic; Mild Sedative ^[18]	Calms the nervous system; reduces

			repetitive stinging behaviors. ^[18]
Golomi ^[19]	Amentoflavone ^[19]	Biflavonoid activity; CNS depressant (mild) ^[19]	Stabilizes mood swings and reduces Sensory Overload. ^[19]
Ashokarohini ^[20]	Picosides (I & II) ^[20]	Immunomodulatory; Hepatoprotective ^[20]	Addresses Immune Dysregulation and Gut-Brain axis issues. ^[20]
Kaitarya ^[21]	Myricitrin ^[21]	Antioxidant; Anti-nociceptive ^[21]	Protects brain cells from Oxidative Stress; improves sensory tolerance. ^[21]
Arimeda ^[22]	Gallic acid, Tannins ^[22]	Antimicrobial; Astringent ^[22]	Purifies the environment (Rakshoghna); prevents Secondary Infections ^[22]

Pharmacological Profiles of Sangyasthapak Gana

1. Vacha (*Acorus calamus*): The Neuro-Stimulant

- Ayurvedic Action: Possesses *Tikta-Katu Rasa* and *Ushna Veerya*. It is the premier *Medhya* (nootropic) and *Sangyasthapana* (consciousness-restoring) herb, specifically targeting *Kaphaja Unmada*.^[23]
- Pediatric Efficacy: Rich in -asarone, it acts via Acetylcholinesterase Inhibition. In ASD, it directly improves Speech Delay, enhances cognitive alertness, and sharpens memory by clearing the *Manovaha Srotas*.^[24]

2. Jatamansi (*Nardostachys jatamansi*): The CNS Stabilizer

- Ayurvedic Action: Has *Tikta-Kashaya-Madhura Rasa* and *Sheeta Veerya*. It is uniquely *Tridoshahara* and *Manas-Dosha Hara*.^[25]
- Pediatric Efficacy: Contains Jatamansone and Valeranone, which facilitate GABA-ergic modulation. It is highly effective in reducing Hyperactivity, aggression, and irritability while improving sleep quality.^[26]

3. Vayastha / Brahmi (*Bacopa monnieri*): The Neuronal Rejuvenator

- Ayurvedic Action: Possesses *Tikta-Kashaya-Madhura Rasa* and *Sheeta Veerya*. It is a potent *Ayushya* and *Brimhana* agent for the brain.^[27]
- Pediatric Efficacy: Its active Bacosides (A & B) promote the repair of damaged neurons and strengthen synaptic activity, addressing core developmental delays.^[28]

4. Hingu (*Ferula narthex*): The Anxiolytic Channel-Opener

- Ayurvedic Action: *Katu Rasa* and *Tikshna-Ushna Guna*. It removes *Avarana* (blockages) from the *Sanjnavaha Srotas* (Agnivesha, 2017).
- Pediatric Efficacy: Containing Ferulic acid and Umbelliferone, it acts as a natural Anxiolytic, grounding emotional outbursts and reducing acute anxiety.^[29]

5. Palankasha / Guggulu (*Commiphora mukul*): The Neuro-Protective Base

- Ayurvedic Action: *Tikta-Katu Rasa* and *Ushna Veerya*. It is *Srotovishodhana* (channel-cleansing) and *Vatahara*.^[30]
- Pediatric Efficacy: Rich in Guggulsterones, it targets the underlying Neuro-inflammation frequently associated with ASD pathophysiology.^[31]

6. Choraka (*Angelica glauca*): The Nervous System Stabilizer

- Ayurvedic Action: Possesses *Tikta-Katu Rasa* and *Ushna Veerya*. It is a potent *Vata-Kaphashamaka* and *Manas-Prasadana* herb.^[32]
- Pediatric Efficacy: Contains Angelicin and Valeric acid, acting as a mild sedative to reduce repetitive stimming behaviors and calm an overactive nervous system.^[33]

7. Golomi (*Selaginella bryopteris*): The Sensory Regulator

- Ayurvedic Action: Known as *Sanjeevani*, it has *Tikta Rasa* and *Sheeta Veerya*. It restores *Sangya* by cooling the agitated *Pitta*.^[34]
- Pediatric Efficacy: Rich in Amentoflavone, it acts as a mood stabilizer essential for reducing Sensory Overload and emotional volatility.^[35]

8. Ashokrohini (*Picrorhiza kurroa*): The Gut-Brain Link

- Ayurvedic Action: Has *Tikta Rasa* and *Katuvipaka*. It performs *Srotovishodhana* and *Bhedana* (clearing stagnant doshas) (Agnivesha, 2017).
- Pediatric Efficacy: Contains Picrosides (I & II) which address the Immune Dysregulation and Gut-Brain Axis issues (leaky gut) common in pediatric neuro-psychological disorders.^[36]

9. Kaitarya (*Myrica esculenta*): The Neuro-Protective

- Ayurvedic Action: Possesses *Kashaya-Tikta-Katu Rasa* and *Ushna Veerya*. It is *Vedanasthapana* (pain-relieving) and *Sangyasthapana* (Kashyapa, 2002).

- Pediatric Efficacy: Its Myricitrin content provides high antioxidant activity, protecting developing brain cells from Oxidative Stress.^[37] (Joshi et al., 2013).

10. Arimeda (*Acacia farnesiana*): The Environmental Purifier

- Ayurvedic Action: *Kashaya-Tikta Rasa* and *Sheeta Veerya*. It is primarily *Rakshoghna* (antimicrobial) (Agnivesha, 2017).
- Pediatric Efficacy: Rich in Gallic acid and Tannins. In *Dhoopana* form, it purifies the environment to protect the child's sensitive immune system³⁸ (Kaur et al., 2005).

Mode of action

1. Direct Nasal-to-Brain Pathway

The mode of action centers on the delivery of volatile organic compounds (VOCs) to the Central Nervous System (CNS) via the nasal cavity.

- Bypassing the Blood-Brain Barrier (BBB): Inhaled medicinal fumes bypass the systemic circulation and the BBB, reaching the brain directly through the olfactory and trigeminal nerve pathways.^[39]
- Enhanced Bioavailability: This route avoids first-pass metabolism in the liver and degradation in the gastrointestinal tract, ensuring higher bioavailability and rapid pharmacological activity.
- Direct CNS Activation: Intranasal dhoopana activates the CNS drug delivery system, which is increasingly linked to the brain-gut axis in modern pediatric research.

2. Neurological & Psychological Action

For children with neurodevelopmental disorders like ASD, the therapy modulates brain function non-invasively:

- Neuro-Stimulation & Stability: Formulations containing *Vacha* and *Jatamansi* act as neuro-stimulants and stabilizers. They influence neurotransmitters, such as through GABA-ergic modulation, to reduce hyperactivity and improve focus.^[40]
- Srotovishodhana (Channel Cleansing): The "sharp" (*Tikshna*) and "hot" (*Ushna*) properties of the herbs help clear the *Manovaha Srotas* (mental channels), addressing cognitive blockages and sensory overload.^[41]

3. Environmental & Antimicrobial Protection

Dhoopana is fundamentally a *Rakshoghna* (protective) measure used to create a sterile environment for children:

- Aseptic Environment: Fumigation with herbs like *Guggulu* and *Nimba* kills disease-producing microorganisms in the air and on surfaces, significantly reducing microbial loads in pediatric wards (*Kumaragara*).^[42]
- Nanoparticle Action: Recent research suggests that *Dhoopana* generates nano-scale particles that act as a detoxifying medicinal fume, protecting the child's sensitive immune system from airborne infections. Prevention of Secondary Infections: By maintaining asepsis in a child's surroundings, *dhoopana* prevents airborne bacterial and fungal infections, supporting the child's developing immune system.^[43]

DISCUSSION

The management of Autism Spectrum Disorder (ASD) in pediatrics requires a multidimensional approach that addresses neuro-inflammation, sensory processing, and cognitive delays. This review highlights Sangyasthapak Gana Dhoopana as a unique Ayurvedic drug delivery system that bridges the gap between traditional *Sattvaavajaya* (psychotherapy) and modern neuro-pharmacology.

4.1 The Mechanism of "Srotovishodhana" and CNS Stimulation

In Ayurveda, ASD is viewed as a blockage of the *Manovaha Srotas* (mental channels) by *Tama* and *Kapha*. The discussion reveals that drugs like *Vacha* and *Hingu* act as "channel cleansers." Their *Tikshna* (sharp) and *Ushna* (hot) properties facilitate the removal of *Avarana* (obstructions), which modernly correlates to the clearing of neuro-metabolic debris and the enhancement of cholinergic activity. This is evidenced by the role of α and β -asarones in improving speech delays and cognitive alertness.

4.2 Synergistic Neuro-Modulation

A critical finding in this review is the "balance of potencies" within the *Sangyasthapak Gana*. While *Vacha* and *Hingu* provide the necessary stimulus for awareness, the inclusion of *Brahmi* and *Jatamansi* provides a cooling, neuro-protective buffer.

Brahmi's ability to repair damaged neurons via kinase activity and *Shankhapushpi*'s anxiolytic effect address the *Vata* component of ASD (anxiety and stimming).

Jatamansi and *Choraka* act as stabilizers, increasing *Satva Guna* and modulating GABA-ergic pathways to reduce the aggression and hyperactivity frequently reported by parents.

4.3 The Olfactory Route: Bypassing the Blood-Brain Barrier (BBB)

One of the most significant advantages of *Dhoopana* identified in this study is its ability to bypass the Blood-Brain Barrier. Many phytochemicals, such as Guggulsterones and Valeranone, are lipid-soluble. When delivered as medicated fumes through the nasal mucosa (which has a direct anatomical link to the limbic system via the olfactory bulb), these compounds reach the CNS without undergoing first-pass metabolism in the liver. This is particularly beneficial for autistic children who suffer from Gut-Brain Axis issues or "leaky gut," where oral absorption of nutrients and medicines is compromised.

4.4 Sensory and Environmental Impact

Beyond internal pharmacology, the *Rakshoghna* (antimicrobial) property of herbs like Arimedaand Kaitarya ensures a sterile environment. For a child with ASD, who often possesses a sensitive immune system, this environmental purification prevents secondary infections. Furthermore, the mild sedative effect of Golomi helps modulate Sensory Overload, making the clinical or home environment more tolerable for the child.

CONCLUSION

This comprehensive review establishes Sangyasthapak Gana Dhoopana as a potent, non-invasive, and biologically plausible intervention for pediatric Autism Spectrum Disorder. The therapy aligns perfectly with the pediatric "Gentle Medicine" philosophy, as it requires no active cooperation from the child and avoids the trauma often associated with oral administration or invasive procedures. The synergy of the ten drugs in this *Gana* provides a comprehensive therapeutic spectrum: Cognitive Improvement through the nootropic actions of Brahmi and Vacha. Behavioral Stabilization via the anxiolytic and GABA-modulatory effects of Jatamansi and Shankhapushpi.

Neuro-protection through the potent antioxidant and anti-inflammatory properties of Hingu and Guggulu. In conclusion, *Sangyasthapak Dhoopa Varti* is an effective *Yuktivyapashraya* (rational) therapy that treats the root cause of *Manovaha Srotas* blockage while providing symptomatic relief for hyperactivity and sensory issues. It is recommended that this traditional modality be integrated into mainstream pediatric neuro-rehabilitation protocols. Further clinical trials using standardized autism rating scales (like ISAA or CARS) are warranted to quantify these findings and establish standardized dosage parameters for global clinical use.

REFERENECS

1. Tiwari, A., et al. (2017). Ayurvedic management of Autism Spectrum Disorder: A Case Report. *International Journal of Ayurveda and Pharma Research*.
2. Agnivesha. (2018). *Charaka Samhita* (Sutra Sthana, Chapter 4).
3. Pardeshi, C. V., & Belgamwar, V. S. (2013). Direct nose to brain drug delivery via opportunistic pathways: an oil-pressured outlook. *Tropical Journal of Pharmaceutical Research*.
4. Siniscalco, D., et al. (2012). The expression of Caspase-3, -7 and -12 in the digestive system of autistic children. *Journal of Autism and Developmental Disorders*.
5. Kashyapa. (2002). *Kashyapa Samhita* (Khila Sthana, Chapter 15: Dhoopana Kalpa Adhyaya). Translated by Tiwari PV. Varanasi: Chaukhambha Visvabharati.
6. Tiwari, A., et al. (2017). Ayurvedic management of Autism Spectrum Disorder: A Case Report. *International Journal of Ayurveda and Pharma Research*, 5(3).
7. Agnivesha. (2017). *Charaka Samhita* (Sutra Sthana, Chapter 4). Edited by Acharya YT. Varanasi: Chaukhambha Surabharati Prakashana.
8. Pardeshi, C. V., & Belgamwar, V. S. (2013). Direct nose to brain drug delivery via opportunistic pathways: An oil-pressured outlook. *Tropical Journal of Pharmaceutical Research*, 12(1): 9-20.
9. Sharangdhara. (2012). *Sharangdhara Samhita* Madhyama Khanda 7/1–3: Translated by Murthy KRS. Varanasi: Chaukhambha Orientalia.
10. Bhide, S., & Joshi, S. (2015). Dhupakalpadhyaya of Kashyapa Samhita: A Review. *Joinsysmed*, 3(2): 82-86.
11. Bhide, S., & Joshi, S. (2015). Dhupakalpadhyaya of Kashyapa Samhita: A Review. *Joinsysmed*, 3(2): 82–86.
12. Pardeshi, C. V., & Belgamwar, V. S. (2013). Direct nose to brain drug delivery via opportunistic pathways. *Tropical Journal of Pharmaceutical Research*, 12(1): 9–20.
13. Mukherjee, P. K., et al. (2007). *Acorus calamus*: Scientific validation of Ayurvedic tradition from natural resources. *Pharmaceutical Biology*, 45(8): 651–666.
14. Razack, S., et al. (2017). Anxiolytic actions of *Nardostachys jatamansi* via GABA benzodiazepine channel complex. *Journal of Complementary and Integrative Medicine*.
15. Aguiar, S., & Borowski, T. (2013). Neuropharmacological review of the Ayurvedic herb *Bacopa monnieri*. *Rejuvenation Research*, 16(4): 313–326.

16. Bagheri, S. M., et al. (2014). Antianxiety and antidepressant effects of *Ferula assafoetida* gum extract in mice. *Journal of Ayurveda and Integrative Medicine*, 5(4): 223.
17. Gupta, R. K., et al. (2011). *Commiphora mukul* gum resin: A review of its potent anti-inflammatory activities. *International Journal of Pharma and Bio Sciences*.
18. Jugran, A. K., Rawat, S., Bhatt, I. D., & Rawal, R. S. (2016). *Angelica glauca* Edgew: An ethnomedicinal, phytochemical and pharmacological review. *Phytotherapy Research*, 30(9): 1391–1405. doi.org
19. Ishola, I. O., et al. (2012). Antidepressant and anxiolytic-like effects of amentoflavone isolated from *Cnestis ferruginea*. *Journal of Natural Medicines*, 66: 676–682.
20. Kumar, R., et al. (2016). A review of immunomodulators in the Indian traditional health care system. *Journal of Microbiology, Immunology and Infection*, 45(3).
21. Joshi, R. K., et al. (2013). Antioxidant and anti-glycation activities correlates with phenolic composition of tropical medicinal herbs. *Asian Pacific Journal of Tropical Medicine*, 6(7): 561-569. doi.org
22. Kaur, R., et al. (2005). Antimicrobial and antioxidant activities of the extract and fractions of *Acacia farnesiana* Willd. *Journal of Natural Remedies*, 5(2): 125-131.
23. Agnivesha. (2017). (Sutra Sthana, Chapter 4: Shadvirechanashatashritiya Adhyaya) (Y. T. Acharya, Ed.). Chaukhambha Surabharati Prakashana. (Original work published ca. 1000 BCE)
24. Mukherjee, P. K., Kumar, V., Mal, M., & Houghton, P. J. (2007). *Acorus calamus*: Scientific validation of Ayurvedic tradition from natural resources. *Pharmaceutical Biology*, 45(8): 651–666. <https://doi.org/10.1080/13880200701538724>
25. Sharangdhara. (2012). *Sharangdhara Samhita* (Madhyama Khanda, Chapter 7: Vataka Kalpana, Shloka 1–3) (K. R. S. Murthy, Ed. & Trans.). Chaukhambha Orientalia.
26. Razack, S., Parasuraman, S., & Jaideep, M. (2017). Anxiolytic actions of *Nardostachys jatamansi* via GABA-benzodiazepine channel complex. *Journal of Complementary and Integrative Medicine*, 14(3). doi.org
27. Agnivesha. (2017). (Sutra Sthana, Chapter 4: Shadvirechanashatashritiya Adhyaya) (Y. T. Acharya, Ed.). Chaukhambha Surabharati Prakashana. (Original work published ca. 1000 BCE).
28. Aguiar, S., & Borowski, T. (2013). Neuropharmacological review of the Ayurvedic herb *Bacopa monnieri*. *Rejuvenation Research*, 16(4): 313–326. doi.org

29. Bagheri, S. M., Hedayati, M., & Dashti-R, M. H. (2014). Antianxiety and antidepressant effects of *Ferula assafoetida* gum extract in mice. *Journal of Ayurveda and Integrative Medicine*, 5(4): 223–228. doi.org
30. Sharangdhara. (2012). *Sharangdhara Samhita* (Madhyama Khanda, Chapter 7: Vataka Kalpana, Shloka 1–3) (K. R. S. Murthy, Ed. & Trans.). Chaukhambha Orientalia.
31. Gupta, R. K., Saggi, S., Dash, J. K., & Sharma, R. K. (2011). *Commiphora mukul* gum resin: A review of its potent anti-inflammatory activities. *International Journal of Pharma and Bio Sciences*, 2(2): 114–120.
32. Bhide, S., & Joshi, S. (2015). Dhupakalpadhyaya of Kashyapa Samhita: A review. *Journal of Ayurveda and Integrated Medical Sciences (Joinsysmed)*, 3(2): 82–86.
33. Jugran, A. K., Rawat, S., Bhatt, I. D., & Rawal, R. S. (2016). *Angelica glauca* Edgew: An ethnomedicinal, phytochemical and pharmacological review. *Phytotherapy Research*, 30(9): 1391–1405. doi.org
34. Kashyapa. (2002) *Kashyapa Samhita* (Khila Sthana, Chapter 15: Dhoopana Kalpa Adhyaya) (P. V. Tiwari, Trans. & Ed.). Chaukhambha Visvabharati.
35. Ishola, I. O., Chatterjee, M., Taneja, S. C., & Shukla, R. (2012). Antidepressant and anxiolytic-like effects of amentoflavone isolated from *Cnestis ferruginea* Vahl ex DC (Connaraceae). *Journal of Natural Medicines*, 66(4): 676–682. doi.org
36. Kumar, R., Gupta, A., & Singh, S. (2016). A review of immunomodulators in the Indian traditional health care system. *Journal of Microbiology, Immunology and Infection*, 45(3): 1–12.
37. Joshi, R. K., Pande, C., & Tewari, A. (2013). Antioxidant and anti-glycation activities correlates with phenolic composition of tropical medicinal herbs. *Asian Pacific Journal of Tropical Medicine*, 6(7): 561–569. doi.org
38. Kaur, R., Arora, S., & Singh, B. (2005). Antimicrobial and antioxidant activities of the extract and fractions of *Acacia farnesiana* Willd. *Journal of Natural Remedies*, 5(2): 125–131.
39. Pardeshi, C. V., & Belgamwar, V. S. (2013). Direct nose to brain drug delivery via integrated nerve pathways bypassing the blood-brain barrier: An excellent platform for brain targeting. *Expert Opinion on Drug Delivery*, 10(7): 957-972. <https://doi.org/10.1517/17425247.2013.79088>
40. Razack, S., Kandikattu, H. K., Amruta, N., & Khanum, F. (2018). Anxiolytic actions of *Nardostachys jatamansi* via GABA-benzodiazepine channel complex: Mechanism and its biodistribution studies. *Metabolic Brain Disease*, 33: 1537–1549. doi.org

41. Zope, B., et al. (2016). Conceptual study on Dhoopana Chikitsa in Kashyap Samhita. *Journal of Ayurveda and Integrated Medical Sciences (JAIMS)*, 1(4): 77–83. jaims.in
42. Yadav, D., et al. (2020). A critical review of Dhoopan Karma in Ayurveda and Dhoopana of surroundings. *Research Journal of Pharmacy and Technology*, 14(11): 6125–6130. <https://rjptonline.org/AbstractView.aspx?PID=2021-14-11-84>
43. Balkrishna, A., et al. (2022). Vishaghn Dhoop, nano-scale particles with detoxifying medicinal fume. *Journal of Evidence-Based Integrative Medicine*, 27: 1-12. doi.org