RESEARCH PAPER

Agni as Scalar Field

Dr. Shreelakshmi Harikrishnan[1], Dr. Manasi Deshpande[2*], Dr. Tejaswini Babar[3]

[1]MD Scholar, Department of Dravyaguna Vigyan, Bharati Vidyapeeth (Deemed to be University) College of Ayurved, Pune, Maharashtra, India- 411043. Tel: +91 7034735532.
Email: shreelakshmiharikrishnan@gmail.com

[2*]Professor, Department of Dravyaguna Vigyan, Bharati Vidyapeeth (Deemed to be University) College of Ayurved, Pune, Maharashtra, India- 411043. Tel: +91 9822493019.
Email: manasi.deshpande@bharatividyapeeth.edu. Corresponding Author.

[3]Associate Professor, Department of Dravyaguna Vigyan, Bharati Vidyapeeth (Deemed to be University) College of Ayurved, Pune, Maharashtra, India- 411043. Tel: +91 8550999239.
Email: tejaswini.babar@bharatividyapeeth.edu

ABSTRACT

Agni in Ayurveda is the subtle force that drives digestion, metabolism, tissue formation, and overall vitality. It is more than a digestive fire—it is the body's core metabolic intelligence. Classical texts describe thirteen types of Agni: Jatharagni (central digestive fire), five Bhutagni (elemental fires), and seven Dhatvagni (tissue-specific fires). Balanced Agni (Samagni) ensures efficient nutrient absorption, elemental transformation, and tissue nourishment, while weak Agni (Mandagni) relies on subtle processes, such as Prana, to maintain partial digestion. This conceptual review draws from classical Ayurvedic texts and modern literature from PubMed, Google Scholar, arXiv, and journals in Ayurveda, neuroscience, and quantum biology. Thirty-one studies, including experimental, clinical, and theoretical work, were analyzed to explore how Agni can be influenced by herbs, meditation, and pranayama. Deepana herbs boost cellular energy and mitochondrial activity, Medhya herbs support neural coherence, and adaptogens maintain systemic balance. Evidence from the gut–brain axis, mitochondrial cycles, and heart rate variability shows links between classical concepts and measurable physiological processes.

Agni can also be viewed as a subtle, field-like energy, similar to scalar fields in physics—continuous, present everywhere, and non-directional. Though theoretical, this idea offers a way to explore subtle energy in the body. Most studies are small, rely on classical texts, and lack standard methods to measure field-like effects. Research connecting Ayurvedic concepts with modern bioenergetics or quantum biology is still limited.

Future studies could investigate Agni as a continuous energy field using biofield or quantum-inspired tools and examine how herbs, meditation, and lifestyle practices influence metabolism, tissue coordination, and overall balance. This approach may bridge Ayurveda and modern science, emphasizing Agni's central role in health, vitality, and holistic harmony.

KEYWORDS: Agni – Biofield – Coherence – Gut–Brain Axis – Herbal Modulation – Scalar Field

How to cite this article: Harikrishnan S, Deshpande M, Babar T. Agni as Scalar Field. Int J Drug Deliv Technol. 2026;16(18s): 817-823. DOI: 10.25258/ijddt.16.18s.91

INTRODUCTION

In Ayurveda, *Agni* is described as the subtle force behind all transformation in the body. It is not merely fire but the energy that turns food into strength, thoughts into clarity, and cells into tissues. Classical texts explain that when *Agni* is balanced, health is sustained; when disturbed, disease begins.[1] Although related to Pitta Dosha, *Agni* is considered more than a Dosha, as it represents the body's core metabolic intelligence. Thirteen forms of *Agni* are described—*Jatharagni* as the main digestive fire, five *Bhutagni* for elemental processing, and seven *Dhatvagni* for tissue transformation. [2] While classical thought places Grahani as the seat of *Jatharagni*, its influence is present throughout the body. Modern perspectives also suggest that the body is more than physical structure: the heart produces electromagnetic fields, the brain generates rhythmic waves, and even DNA has been proposed to emit resonance fields that enable subtle communication.[3] Seen together, these views suggest that *Agni* may be understood as a scalar field—subtle, continuous, and distributed—providing the potential for transformation at every level of life.

In physics, a scalar field refers to a quantity that gives a single value at each point in space, and often across time. It is used to describe basic physical realities such

as how temperature is spread through a medium or how pressure varies within a fluid. Mathematically, it can be written as φ(x, y, z), where φ is the value at a point, and extended with time as φ(x, y, z, t). Such fields help explain how transformation potential exists everywhere, not tied to direction but present continuously. [4]

||||||||||||||||||||

NEED FOR THE STUDY

Scalar fields allow us to see how a property is smoothly distributed in space and evolves over time, revealing patterns that are otherwise invisible. They capture the idea of potential—an unseen force whose effects we observe, much like *Agni*, which manifests through heat, light, and transformation.[4] A scalar field carries intensity without direction, echoing *Agni* as a universal, ever-present current that fuels digestion, purification, and life itself. Continuous and unbroken, it reminds us that both a scalar field and *Agni* are defined by their power and influence, not by shape or form.

Table 1. Connecting Physics and Ayurveda - *Agni* as a Field

Scalar Field	Physical Role	*Agni* Parallel
Temperature field[3]	Shows how heat spreads in space	*Agni* as the warmth that fuels life and metabolism
Gravitational potential[3]	The invisible force that holds things together	*Agni* as the hidden energy that keeps the body in balance
Electric potential[3]	Drives movement and connections	*Agni* as the spark that starts transformation in the body
Quantum scalar fields[3]	Basic fields that give particles their properties	*Agni* as the source of tissues, energy, and functions

Just like a scalar field varies in space and time and drives transformations (e.g., heat flows in a room, water movement in soil, glucose delivery in the brain), *Agni* can be seen as a continuous, pervasive energy in the body, varying in intensity and location, and driving digestion, metabolism, tissue formation, and transformation throughout the system.[3] This perspective helps link classical Ayurvedic concepts with modern scientific understanding, showing *Agni* not just as digestive fire but as a universal, field-like principle, that shapes life at multiple levels.

Materials and Methods

This conceptual review is based on classical Ayurvedic texts and contemporary literature from PubMed, Google Scholar, arXiv, and specialized journals in Ayurveda, neuroscience, and quantum biology. A total of 31 studies were included, covering Ayurveda, digestion, tissue metabolism, herbal effects, the gut–brain connection, and biofield science. Included studies were those that discussed Agni, digestion, herbal effects on energy and balance, meditation or breathwork effects on vagal tone and autonomic balance. Excluded studies were papers without experimental data, or studies not directly related to Agni or its physiological effects. Both experimental and review studies were considered, including laboratory, clinical, and theoretical research linking Ayurvedic concepts with modern science.

Observations

1. *Agni* as a scalar Field

In Ayurveda, *Agni* is a continuous, dynamic force that regulates digestion, tissue nourishment, and overall vitality.[5] It is broadly classified into three main types: *Jatharagni* (digestive fire in the gut), *Bhutagni* (five elemental fires: *Akasha*, *Vayu*, *Tejas*, *Ap*, *Prithvi*), and *Dhatvagni* (seven tissue-specific fire for *Rasa*, *Rakta*, *Mamsa*, *Meda*, *Asthi*, *Majja*, and *Shukra dhatus*). *Jatharagni* acts as the central hub, starting the transformation of food into *Rasa* and distributing nutrients throughout the body. *Bhutagni* then convert the digested food into the five *Panchamahabhuta*, making it suitable for the tissues. At the tissue level, *Dhatvagni* refine and integrate these nutrients into the seven *Dhatus*, supporting growth, strength, and vitality.[2] Even if *Jatharagni* is weak (*Mandagni*), some nutrients are still absorbed through subtle processes like *Prana*. [6] When all *Agni*s function together (*Samagni*), digestion, elemental transformation, and tissue nourishment occur efficiently, showing the coherent and coordinated nature of *Agni*.[7]

Table 2. Ayurvedic Interpretation of Key Quantum Phenomena

Quantum Concept	Idea	Ayurvedic Correlate	Ayurvedic Insight
Tunneling[8]	Particles can cross barriers even	*Mandagni*	When *Agni* is weak, a small amount

	with low energy		of Rasa can still move through Srotas with the help of subtle processes.
Entanglement[9]	Distant particles remain instantly connected	*Panchamahabhuta*	A change in one element can quickly influence the others, showing deep body–element connectivity.
Coherence[10]	Different parts stay in rhythm together	*Samagni*	When all 13 types of *Agni* work in harmony, food is digested, tissues are nourished, and *Ojas* is formed to maintain vitality.

2. Herbal modulation

In the scalar field framework, *Agni* can be understood as a wave that carries transformative energy through the body and mind. Herbs do not change this field directly, but they help tune the body systems that express it. *Deepana* herbs enhance cellular energy metabolism, increasing the strength of the *Agni* wave. *Medhya* herbs refine neural communication, improving the wave's coherence in the mental plane. Adaptogenic herbs maintain internal balance and rhythm, helping the wave stay steady under stress. Together, these actions suggest that herbs modulate the *Agni* wave by strengthening its intensity, refining its harmony, and stabilizing its rhythm.

At the cellular level, *Deepana* herbs such as *Sunthi* (*Zingiber officinale* Roscoe), *Maricha* (*Piper nigrum* L.), and *Chitraka* (*Plumbago zeylanica* L.) support mitochondrial activity—the body's main energy centers. These herbs are reported to activate AMPK and promote mitochondrial biogenesis, leading to better energy metabolism and cellular thermogenesis.[11] [12] [13]

In the mental domain, *Medhya* herbs like *Brahmi* (*Bacopa monnieri* (L.) Pennell) and *Shankhapushpi* (*Convolvulus pluricaulis*) influence neurotransmitters such as GABA, which calms neural over activity and supports rhythmic stability. This can be seen as bringing scattered vibrations into harmony.[14] [15]

At the systemic level, adaptogenic herbs such as *Tulasi* (*Ocimum sanctum* L.) and *Ashwagandha* (*Withania somnifera* (L.)) help regulate physiological rhythms. Their effects on improving Heart Rate Variability (HRV) indicate better stress adaptability and autonomic balance. A higher HRV represents a steady yet flexible state, like a calm flame that remains stable. Ensuring dynamic stability across the body and mind.[16] [17]

3. Neurobiology of the Gut–Brain Axis and *Agni*

Agni, in modern terms, can be seen as a subtle energy field that keeps the body and mind in balance. The gut–brain axis, connected mainly through the vagus nerve, seems to be one of the key pathways through which this field works. The vagus nerve carries messages like serotonin, dopamine, and gut metabolites from the intestine to the brain, while the brain adjusts vagal tone to control digestion and gut activity.[18]

This creates a two-way flow of communication, similar to how *Agni* maintains balance between body and mind.

Some new models suggest this process may follow wave-like patterns. Maitra and Akan (2025) proposed that neurotransmitters in the vagus nerve may act through quantum coherence—behaving like waves rather than simple chemical switches. [19] Hypothetically, strong, synchronized neurotransmitter release may resemble *Tikshnagni*, weak release like *Mandagni*, and balanced release like *Samagni*, possibly supporting gut–brain communication. Similarly:

• Gut serotonin affects mood and digestion, may link to *Jatharagni*.[18]

• Short-chain fatty acids influence energy balance,

like *Bhutagni*.[20]
• Mitochondrial cycles might reflect *Dhatvagni*.[21]
• Heart Rate Variability (HRV) mirrors emotional rhythm, relating to Sattva, Rajas, and Tamas.[22]

Table 3. Experimental Studies on Mindful Practices, Vagal Tone, and *Agni:*

Practice	Findings	Implication for *Agni*
Heart Rhythm Meditation	HRV and vagal activity increased; >10 min/day improved well-being.[23]	Strengthens vagal signaling, supporting gut–brain regulation of *Agni*
Bhramari*, *Sheetali*, *Nadi Shodhana	Increased parasympathetic activity; reduced LF/HF ratio.[24 25 26]	Breath–sound practices calm the nervous system and balance *Agni*
Om chanting with *Savitri/Vibhaga Pranayama*	Immediate drop in LF/HF ratio; parasympathetic tone rose.[27]	Rapid vagal activation helps stabilize *Agni*
Regular *Pranayama* practice	Higher HRV and vagal tone in practitioners.[28]	Sustains vagal tone over time, maintaining *Agni* regulation

4. Assessment of *Agni*: Classical and Modern Approaches

Agni can be assessed clinically through *Jaranashakti*, the body's observable digestive and metabolic capacity.[29] Modern tools provide ways to measure similar functions objectively:

- Heart Rate Variability (HRV) reflects autonomic balance, adaptability, and energy regulation, comparable to classical digestive and metabolic capacity.[22]
- Infrared thermography maps tissue-level metabolic activity and heat patterns, corresponding to the body's digestive efficiency (*Ushna Guna*).[30]
- Aura/biofield imaging (GDV) captures subtle energy patterns, revealing changes in vitality and metabolic strength, analogous to classical assessment of *Agni*.[31]

These approaches link classical Ayurvedic concepts with measurable physiological and biofield patterns, offering a comprehensive view of the body's metabolic and energetic state.

DISCUSSION

The literature shows that *Agni*, traditionally described as the digestive and transformative fire in Ayurveda, plays a key role in digestion, metabolism, tissue formation, and overall vitality. Classical texts describe *Jatharagni*, *Bhutagni*, and *Dhatvagni* as processes that work together to ensure proper nutrient absorption, elemental transformation, and tissue nourishment. These ideas give a framework for understanding how *Agni* keeps the body and mind in balance. Experimental studies show that herbs like *Deepana*, *Medhya*, and adaptogens can boost mitochondrial activity, support neural stability, and improve heart rate variability. These findings suggest that such interventions can strengthen *Agni*. Research on the gut–brain connection also shows how digestion, neural activity, and autonomic function are linked, supporting the idea that *Agni* integrates multiple systems in the body. When *Agni* is weak (*Mandagni*), subtle compensatory mechanisms help maintain partial nutrient absorption. Herbs and practices like meditation or pranayama can maintain *Samagni*, balancing digestive fire, tissue and elemental processes, and supporting overall metabolism and energy in the body.

The idea of *Agni* as a scalar field is presented here as a conceptual framework. It suggests that *Agni* is a continuous, non-directional energy present throughout the body. This idea is still hypothetical and has not been directly tested in experiments. Most research focuses on measurable physiological and biochemical effects rather than subtle field-like properties.

Most studies reviewed were small or based on classical texts rather than large experimental trials. Evidence on how herbs, meditation, or pranayama affect *Agni* in measurable ways is limited. Other conceptual and experimental work in biology, including studies looking at quantum or bioenergetic aspects, is also scarce. There are no standard ways to measure subtle energy or field-like effects in the body, making it hard to compare findings across studies.

Future research could explore *Agni* as a field-like energy using tools inspired by biofield imaging, electromagnetic measurements, or other quantum-inspired methods. Studies could investigate how herbal interventions, meditation, and lifestyle practices influence this hypothetical field and their effects on

metabolism, tissue coordination, and vitality. This could help connect Ayurvedic theory with modern ideas in physics and bioenergetics while giving new ways to understand the integrative nature of *Agni*.

CONCLUSION

Agni is more than just digestive fire, it is the subtle intelligence that drives transformation throughout the body and mind. When supported properly, it promotes clarity, energy, and vitality. This review shows *Agni* not only as a physiological process but also as an integrative principle connecting body, mind, and subtle energies. Practices like mindful eating, herbs, meditation, and pranayama can help strengthen and balance *Agni*, supporting overall harmony. Understanding *Agni* in this way highlights its role as a guide for maintaining health and as a pathway for personal growth and balance.

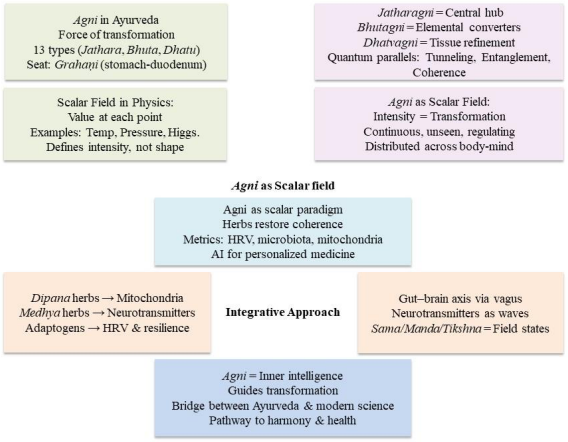

Figure 1: Agni as Scalar Field- Integrative Approach

Conflict of Interest: The authors certify that they have no involvement in any organization or entity with any financial or non-financial interest in the subject matter or materials discussed in this paper.

Funding Source: There is no funding Source for this study

REFERENCES

[1]Shastri HS, Paradakara B, editors. *Ashtanga Hridaya* (Composed by Arundatta and Hemadri). Nidana sthana 12/01. Varanasi: Chaukhambha Surbharati Prakashana; reprint 2022. p. 249.

[2]Shastri K, Chaturvedi G, editors. *Charaka Samhita*. Chikitsasthana 15/38. Varanasi: Chaukhamba Bharti Academy; 2004. p. 458.

[3]Meyl K. DNA and cell resonance: magnetic waves enable cell communication. *DNA Cell Biol*. 2012;31(4):422–6. doi: 10.1089/dna.2011.1415.

[4]Souza MAM. Use of scalar fields in physics and cosmology. *Phys Astron Int J*. 2023;7(4):189–191. doi: 10.15406/paij.2023.07.00323.

[5]Charaka S. Commentators: Shastri K, Chaturvedi G. *Charaka Samhita*. Chikitsasthana 15/3. Varanasi: Chaukhamba Bharti Academy; 2004. p. 452.

[6]Sharma S, Sharma AK, Singh V. A comprehensive review of *Samana Vayu* apropos regulation of gastrointestinal tract. AYUSHDHARA. 2024 Nov;11(5):1742. Available from: https://www.researchgate.net/publication/387449733_A_Comprehensive_Review_of_Saman_Vayu_Apropos_Regulation_of_Gastrointestinal_Tract

[7]Rathe S. A comprehensive review on the role of *Agni* in health, disease, and Ayurvedic therapeutics. Int J AYUSH. 2025 Jun;14(06):15–28. Available from: https://internationaljournal.org.in/journal/index.php/ijayush/article/view/1388/1351

[8]Yang CD. Complex tunneling dynamics. *Phys Rep*. 2007;429(6):307–99. doi: 10.1016/j.physrep.2006.11.001.

[9]Horodecki R, Horodecki P, Horodecki M. Quantum entanglement. *Rev Mod Phys*. 2009;81(2):865–942. doi:10.1103/RevModPhys.81.865.

[10]Levi F, Mintert F. A quantitative theory of coherent delocalization. *New J Phys*. 2014;16(3):033007. doi:10.1088/1367-2630/16/3/033007.

[11]Deng X, Zhang S, Wu J, Sun X, Shen Z, Dong J, Huang J. Promotion of mitochondrial biogenesis via activation of AMPK-PGC1α signaling pathway by ginger (*Zingiber officinale* Roscoe) extract, and its major active component 6-gingerol. *J Food Sci*. 2019 Aug;84(8):2101–11. doi: 10.1111/1750-3841.14723. Epub 2019 Aug 1. PMID: 31369153.

[12]Saikachain N, et al. Piperine enhances mitochondrial biogenesis to mitigate mitochondrial damage. *Food Sci Nutr*. 2025;13(1):123–35. doi:10.1002/fsn3.70637.

[13]Santra I, et al. Sustainable production of plumbagin via meta-topolin. *Biotechnol Rep (Amst)*. 2023;30:e00742. doi:10.1016/j.btre.2023.e00742.[

[14]Martins J, Balakrishnan S, Antony S, Abraham PM, Paulose CS. Decreased GABA receptor in the cerebral cortex of epileptic rats: effect of Bacopa monnieri and Bacoside-A. *J Biomed Sci*. 2012;19:25. doi:10.1186/1423-0127-19-25.

[15]Mitra S. Convolvulus pluricaulis mediates its pharmacological effects via sod1, rdl, glut1, GABA-B-R1 and CG6293 orthologs in Drosophila melanogaster. *Biorxiv*. 2025;2025.07.06.663350. doi:10.1101/2025.07.06.663350.

[16]Nabavi SF, et al. Neuroprotective and adaptogenic effects of *Ocimum sanctum*: Modulation of stress-related pathways. *Phytother Res*. 2015;29(7):943–50. doi:10.1002/ptr.5343.

[17]Choudhary D, Bhattacharyya S, Bose S. Efficacy of *Withania somnifera* (Ashwagandha) in improving cardiorespiratory endurance and heart rate variability in healthy athletic adults. *Ayurveda Integr Med*. 2017;8(3):173–80. doi:10.1016/j.aimed.2017.08.002.

[18]Bonaz B, Bazin T, Pellissier S. The vagus nerve at the interface of the microbiota–gut–brain axis. *Front Neurosci*. 2018;12:49. doi:10.3389/fnins.2018.00049.

[19]Maitra B, Akan OB. Molecular Quantum (MolQ) communication channel in the gut-brain axis synapse. *arXiv*. 2024 Jun 24. Available from: https://arxiv.org/abs/2407.07106

[20]Tan J, McKenzie C, Potamitis M, Thorburn AN, Mackay CR, Macia L. The role of short-chain fatty acids in health and disease. *Adv Immunol*. 2014;121:91–119. doi:10.1016/B978-0-12-800100-4.00003-9.

[21]Hardie DG. AMPK: Positive and negative regulation, and its role in whole-body energy homeostasis. *Curr Opin Cell Biol*. 2014;33:1–7. doi:10.1016/j.ceb.2014.01.002.

[22]Thayer JF, Lane RD. Claude Bernard and the heart–brain connection: Further elaboration of a model of neurovisceral integration. *Neurosci Biobehav Rev*. 2009;33(2):81–88. doi:10.1016/j.neubiorev.2008.08.004.

[23]Tisdell EJ, Lukic B, Banerjee R, Liao D, Palmer C. The effects of Heart Rhythm Meditation on vagal tone and well-being: A mixed methods study. Appl Psychophysiol Biofeedback. 2024;49:439–55. DOI: 10.1007/s10484-024-09639-0

[24]Giridharan S. Effects of Pranayama on heart rate variability: Insights from randomized controlled trials.

J Complement Res Altern Med. 2024;1(1):1–7. Available from: http://mkscienceset.com

[25]Mittal G, Pathania M, Bhardwaj P, et al. Effect of Naḍi Sodhana Praṇayama on HRV in hypertensives. *Ann Neurosci*. 2025;12(1):1–11. doi:10.1177/09727531251318810

[26]Latha R, Lakshmi S. Immediate and training effect of Bhramari Praṇayama on HRV. *Biomedicine*. 2022;42(4):784–88. Available from: http://biomedicineonline.org

[27]Padmashanti N, Bhavanani AB, Biagi SL. Immediate effect of Pranava Om chanting with Savitri and Vibhaga Praṇayama on HRV: A case study. Music for Healthfulness Conference Proceedings. 2024.

[28]Prabha V, Shankarappa V, Ahmed MT, et al. Effect of regular Praṇayama on heart rate variability among healthy volunteers. Int J Life Biomed Pharm Res. 2023;12(4):958–61.

[29]Vidyanath R. *Illustrated Charaka Samhita*, Vimanasthana 8/120. Varanasi: Chaukhamba Prakashak; 2020. p. 427.

[30]Lahiri BB, editor. *Medical applications of infrared thermography: A review*. *J Thermol Biol*. 2012;37(8):1–11. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC7110787/

[31]Prakash S, Chowdhury AR, Gupta A. Monitoring the Human Health by Measuring the Biofield “Aura”: An Overview. *Int J Appl Eng Res.* 2015;10(35):27654–27658.