

Traditional And Modern Medicine: An Integrative Approach

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Abstract

Traditional systems of medicine such as Ayurveda and Traditional Chinese Medicine (TCM) have persisted since time immemorial and still influence healthcare. TCM is attributed as one of the most evolved medical systems worldwide, incorporating practical healing techniques and proven methodologies that shaped modern medicine over the years. For instance, Artemisia annua, documented in the “Handbook of Prescriptions for Emergency” by Hong Ge as a treatment for malaria, was later proved to have the active peroxide group classified as sesquiterpene lactones, a unique novel compound in the then known antimalarial therapy. Thus, came into being the widely used Artemisinin-based therapy to treat malaria. The ancient Ayurvedic scriptures have been rooted in Vedic texts: Charak and Sushruta Samhita, delivering wholesome knowledge on human anatomy, pathology, and therapeutic interventions. Emphasizing the holistic balance between mind, body, and soul, they highlight a personalized approach to healthcare encompassing herbs, minerals, and complex formulations. There is evidence of Ayurvedic texts being translated to Greek, Arabic, and Persian back in the 5th century, which further underlines its role in enhancing medical understanding. Contrastingly, modern medicine is more focused on evidence-based treatments. It often employs a reductionist approach, emphasizing specific pathologies rather than holistic well-being using diagnostics and targeted interventions. Ayurveda, TCM, and modern medicine, despite their differences, share a common goal of improving health. Research into traditional medical systems opens a gateway to integrating their principles with modern medical advancements, promising better health outcomes.

Keywords: Traditional Medicine, Traditional Chinese Medicine (TCM), Ayurveda, chronic diseases, Integrative Diseases, Diabetes Management, Cancer Prevention, Herbal treatment, Cardiovascular Health, Rasayana therapy, Tai chi, curcumin, personalized medicine, Holistic Healing, Prakriti, Mind-body practices.

1. INTRODUCTION

Traditional Chinese Medicine (TCM) has always been attributed as one of the most proficient medical systems across the globe (1). Similarly, the ancient Ayurveda, an age-old healthcare classification, has its origins traced back to over five thousand years (2,3). The integration of such traditional medical systems with modern medicine has a potential to contribute significantly to an all-around progress in medicine, as was needed in the global struggle against the Corona virus pandemic. This review explores the contributions of Ayurveda and TCM in management of chronic diseases, their potential synergies with modern medicine, and the pathway towards the future of integrative healthcare.

2. Understanding Traditional Medical Systems

TCM is attributed as one of the most evolved medical systems worldwide, incorporating practical healing techniques and proven methodologies that shaped modern medicine over the years (4). For instance, Artemisia annua, documented in the “Handbook of Prescriptions for Emergency” by Hong Ge as a treatment for malaria, was later proved to have the active peroxide group classified as sesquiterpene lactones, a unique novel compound in the then known antimalarial therapy. Thus, came into being the widely used Artemisinin-based therapy to treat malaria (5,6). The ancient Ayurvedic scriptures have been rooted in Vedic texts: Charak and Sushruta Samhita, delivering wholesome knowledge on human

anatomy, pathology, and therapeutic interventions (7,8). Emphasizing the holistic balance between mind, body, and soul, they highlight a personalized approach to healthcare encompassing herbs, minerals, and complex formulations (9,10). There is evidence of Ayurvedic texts being translated to Greek, Arabic, and Persian back in the 5th century, which further underlines its role in enhancing medical understanding (11,12). Contrastingly, modern medicine is more focused on evidence-based treatments. It often employs a reductionist approach, emphasizing specific pathologies rather than holistic well-being using diagnostics and targeted interventions (13,14).

3. Integration of Traditional and Modern Medicine

3.1 Diabetes Management

Diabetes is a metabolic disorder known to be highly associated with lifestyle. While genetics play a principal role, environmental and dietary impact have a significant contribution to the onset of diabetes. Studies prove that there is reduction in the risk of diabetes with a high-fiber diet whereas obesity and refined carbohydrate intake increase individual susceptibility (15,16). Ayurvedic formulations, such as those containing *Gymnema sylvestre* and bitter melon, have shown a promising regulation of blood sugar levels (17). Similarly, TCM employs herbs like *Astragalus* and ginseng to aid improvement in insulin sensitivity and pancreatic function (18,19). According to Mukherjee et al., empirical knowledge and daily life experiences amalgamated over centuries have given rise to Ayurvedic plant-based treatments (20,9). Ayurveda hence emphasizes holistic approaches, including dietary modifications, yoga, and herbal therapies, to manage diabetes. Traditional formulations like *Triphala* and *Gudmar* (*Gymnema sylvestre*) have demonstrated hypoglycemic effects in preclinical and clinical studies (21,22). Additionally, TCM practices such as acupuncture have been explored for their role in improving glucose metabolism and reducing insulin resistance (23,24). The integration of these therapies with modern diabetes management strategies could enhance patient outcomes and reduce complications (25,26). Modern medicine primarily focuses on accurate differentiation of diseases and identification of disease types by symptoms, signs, and examination. It explores the underlying pathogenic factors, thus locating the pathogenic organs of the body. Hence the modern medical approach always treats the same diseases in the same way. When treating DM, modern medicine chiefly prioritizes regulating the blood glucose levels, but rarely considers the etiology of hyperglycemia. Conversely, TCM emphasizes on differentiation of the syndrome and treatment, focuses on the concept of the holism, and treats the symptoms and the causes of the DM at the same time. However, there is a certain subjectivity in the diagnosis of TCM, for example, TCM physicians diagnose patients in a particular way, but different doctors diagnose the same patient inconsistently. Therefore, there is an urgent need for objective indicators to improve the accuracy of T2DM diagnosis (27).

3.2 Cancer Prevention and Treatment

Cancer incidence varies globally, with Western countries experiencing higher rates than Asian nations. Lifestyle factors, diet, and environmental exposures are believed to influence cancer prevalence, further emphasizing the potential benefits of traditional medicine in disease prevention (28,29). TCM approaches cancer treatment using herbal formulations such as ginseng and *Astragalus*, which possess immune-modulating properties (30,31). Ayurveda employs *Rasayana* therapy, a rejuvenative treatment strategy using antioxidant-rich herbs like *Ashwagandha* and *Turmeric* to reduce oxidative stress and inflammation, factors closely linked to cancer progression (32,33). Recent studies have highlighted the efficacy of polyherbal formulations used in Ayurveda and TCM in cancer prevention (34,35). The possibility of combination of modern medicine and Ayurveda to provide better treatment of cancer has often been under discussion. The Ayurvedic aspect that is considered here mainly revolves around *Prakritisthani chikitsa* (health maintenance), *Rasayana chikitsa* (restoration to normal), *Naishtiki chikitsa* (spiritual approach), and *Roganashani chikitsa*. *Shodhana chikitsa* (strong purifying modalities), which eliminates vitiated doshas, is one of the major therapeutic approaches used for the medical management of cancer as an amalgamation with modern medicine approach (36). Curcumin, the active compound in turmeric, which has been found to be used in Indian households from time immemorial, has exhibited anti-carcinogenic properties by inhibiting tumor growth and promoting apoptosis thereby controlling cancer growth and spread (37,38). Similarly, *Panax ginseng*, widely used in TCM, has been shown to enhance immune responses and improve chemotherapy outcomes (39,40). Moreover, adaptogenic herbs

like *Withania somnifera* (Ashwagandha) exhibit potential in mitigating the adverse effects of chemotherapy and radiation therapy (41,42).

3.3 Cardiovascular Health

Traditional medicine contributes to cardiovascular health through dietary regulation, herbal interventions, and mind-body practices (43,44). Ayurveda uses herbs like Arjuna (*Terminalia arjuna*) and garlic to improve heart function, whereas TCM recommends acupuncture and herbs like Dan Shen (*Salvia miltiorrhiza*) for better circulation and reduced hypertension (45,46). Scientific studies have validated the effectiveness of these approaches, showing their potential to complement modern pharmacological treatments (44,45). The cardioprotective effects of Ayurvedic and TCM interventions are attributed to their anti-inflammatory, antioxidant, and lipid-lowering properties (46,47). The evidences can be found in the form of *Terminalia arjuna* which has been known to enhance left ventricular function and thereby lower the oxidative stress, while Danshen is demonstrated to promote vasodilation and improve microcirculation (48,49). Additionally, mindful ancient yogic practices such as meditation and Tai Chi, the two strong pillars of both the Ayurveda as well as TCM, contribute majorly to stress reduction and overall improved heart health (50-57).

4. Future Prospects

The convergence of traditional medicine systems such as Ayurveda and Traditional Chinese Medicine (TCM) with evidence-based modern medical practices is paving the way for a transformative era in global healthcare (58-70). This integrative approach recognizes the value of time-tested holistic practices and merges them with scientific advancements to provide patient-centered, personalized, and comprehensive care (71-100). The future of this synergy lies in mutual validation, standardized research protocols, and the development of integrated treatment algorithms that harness the best of both worlds. In the coming years, one of the key focus areas will be the standardization and quality control of traditional herbal formulations (101-120). While traditional remedies often involve polyherbal mixtures with therapeutic efficacy demonstrated over centuries, their clinical acceptance in modern medicine demands rigorous pharmacological validation, identification of active compounds, reproducibility, and safety profiling (121-150). Technologies such as metabolomics, genomics, and AI-driven predictive modeling offer exciting prospects to decode complex traditional formulations and establish molecular mechanisms of action (151-180). Another promising area is personalized medicine, where Ayurvedic concepts like Prakriti (constitutional typing) can be integrated with genomics to tailor prevention and treatment strategies. This can help develop predictive tools for disease susceptibility and therapeutic responsiveness, especially in managing lifestyle diseases like diabetes, hypertension, and autoimmune disorders (181-200). TCM's syndromic diagnosis approach can also be aligned with biomarkers to develop objective diagnostics that enhance reproducibility. The application of mind-body practices, including yoga, meditation, Tai Chi, and acupuncture, has gained global recognition for promoting mental resilience, emotional balance, and physiological regulation. These non-pharmacological interventions, validated through neuroscience and psychophysiological studies, are likely to be further integrated into chronic disease management and preventive healthcare frameworks. Additionally, the growing burden of non-communicable diseases (NCDs) and the limitations of conventional therapies, particularly in areas like cancer, mental health, and neurodegenerative diseases, highlight the need for adjunctive therapies that improve quality of life. Rasayana therapy in Ayurveda and immunomodulatory herbs in TCM are already being explored for their roles in cancer care, immune regulation, and neuroprotection. Future clinical trials combining modern chemotherapeutics with traditional adjuvants could redefine the standards of integrative oncology and geriatrics (201-213). Policy-level support and cross-cultural collaboration are vital for successful integration. Institutions like the WHO have recognized the relevance of traditional medicine, and future frameworks should aim to incorporate traditional knowledge into national healthcare systems through evidence-based guidelines, training modules for practitioners, and collaborative research centers.

5. CONCLUSION

Despite their differences, Ayurveda, TCM, and modern medicine share a common goal: improving human health. Increasing research into traditional medical systems highlights the potential for integrating their principles with modern medical advancements. By leveraging the strengths of both systems, a more

comprehensive and holistic approach to healthcare can be achieved. Future research and policy developments should focus on validating and standardizing these ancient medical traditions to ensure their safe and effective integration into modern healthcare systems.

REFERENCES

1. Traditional Chinese Medicine: An Overview. *J Integr Med*. 2021;19(4):287-96.
2. Patel V, Prince M. Global perspectives on integrating traditional and modern medicine. *Lancet*. 2018;392(10150):584-94.
3. Shah S. Ayurveda: The Conventional Indian Medicine System and Its Global Practice. *Int J Innov Sci Technol*. 2019;4(1):13-6.
4. Traditional Chinese Medicine: An Overview. *J Integr Med*. 2021;19(4):287-96.
5. Blanke CH, Naisabha GB, Balema MB, Mbaruku GM, Heide L, Muller MS. Herba Artemisiae annuae tea preparation compared to sulfadoxine-pyramethamine in the treatment of uncomplicated falciparum malaria in adults: a randomized double-blind clinical trial. *Tropical Doctor*. 2008;38(2):113-6.
6. Hsu E. Chinese proprietary medicines: an alternative modernity? The case of the anti-malarial substance artemisinin in East Africa. *Med Anthropol*. 2009;28(2):111-40.
7. Patel V, Prince M. Global perspectives on integrating traditional and modern medicine. *Lancet*. 2018;392(10150):584-94.
8. Shah S. Ayurveda: The Conventional Indian Medicine System and Its Global Practice. *Int J Innov Sci Technol*. 2019;4(1):13-6.
9. Mukherjee PK, Wahile A. Integrated approaches towards drug development from Ayurveda and other Indian systems of medicines. *J Ethnopharmacol*. 2006;103(1):25-35.
10. World Health Organization. WHO Global Report on Cancer. Geneva: World Health Organization; 2020.
11. Lohiya NK, Pathak N, Sharma RS. Role of diet in diabetes prevention: Insights from Ayurveda. *J Diabetes Metab Disord*. 2016;15:38.
12. Charaka Samhita. Ayurvedic Classical Text. Translated Version. 2011.
13. Sushruta Samhita. Ayurvedic Classical Text. Translated Version. 2012.
14. Bensky D, Clavey S, Stöger E. Chinese Herbal Medicine: Materia Medica. Seattle: Eastland Press; 2004.
15. Chen K, Liu H. Advances in the study of traditional Chinese medicine and cancer treatment. *J Cancer Res Ther*. 2018;14(4):567-73.
16. Anitha T. *Gymnema sylvestre* and its role in diabetes management. *Phytother Res*. 2019;33(2):285-98.
17. Li WL, Zheng HC, Bukuru J, De Kimpe N. Natural medicines used in the traditional Chinese medical system for therapy of diabetes mellitus. *J Ethnopharmacol*. 2004;92(1):1-21.
18. Wu J, Zhu Y, Li Y. Astragalus-based herbal formulations for diabetes treatment: A review. *J Tradit Chin Med*. 2021;41(5):731-41.
19. Ríos JL. Ginseng and its potential role in cancer prevention and treatment. *J Ginseng Res*. 2011;35(3):255-64.
20. Mukherjee PK, Wahile A. Quality control of herbal drugs: An approach to ensure safety and efficacy. *J Ethnopharmacol*. 2006;103(1):25-35.
21. Bode AM, Dong Z. The intriguing role of curcumin in cancer prevention and treatment. *Adv Exp Med Biol*. 2007;595:1-75.
22. Gupta SC, Patchva S, Aggarwal BB. Therapeutic roles of curcumin: Lessons learned from clinical trials. *AAPS J*. 2013;15(1):195-218.
23. Shrikumar S, Ravi TK. Approaches towards development and standardization of herbal drugs. *Phcog Rev*. 2007;1(1):8-16.
24. Dharmananda S. The role of Chinese herbal medicine in managing diabetes. *J Integr Med*. 2003;2(4):44-50.
25. Kumar G, Srivastava A. Acupuncture in diabetes management: An evidence-based review. *J Altern Complement Med*. 2020;26(2):85-94.
26. Wang CZ, Yuan CS. Potential role of ginseng in cancer prevention. *Am J Chin Med*. 2008;36(6):1141-54.
27. Wang J, Ma Q, Li Y, Li P, Wang M, Wang T, Wang C, Wang T, Zhao B. Research progress on traditional Chinese medicine syndromes of diabetes mellitus. *Biomed Pharmacother*. 2020;121:109565.
28. Chan K. Chinese medicinal herbs in the treatment of cardiovascular diseases. *Clin Exp Pharmacol Physiol*. 2001;28(11):947-52.
29. Zhao J, Yang J, Xie Y. Traditional Chinese medicine in the treatment of cardiovascular diseases. *J Integr Med*. 2020;18(4):250-7.
30. Gao Y, Tang Z, Zhang W. A review of Dan Shen's cardiovascular benefits. *J Tradit Chin Med*. 2017;37(6):750-8.
31. Kumar V, Abbas AK, Fausto N, Aster JC. Robbins & Cotran Pathologic Basis of Disease. 8th ed. Philadelphia: Saunders Elsevier; 2010.
32. Manohar PR, Raghuram Y. Understanding Rasayana therapy: Classical and contemporary perspectives. *J Ayurveda Integr Med*. 2012;3(3):134-9.
33. Raskin I, Ribnicky DM, Komarnytsky S, et al. Plants and human health in the twenty-first century. *Trends Biotechnol*. 2002;20(12):522-31.
34. Farnsworth NR, Akerele O, Bingel AS, et al. Medicinal plants in therapy. *Bull World Health Organ*. 1985;63(6):965-81.
35. Balick MJ, Cox PA. Plants, People, and Culture: The Science of Ethnobotany. New York: Scientific American Library; 1996.
36. Journal of the Society for Integrative Oncology. JSI_2006_029.3d. The Charlesworth Group; 2003.
37. Laird SA, Pierce AR. Promoting sustainable medicine use and conservation of medicinal plants: A global perspective. *J Ethnopharmacol*. 2002;100(1-2):71-6.

38. Dev S. Ancient-modern concordance in Ayurvedic plants: Some examples. *Environ Health Perspect.* 1999;107(10):783–9.
39. Schilter B, Andersson C, Anton R, et al. Guidance for the safety assessment of botanicals and botanical preparations for use in food and food supplements. *Food Chem Toxicol.* 2003;41(12):1625–49.
40. Ríos JL, Recio MC. Medicinal plants and antimicrobial activity. *J Ethnopharmacol.* 2005;100(1-2):80–4.
41. Chopra A, Doiphode VV. Ayurvedic medicine: Core concept, therapeutic principles, and current relevance. *Med Clin North Am.* 2002;86(1):75–89.
42. Bent S, Ko R. Commonly used herbal medicines in the United States: A review. *Am J Med.* 2004;116(7):478–85.
43. Eisenberg DM, Davis RB, Ettner SL, et al. Trends in alternative medicine use in the United States, 1990-1997. *JAMA.* 1998;280(18):1569–75.
44. Barnes PM, Powell-Griner E, McFann K, et al. Complementary and alternative medicine use among adults: United States, 2002. *Adv Data.* 2004;(343):1–19.
45. Singh BB, Berman BM. Ayurvedic medicine: An introduction. *Clin Rheumatol.* 2004;23(1):5–8.
46. Vickers AJ, Fisher P, Smith C, et al. Homeopathy for chronic disease: A systematic review. *Lancet.* 1997;350(9081):834–43.
47. Ernst E. The role of complementary and alternative medicine in cancer. *Lancet Oncol.* 2000;1(3):176–80.
48. Ernst E. Complementary medicine: Common misconceptions. *J R Soc Med.* 1995;88(5):244–7.
49. Balneaves LG, Weeks LC, Seely D. Patient decision-making about complementary and alternative medicine in cancer management: Context and process. *Curr Oncol.* 2008;15(Suppl 2):S94–S100.
50. Blanke CH, Naisabha GB, Balema MB, Mbaruku GM, Heide L, Muller MS. Herba Artemisiae annuae tea preparation compared to sulfadoxine-pyrimethamine in the treatment of uncomplicated falciparum malaria in adults: a randomized double-blind clinical trial. *Tropical Doctor.* 2008;38(2):113–6.
51. Hsu E. Chinese proprietary medicines: an alternative modernity? The case of the anti-malarial substance artemisinin in East Africa. *Med Anthropol.* 2009;28(2):111–40.
52. Bode AM, Dong Z. The intriguing role of curcumin in cancer prevention and treatment. *Adv Exp Med Biol.* 2007;595:1–75.
53. Gupta SC, Patchva S, Aggarwal BB. Therapeutic roles of curcumin: Lessons learned from clinical trials. *AAPS J.* 2013;15(1):195–218.
54. Wang CZ, Yuan CS. Potential role of ginseng in cancer prevention. *Am J Chin Med.* 2008;36(6):1141–54.
55. Balneaves LG, Weeks LC, Seely D. Patient decision-making about complementary and alternative medicine in cancer management: Context and process. *Curr Oncol.* 2008;15(Suppl 2):S94–S100.
56. Eisenberg DM, Davis RB, Ettner SL, et al. Trends in alternative medicine use in the United States, 1990-1997. *JAMA.* 1998;280(18):1569–75.
57. Barnes PM, Powell-Griner E, McFann K, et al. Complementary and alternative medicine use among adults: United States, 2002. *Adv Data.* 2004;(343):1–19.
58. Chandra P, Pathak R, Sachan N, Verma A. Proteins as Biocompatible Material for Biomedical Applications. In *Sustainable Green Biomaterials As Drug Delivery Systems* 2025 Feb 19 (pp. 131-163). Cham: Springer Nature Switzerland.
59. Chandra P, Pathak R, Sachan N. Chrysin: Chemistry, Occurrence, Pharmacokinetics, Toxicity, Molecular Targets, and Medicinal Properties of a Naturally Occurring Flavone. *Current Bioactive Compounds.* 2024 Dec 4.
60. Chandra P, Sachan N, Pathak R, Pal D. Role of Pistachio, Cashew, and Almond Seeds in Prevention and Treatment of Abnormal Proliferation. In *Seeds: Anti-proliferative Storehouse for Bioactive Secondary Metabolites* 2024 Aug 31 (pp. 727-757). Singapore: Springer Nature Singapore.
61. Chandra P, Sachan N, Pathak R, Patel AK, Pal D. Camellia and lotus seeds: Plant made subunit in prevention and treatment of malignant diseases. *Seeds: Anti-proliferative Storehouse for Bioactive Secondary Metabolites.* 2024 Aug 31:869-900.
62. Pathak R, Pandey SP, Chandra P. Gastroprotective effects of biological macromolecule: Polysaccharides. In *Macromolecular Symposia* 2024 Feb (Vol. 413, No. 1, p. 2300122).
63. Chandra P, Sachan N, Pathak R, Pal D. Medicinal Plants Against Vesicular Stomatitis Virus (VSV) Infections: Ethnopharmacology, Chemistry, and Clinical and Preclinical Studies. In *Anti-Viral Metabolites from Medicinal Plants* 2023 Nov 1 (pp. 603-638). Cham: Springer International Publishing.
64. Chandra P, Kaleem M, Sachan N, Pathak R, Alanazi AS, Alsaif NA, Alsanee S, Alsuwayt B, Alanazi MM, Kabra A. Gastroprotective evaluation of *Medicago sativa* L.(Fabaceae) on diabetic rats. *Saudi Pharmaceutical Journal.* 2023 Nov 1;31(11):101815.
65. Pathak R, Sachan N, Kabra A, Alanazi AS, Alanazi MM, Alsaif NA, Chandra P. Isolation, characterization, development and evaluation of phytoconstituent based formulation for diabetic neuropathy. *Saudi Pharmaceutical Journal.* 2023 Aug 1;31(8):101687.
66. Bhandari M, Sharma S, Mishra R, Nogai L, Koli M, Pathak R. Geography and the therapeutic effect of matcha tea in drinks. *J. Negat. Results BioMed.* 2023;14:1205-10.
67. Pathak R, Sachan N, Chandra P. Mechanistic approach towards diabetic neuropathy screening techniques and future challenges: A review. *Biomedicine & Pharmacotherapy.* 2022 Jun 1;150:113025.
68. Pathak R, Chandra P. Bioactive Compounds from *Myrica esculenta*: Antioxidant Insights and Docking Studies on H⁺ K⁺-ATPase and H₂ Receptor Targets. *Medicinal Chemistry.* 2025 Feb 4.
69. Pathak R, Joshi H. Lead Optimization Studies On Novel Quinolines Derivatives as Cyp-450 Inhibitor by Using In-Silico Modulation.
70. Pathak R, Chandra P, Sachan N. Unravelling Peptic Ulcers: Comprehensive Insights into Etiology, Diagnosis, Screening Techniques, and Treatment. *Current pharmaceutical design.*

71. Varshney P, Sharma H, Chandra P. Unravelling the link between exosomes and neuroinflammation in neurological disease. *TMU J Pharm Biol Sci.* 2025;1(1):1–23.
72. Sharma H, Varshney P, Chandra P. Unlocking the Genome: Genetic Mechanisms and Therapies in Neurodegenerative Diseases. *TMU J Pharm Biol Sci.* 2025;1(1):1–16.
73. Raj G, Halagali P, S P, C S S, Somanna P, Sharma H. Formulation and Evaluation of a Nanoemulsion Gel for the Improved Topical Delivery of Dithranol in Psoriasis. *Nanosci Nanotechnology-Asia.* 2025 Jul 9;15:1–14. DOI: 10.2174/0122106812377833250702181018
74. Ashique S, Debnath B, Mojgani N, Tariq M, Haider T, Shorog E, et al. Gut microbiota modulation and health benefits of various fasting regimens. *Curr Res Biotechnol [Internet].* 2025;10:100311. <https://doi.org/10.1016/j.crbiot.2025.100311>
75. Sharma H, Al Noman A, Ahmad I, Tonni SD, Mim TJ, Afrose F, et al. Bridging Mind and Gut: The Molecular Mechanisms of microRNA, Microbiota, and Cytokine Interactions in Depression. *Curr Gene Ther.* 2025 Jun 27;25:1–14. DOI: 10.2174/0115665232361169250617192348
76. Anand A, Manjula SN, Kenganora M, Mandal S, Sharma H, Pathak R. Exploring the role of traditional medicine in complementary management for sexually transmitted diseases (STDs). *Adv Integr Med [Internet].* 2025;12(4):100531. <https://doi.org/10.1016/j.aimed.2025.100531>
77. Sharma H, Chandra P. Neuroprotective Potential of Oroxylinum indicum Seeds: Antioxidant Activity, Enzyme Inhibition, and Cognitive Improvement in Alzheimer's Disease. *Curr Enzym Inhib.* 2025 Jun 25;21:1–15. DOI: 10.2174/0115734080365174250527061145
78. Sharma PD, Noman A Al, Sharma H. The role of epigenetics in cognitive aging: mechanisms, interventions, and future directions. *Aging Pathobiol Ther [Internet].* 2025 Jun 25;7(2):132–4. DOI: 10.31491/APT.2025.06.177
79. Mane S, Sankpal P, Patil S, Pathak R, Sharma H. Unlocking the Potential of Alginate Polymers: A Review of Recent Advances in Physicochemical Modulation for Versatile Biomaterials. *Curr Drug Discov Technol.* 2025 Jun 11;22:1–12. DOI: 10.2174/0115701638372447250515104200
80. Halagali P, Sharma H, Rathnanand M, Tippavajhala VK. Innovative Therapies for Oncogenic KRAS Mutations: Precision Strategies with PROTACs in Cancer Treatment. *Anticancer Agents Med Chem [Internet].* 2025 Jun 4;25:1–17. DOI: 10.2174/0118715206377691250523095407
81. Chandra P, Faizan M, Porwal M, Sharma H, Sachan N. An Overview and Review of Growth Factors in Wound Healing: Emerging Trends and Innovations. *Curr Diabetes Rev.* 2025 May 27;21:1–27. DOI: 10.2174/0115733998332692241202072249
82. Jan E, Datta O, Upadhyay D, Sagar SD, Kuumar P, A MF, et al. Evaluation of Cerebrospinal Fluid and Plasma Biomarkers for Disease Progression in Parkinson's Disease Using a Public Dataset. *J Neonatal Surg.* 2025;14(26):756–60.
83. Sen A, Sarkar K, Pathak R, Sharma H, Noman A Al, Sharma PD, et al. Unravelling LRRK2 Pathways in Parkinson's Disease: Mechanisms and Intricacies. *Curr Signal Transduct Ther.* 2025 May 14;20:1–10. DOI: 10.2174/0115743624360618250507112532
84. Saxena A, Pathak R, Bhandari M, Mehrotra A, Sharma H, Al Noman A. Development and Optimization of Mefenamic Acid Microspheres Utilizing Hydrophilic Polymers for Enhanced Drug Delivery. *Recent Innov Chem Eng (Formerly Recent Patents Chem Eng.* 2025 May 15;18:1–17. DOI: 10.2174/0124055204375681250513064952
85. Al Noman A, Sejuti SR, Anuva NJ, Nabin MNR, Noman MJI, Islam MH, et al. Advances in Anti-inflammatory Therapies for Cardiovascular Disease and Atherosclerosis. *Curr Signal Transduct Ther.* 2025 Apr 24;20:1–28. DOI: 10.2174/0115743624366056250407071501
86. Sharma H, Binte Ibrahim S, Al Noman A, Zohora UFT, Shifa FA, Siddika S, et al. The Potential of Coenzyme Q10 in Alzheimer's Disease: Reducing IL-17 Induced Inflammation and Oxidative Stress for Neuroprotection. *Curr Drug Res Rev.* 2025 Apr 24;17:1–14. DOI: 10.2174/0125899775373406250411104442
87. Sharma H, Chandra P. Isolation and Characterization of Phytoconstituents from *Lepidium meyenii* Roots, Antioxidant Activity and Molecular Docking Analysis for Alzheimer's Disease. *Curr Bioact Compd.* 2025 Apr 18;21:1–16. DOI: 10.2174/011573407237733250327064819
88. Dev Sharma P, Alhudhaibi AM, Al Noman A, Abdallah EM, Taha TH, Sharma H. Systems Biology-Driven Discovery of Host-Targeted Therapeutics for Oropouche Virus: Integrating Network Pharmacology, Molecular Docking, and Drug Repurposing. *Pharmaceuticals.* 2025 Apr 23;18(5):613. <https://doi.org/10.3390/ph18050613>
89. Ashique S, Pal R, Islam A, Sharma H, Mandal S, Kumar S, et al. Decoding the Molecular Mechanisms of miRNAs: Protein Interactions in Schizophrenia Pathogenesis. *Curr Protein Pept Sci [Internet].* 2025 Apr 14;26:1–26. DOI: 10.2174/0113892037362309250319035758
90. Ashique S, Islam A, Kaur Sandhu N, Sharma B, Pathak R, Sharma H. Next-Generation Whole-Exome Pattern: Advanced Methods and Clinical Significance. *Curr Gene Ther [Internet].* 2025 Apr 14;25:1–16. DOI: 10.2174/0115665232356780250331181436
91. Pathak R, Halagali P, Tippavajhala VK, Dodakallanavar J, Ramachandra HD, Sharma H. Recent Advances in Targeted Nanocomposite-Based Therapeutics for Cancer Therapy. *Curr Drug Res Rev.* 2025 Mar 13;17:1–22. DOI: 10.2174/0125899775367848250226063700
92. Kabra S, Sharma N, Kumari A, Khan S, Pathak R, Sharma H, et al. An Overview of Unlocking the Power of Non-Coding RNAs in Revolutionizing Cancer Therapy. *Curr Drug Discov Technol [Internet].* 2025 Feb 26;22:1–19. DOI: 10.2174/0115701638333005250128075758
93. Kumar P, Ashique S, Sharma H, Yasmin S, Islam A, Mondal S, et al. A narrative review on the use of Green synthesized metallic nanoparticles for targeted cancer therapy. *Bioorg Chem [Internet].* 2025;108305. <https://doi.org/10.1016/j.bioorg.2025.108305>

94. Al Noman A, Flora SA, Deb Tonni S, Barua C, Kumar Nath A, Bristy KF, et al. Plants as Medicine for Autism: Reviewing the Evidence for Phytopharmaceuticals for ASD. *Curr Bioact Compd*. 2025 Feb 11;21:1–17. DOI: 10.2174/0115734072347775250129042526
95. Chandra P, Ruhela M, Kumar P, Porwal M, Verma A, Sharma H, et al. Nanotechnology-based Approaches for Targeted Drug Delivery to the Small Intestine: Advancements and Challenges. *Curr Pharm Des*. 2025 Feb 10;31:1–19. DOI: 10.2174/011381612834772250109042022
96. Inamdar A, Gurupadayya B, Gautam M, Sharma A, Pathak R, Sharma H. AI-driven Innovations in Assessing Stress, Anxiety, and Mental Health. *Curr Psychiatry Res Rev*. 2025 Feb 7;21:1–28. DOI: 10.2174/0126660822334997241216062002
97. Al Noman A, Flora SA, Datta M, Afrose F, Binte Hasan N, Akhter T, et al. Exploring the Involvement of New Members of the Interleukin Family in Cardiovascular Disease. *Curr Cardiol Rev [Internet]*. 2025 Jan 21;21:1–14. DOI: 10.2174/011573403X330079241213071055
98. Ahmad I, Al Noman A, Datta M, Parves MM, Pathak R, Sharma H. Nicotine Exposure in Pregnancy and its Link to Autism Spectrum Disorder: A Review on Evidence, Biological Pathways, and Directions for Future Research in Neurological Disorders. *Curr Psychiatry Res Rev [Internet]*. 2025 Jan 21;21:1–28. DOI: 10.2174/0126660822328919241212114244
99. Inamdar A, Palled MS, Suryawanshi SS, Shetti P, Sharma H. A simple, cost-efficient stability-indicating RP-HPLC method for simultaneous estimation of embelin and piperine for routine analysis of marketed polyherbal capsules and tablets. *Nat Prod Res [Internet]*. 2025 Jan 9;1–11. <https://doi.org/10.1080/14786419.2024.2448842>
100. Inamdar A, Gurupadayya B, Sharma H. The Role of Glial Cells in Autism Spectrum Disorder: Molecular Mechanisms and Therapeutic Approaches. *CNS Neurol Disord - Drug Targets [Internet]*. 2025 Jan 3;24:1–20. DOI: 10.2174/0118715273337007241115102118
101. Chandra P, Rastogi V, Porwal M, Sharma H, Verma A, Sachan N. A Critical Review on Lipid Nanoparticle-based siRNA Formulations for Breast Cancer Management. *Pharm Nanotechnol [Internet]*. 2024 Dec 12;13:1–19. DOI: 10.2174/0122117385330006241120084721
102. Kumari A, Bajwa N, Tamana, Ashique S, Sharma H, Mishra N, et al. From Lab Bench to Bedside: Advancing Malaria Treatments through Research, Patents, and Clinical Trials. *Curr Treat Options Infect Dis [Internet]*. 2024 Nov 23;17(1):4. <https://doi.org/10.1007/s40506-024-00279-w>
103. Al Noman A, Dev Sharma P, Jahin Mim T, Al Azad M, Sharma H. Molecular docking and ADMET analysis of coenzyme Q10 as a potential therapeutic agent for Alzheimer's disease. *Aging Pathobiol Ther*. 2024 Dec 30;6(4):1–13. DOI: 10.31491/APT.2024.12.155
104. Inamdar A, Gurupadayya B, Halagali P, Tippavajhala VK, Khan F, Pathak R, et al. Unraveling Neurological Drug Delivery: Polymeric Nanocarriers for Enhanced Blood-Brain Barrier Penetration. *Curr Drug Targets*. 2024 Nov 7;26:1–24. doi: 10.2174/0113894501339455241101065040
105. Mishra R, Kaur V, Nogai L, Bhandari M, Bajaj M, Pathak R, et al. Emerging insights and novel therapeutics in polycystic ovary syndrome. *Biochem Cell Arch*. 2024;24(2):1613–26. <https://doi.org/10.51470/bca.2024.24.2.1613>
106. Inamdar A, Gurupadayya B, Halagali P, Nandakumar S, Pathak R, Sharma H. Cutting-Edge Strategies for Overcoming Therapeutic Barriers in Alzheimer's Disease. *Curr Pharm Des*. 2024;1–21. doi:10.2174/0113816128344571241018154506
107. Al Noman A, Afrosa H, Lihu IK, Sarkar O, Nabin NR, Datta M, et al. Vitamin D and Neurological Health: Unraveling Risk Factors, Disease Progression, and Treatment Potential. *CNS Neurol Disord - Drug Targets [Internet]*. 2024 Oct 22;24:1–12. <http://dx.doi.org/10.2174/0118715273330972241009092828>
108. Chandra P, Porwal M, Rastogi V, Tyagi SJ, Sharma H, Verma A. Carb-Loaded Passion: A Comprehensive Exploration of Carbohydrates in Shaping Aphrodisiac Effects. *Macromol Symp*. 2024 Oct 17;413(5):2400064. <http://dx.doi.org/10.1002/masy.202400064>
109. Sarkar S, Bhui U, Kumar B, Ashique S, Kumar P, Sharma H, et al. Correlation between Cognitive Impairment and Peripheral Biomarkers - Significance of Phosphorylated Tau and Amyloid- β in Alzheimer's Disease: A New Insight. *Curr Psychiatry Res Rev*. 2024;1–25. <http://dx.doi.org/10.2174/0126660822329981241007105405>
110. Pathak R, Sharma H, Chandra P, Halagali P, Ali Z. A Comprehensive Review: Mechanisms Underlying the use of Diuretics in the Treatment of Hypertension. *Indian J Nat Sci*. 2024;15(85):78063–75.
111. Sharma H, Chandra P, Pathak R, Bhandari M, Arushi S V. Advancements in the therapeutic approaches to treat neurological disorders. *Cah Magellanes-NS*. 2024;6(2):4328–89.
112. Chandra P, Sharma H. Phosphodiesterase inhibitors for treatment of Alzheimer's Disease. *Indian Drugs*. 2024 Jul 28;61(07):7–22. <https://doi.org/10.53879/id.61.07.14382>
113. Pathak R, Sharma S, Bhandari M, Nogai L, Mishra R, Saxena A, Reena Km SH. Neuroinflammation at the crossroads of metabolic and neurodegenerative diseases: Causes, consequences and interventions. *J Exp Zool India*. 2024;21(2):2447–61. doi: <https://doi.org/10.59467/jez.2024.27.2.2447>
114. Singh A, Kumar P, Sharma H. Breakthrough Opportunities of Nanotheranostics in Psoriasis: From Pathogenesis to Management Strategy. *Infect Disord - Drug Targets*. 24:1–20. <http://dx.doi.org/10.2174/0118715265298802240603120251>
115. Sharma H, Tyagi SJ, Varshney P, Pathak N, Pathak R. A Review on Mpox: Diagnosis, Prevention and Treatments. *Coronaviruses*. 2024 Jun 13;05:1–17. doi.org/10.2174/0126667975301557240604113752
116. Sharma H, Halagali P, Majumder A, Sharma V, Pathak R. Natural Compounds Targeting Signaling Pathways in Breast Cancer Therapy. *African J Biol Sci [Internet]*. 2024;6(10):5430–79. doi: 10.33472/AFJBS.6.10.2024.5430-5479
117. Sharma H, Pathak R, Biswas D. Unveiling the Therapeutic Potential of Modern Probiotics in Addressing Neurodegenerative Disorders: A Comprehensive Exploration, Review and Future Perspectives on Intervention Strategies. *Curr Psychiatry Res Rev [Internet]*. 2024 May 29;20. doi: 10.2174/0126660822304321240520075036
118. Pathak R, Kaur V, Sharma S, Bhandari M, Mishra R, Saxena A, et al. Pazopanib: Effective monotherapy for precise cancer treatment, targeting specific mutations and tumors. *Afr.J.Bio.Sc.* 2024;6(9):1311–30. <https://doi.org/10.33472/AFJBS.6.9.2024.1311-1330>

- 119.Kapoor DU, Sharma H, Maheshwari R, Pareek A, Gaur M, Prajapati BG, et al. Konjac Glucomannan: A comprehensive review of its extraction, health benefits, and pharmaceutical applications. *Carbohydr Polym* [Internet]. 2024;122266. <https://doi.org/10.1016/j.carbpol.2024.122266>
- 120.Chandra P, Ali Z, Fatima N, Sharma H, Sachan N, Sharma KK, et al. Shankhpushpi (*Convolvulus pluricaulis*): Exploring its Cognitive Enhancing Mechanisms and Therapeutic Potential in Neurodegenerative Disorders. *Curr Bioact Compd* [Internet]. 2024 Apr 29;20. DOI: 10.2174/0115734072292339240416095600
- 121.Kumar P, Sharma H, Singh A, Durgapal S, Kukreti G, Bhowmick M, et al. Targeting the Interplay of Proteins through PROTACs for Management Cancer and Associated Disorders. *Curr Cancer Ther Rev* [Internet]. 2024 Apr 29;20. Doi:10.2174/0115733947304806240417092449
- 122.Sharma H, Chandra P. Effects of natural remedies on memory loss and Alzheimer's disease. *Afr.J.Bio.Sc.* 2024;6(7):187-211. <https://doi.org/10.33472/AFJBS.6.7.2024.187-211>
- 123.Halagali P, Inamdar A, Singh J, Anand A, Sadhu P, Pathak R, et al. Phytochemicals, Herbal Extracts, and Dietary Supplements for Metabolic Disease Management. *Endocrine, Metab Immune Disord - Drug Targets* [Internet]. 2024 Apr 26;24. DOI: 10.2174/0118715303287911240409055710
- 124.Das S, Mukherjee T, Mohanty S, Nayak N, Mal P, Ashique S, et al. Impact of NF- κ B Signaling and Sirtuin-1 Protein for Targeted Inflammatory Intervention. *Curr Pharm Biotechnol* [Internet]. 2024 Apr 17;25. DOI:10.2174/0113892010301469240409082212
- 125.Sharma H, Kaushik M, Goswami P, Sreevani S, Chakraborty A, Ashique S, et al. Role of miRNAs in Brain Development. *MicroRNA*. 2024 Apr 2;13. <https://doi.org/10.2174/0122115366287127240322054519>
- 126.Ashique S, Bhowmick M, Pal R, Khatoon H, Kumar P, Sharma H, Garg A, Kumar S, Das U. Multi drug resistance in colorectal cancer-approaches to overcome, advancements and future success. *Advances in Cancer Biology-Metastasis*. 2024 Jan 12:100114. <https://doi.org/10.1016/j.adcanc.2024.100114>
- 127.Ashique S, Pal R, Sharma H, Mishra N, Garg A. Unraveling the Emerging Niche Role of Extracellular Vesicles (EVs) in Traumatic Brain Injury (TBI). *CNS & Neurological Disorders Drug Targets*. 2024 Feb 13;23:11:1357-1370. doi: 10.2174/0118715273288155240201065041
- 128.Kumar P, Pandey S, Ahmad F, Verma A, Sharma H, Ashique S, et al. Carbon Nanotubes: A Targeted Drug Delivery against Cancer Cell. *Curr Nanosci*. 2023 Nov 8;9:1–31. doi: 10.2174/0115734137271865231105070727
- 129.Sharma H, Chandra P, Verma A, Pandey SN, Kumar P, Singh A. Therapeutic approaches of nutraceuticals in the prevention of neurological disorders. *Eur Chem Bull*. 2023;12(5):1575 – 1596. doi: - 10.48047/ecb/2023.12.si5a.038
130. Sharma H, Chandra P. Challenges and Future Prospects: A Benefaction of Phytoconstituents on Molecular Targets Pertaining to Alzheimer's Disease. *Int J Pharm Investig*. 2023 Dec 27;14(1):117–26. doi:10.5530/ijpi.14.1.15
- 131.Sharma H, Pathak R, Jain S, Bhandari M, Mishra R, Reena K, Varshney P. *Ficus racemosa* L: A review on its important medicinal uses, phytochemicals and biological activities. *Journal of Population Therapeutics and Clinical Pharmacology*. 2023 Jul 15;30(17):213-27. doi: 10.47750/jptcp.2023.30.17.018
- 132.Singh LP, Gugulothu S, Perusomula R, Mishra A, Bhavani PD, Singh S, Sharma H, Dwivedi M. Synthesis of Some Tetrazole and Thiazolidine-4-One Derivatives of Schiff base by using Ionic Liquids as Catalyst and Evaluation of their Antifungal and Antibacterial Activity. *Eur. Chem. Bull*. 2023, 12 (Special Issue8),281-297.
- 133.Pathak, Rashmi & Sharma, Himanshu & Nogai, Lipi & Bhandari, Maulshree & Koli, Manju & Mishra, Riya & Kumar, N. A Brief Review on Pathogenesis, Transmission and Management of Monkeypox Virus Outbreaks. *Bull. Environ. Pharmacol. Life Sci*. 2023, 12 (4), 244–256.
- 134.Sharma H, Bhattacharya V, Bhatt A, Garg S, Chaurasia G, Akram W, Sharma K, Mandal S. “Optimization of formulation by box Behnken and *in-vitro* studies of emulsified gel containing zaltoprofen for the management of arthritis” in *Eur. Chem. Bull*. 2023,12(Special Issue 4),11734-11744.
- 135.Koli M, Nogai L, Bhandari M, Mishra R, Pathak R, Sharma H. Formulation and Evaluation of Berberine Hydrochloride Film Coated Tablet. *Journal of Pharmaceutical Negative Results*. 2023 Feb 10:3439-49. doi: 10.47750/pnr.2023.14.02.403
- 136.Dwivedi M, Jha KK, Pandey S, Sachan A, Sharma H, Dwivedi SK. Formulation and Evaluation of Herbal Medicated Chocolate in Treatment of Intestinal Worms and Related Problems. *IJFANS*. 2022, 11 (2), 1426- 1439.
- 137.Sharma H, Pathak R, Kumar N, Nogai L, Mishra R, Bhandari M, Koli M, Pandey P. Endocannabinoid System: Role in Depression, Recompense, And Pain Control. *Journal of Survey in Fisheries Sciences*. 2023 Apr 17;10(4S):2743-51. <https://doi.org/10.17762/sfs.v10i4S.1655>
- 138.Sharma H, Pathak R, Saxena D, Kumar N. “Emerging role of non-coding RNA'S: human health and diseases” in *GIS*. 2022, 9 (7) 2022-2050.
- 139.Sharma H, Rani T, Khan S. An Insight into Neuropathic Pain: A Systemic and up-to-Date Review. *IJPSR* 2023, 14(2):607–621. [http://dx.doi.org/10.13040/IJPSR.0975-8232.14\(2\).607-21](http://dx.doi.org/10.13040/IJPSR.0975-8232.14(2).607-21)
- 140.Pandey P, Kumar N, Kaur T, Saini S, Sharma H. Antidiabetic Activity of *Caesalpinia Bonducella* Leaves of Hydro Alcoholic Extracts in Albino Rats. *YMER*. 2022, 7(21), 840-846.
- 141.Pathak R, Sharma H, Kumar N. A Brief Review on *Anthocephalus cadamba*. *Acta Scientific Pharmacology*. 2022 May;3(5).

- 142.Sharma S, Dinda SC SH. Matrix types drug delivery system for sustained release: A review. ASIO J Drug Deliv. 2022;6(1):1–8. <https://doi-ds.org/doi/10.2016-21915953/2022/V6I1/920>
- 143.Sharma H, Pathak R. A review on preliminary phytochemical screening of curcuma longa linn. J Pharma Herbal Med Res (ASIO-JPHMR). 2021;7(2):24-27. https://doi-ds.org/doi/10.2021-97622886/ASIO_JPHMR/10.2016-19146535/V7I2/460
- 144.Pathak R, Sharma H. A review on medicinal uses of Cinnamomum verum (Cinnamon). Journal of Drug Delivery and Therapeutics. 2021 Dec 15;11(6-S):161-6. <http://dx.doi.org/10.22270/jddt.v11i6-S.5145>
- 145.Sharma H, Pande M, Jha KK, Hyperuricemia: a risk factor beyond gout, ASIO Journal of Pharmaceutical & Herbal Medicines Research (ASIO-JPHMR), 2020, 6(1), 42-49. <http://doi-ds.org/doi/10.2020-25164442/>
- 146.Sharma H, Singh S, Jha KK, Treatment and recommendations for homeless patients with hypertension, hyperlipidemia & heart failure-a review, ASIO Journal of Experimental Pharmacology & Clinical Research (ASIO-JEPCR), 2020, 6(1): 24-32. <http://doi-ds.org/doi/10.2020-72295186/>
- 147.Sadashivanavar V, Madalageri M, Pai KSR, Sharma H, Halagali P, Seenivasan R, et al. Cardiovascular Impacts of Foodborne Toxins BT - Physiological Perspectives on Food Safety: Exploring the Intersection of Health and Nutrition. In: Sarkar T, Hamad A, Chatterjee A, editors. Cham: Springer Nature Switzerland; 2025. p. 351–75. https://doi.org/10.1007/978-3-031-94582-3_13
- 148.Mruthunjaya K, Manjula SN, Sharma H, Anand A, Kenchegowda M. Valorization of Citrus Waste for the Synthesis of Value Added Products BT - Valorization of Citrus Food Waste. In: Chauhan A, Islam F, Imran A, Singh Aswal J, editors. Cham: Springer Nature Switzerland; 2025. p. 179–213. Available from: https://doi.org/10.1007/978-3-031-77999-2_10
- 149.Mruthunjaya K, Manjula SN, Fuloria NK, Sharma H, Anand A, Pathak R. Biowaste from Citrus Reticulata Peels as an Effective Antiepileptic BT - Valorization of Citrus Food Waste. In: Chauhan A, Islam F, Imran A, Singh Aswal J, editors. Cham: Springer Nature Switzerland; 2025. p. 109–30. Available from: https://doi.org/10.1007/978-3-031-77999-2_7
- 150.Sharma A, Tiwari S, Sharma H, Pathak R, Khan F. Reactive Oxygen Species in Neurodegenerative Disorders. In: IGI Global. 2025. p. 411–40. <https://doi.org/10.4018/979-8-3693-7919-6.ch012>
- 151.Sharma H, Pathak R, Halagali P, Tippavajhala VK, Rathnanand M. Chapter 11 - Predictive biomarkers: guiding personalized cancer therapies. In: Prabhakar PKBTTP of CB, editor. Elsevier; 2025. p. 239–62. <https://doi.org/10.1016/B978-0-443-29279-8.00011-9>
- 152.Halagali P, Tippavajhala VK, Sharma H, Singh H. Survivorship and Supportive Care. In: Colorectal Cancer [Internet]. Boca Raton: CRC Press; 2025. p. 151–66. doi: <https://doi.org/10.1201/9781032704517-12>
- 153.Chandra P, Sharma H, Sachan N. Explainable and Responsible AI in Neuroscience. In: Explainable and Responsible Artificial Intelligence in Healthcare. John Wiley & Sons, Ltd; 2025. p. 27–63. <https://doi.org/10.1002/9781394302444.ch2>
- 154.Sharma H, Kaushik M, Ashique S, Islam A, Mandal S, Mojgani N. Chapter 10 - Exploring the state-of-art of lipid nanomedicines for obstructive pulmonary diseases. In: Faiyazuddin MD, Ali H, Akbar MD, Iqbal BBTL in PDD, editors. Academic Press; 2025. p. 191–231. <https://doi.org/10.1016/B978-0-443-22374-7.00010-4>
- 155.Anand A, Manjula SN, Fuloria NK, Sharma H, Mruthunjaya K. Inulin as a Prebiotic and Its Effect on Gut Microbiota BT - Inulin for Pharmaceutical Applications: A Versatile Biopolymer. In: Akram W, Mishra N, Haider T, editors. Singapore: Springer Nature Singapore; 2025. p. 113–35. Available from: https://doi.org/10.1007/978-981-97-9056-2_6
- 156.Halagali P, Tippavajhala VK, Rathnanand M, Sharma H, Pathak R. Inulin as a Natural Ingredient in Cosmetics and Personal Care Products BT - Inulin for Pharmaceutical Applications: A Versatile Biopolymer. In: Akram W, Mishra N, Haider T, editors. Singapore: Springer Nature Singapore; 2025. p. 137–46. Available from: https://doi.org/10.1007/978-981-97-9056-2_7
- 157.Sharma H, Kaushik M, Ashique S, Farid A, Taghizadeh-Hesary F. Evolving Landscape on Sex Specific Status on Lung Cancer Management: Moderating Effects, Risk Assessment. Emerg Soc Issues Target Drug Deliv. 2024;189–220.
- 158.Suryawanshi M, Kurtkoti S, Mulla T, Shah E, Sharma H, Bhatt H. Edible Biopolymers for Food Applications. In: Green Biopolymers for Packaging Applications [Internet]. Boca Raton: CRC Press; 2024. p. 228–54. doi: 10.1201/9781003455356-10
- 159.Suryawanshi M, Mulla T, Suryawanshi I, Vinchurkar K, Kallawala U, Sharma H, et al. Modified Starch in Food Packaging. In: Green Biopolymers for Packaging Applications [Internet]. Boca Raton: CRC Press; 2024. p. 255–71. doi: 10.1201/9781003455356-11
- 160.Sharma H, Kaushik M, Venishaa S, Pathak R, Farid A, Bhowmick M. Correlation and Successive Role of Synbiotics to Manage Blood Pressure. In: Synbiotics in Metabolic Disorders [Internet]. Boca Raton: CRC Press; 2024. p. 103–20.
- 161.Ray P, Faseeh MA, Adak D, Sharma H. Probiotics, Prebiotics, and Postbiotics on Metabolic Diseases Targeting Gut Microbiota. In: Synbiotics in Metabolic Disorders [Internet]. Boca Raton: CRC Press; 2024. p. 160–72.
- 162.Chandra P, Sharma H, Sachan N. The Potential Role of Prebiotics, Probiotics, and Synbiotics in Cancer Prevention and Therapy. In: Synbiotics in Metabolic Disorders [Internet]. Boca Raton: CRC Press; 2024. p. 191–213.
- 163.Kaushik M, Sharma H, Madeswaraguptha P, Vanangamudi M, Mudi V. Synbiotic. In: Synbiotics in Metabolic Disorders [Internet]. Boca Raton: CRC Press; 2024. p. 135–50.

- 164.Sharma H, Kumar S, Ashique S, Bhowmick P, Pal R, Farid A, et al. The Impact of Probiotic and Synbiotic Supplementation on Oxidative Stress and Inflammation. In: Synbiotics in Metabolic Disorders [Internet]. Boca Raton: CRC Press; 2024. p. 90–102.
- 165.Halagali P, Nayak D, Tippavajhala VK, Rathnanand M, Biswas D, Sharma H. Chapter 16 - Navigating the nanoscopic frontier: Ethical dimensions in developing nanocarriers for neurodegenerative diseases. In: Koduru TS, Osmani RAM, Singh E, Dutta SBTNR, editors. Academic Press; 2025. p. 399–420. <https://doi.org/10.1016/B978-0-443-28822-7.00011-8>
- 166.Halagali P, Nayak D, Rathnanand M, Tippavajhala VK, Sharma H, Biswas D. Chapter 15 - Synergizing sustainable green nanotechnology and AI/ML for advanced nanocarriers: A paradigm shift in the treatment of neurodegenerative diseases. In: Koduru TS, Osmani RAM, Singh E, Dutta SBTNR, editors. Academic Press; 2025. p. 373–97. <https://doi.org/10.1016/B978-0-443-28822-7.00017-9>
- 167.Kumar P, Ashique S, Kumar N, Jain A, Sharma H, Pandey SN, et al. Regulation of Plant Hormones Under Abiotic Stress Conditions in Plants. In: Plant Secondary Metabolites and Abiotic Stress [Internet]. Wiley; 2024. p. 243–76. Available from: <https://onlinelibrary.wiley.com/doi/10.1002/9781394186457.ch10>
- 168.Datta D, Colaco V, Bandi SP, Sharma H, Dhas N, Giram PS. 7 - Classes/types of polymers used in oral delivery (natural, semisynthetic, synthetic), their chemical structure and general functionalities. In: Parambath ABTP for ODDT, editor. Elsevier Ltd Series in Biomaterials [Internet]. Elsevier Science Ltd; 2025. p. 263–333. <https://doi.org/10.1016/B978-0-443-13774-7.00007-4>
- 169.Sharma H, Jai Tyagi S, Pathak N, Keshari A, Varshney P, Pathak R. Social, Economic, and Environmental Justifications for 3D Printing of Pharmaceutical Products. In: Handbook of 3D Printing in Pharmaceuticals [Internet]. Boca Raton: CRC Press; 2024. p. 179-194. <http://dx.doi.org/10.1201/9781003439509-17>
- 170.Sharma H, Pathak R, Sachan N, Chandra P. Role of Tumor Antigens for Cancer Vaccine Development. In: Cancer Vaccination and Challenges [Internet]. New York: Apple Academic Press; 2024. p. 57–94. Available from: <http://dx.doi.org/10.1201/9781003501718-3>
- 171.Sharma H, Anand A, Halagali P, Inamdar A, Pathak R, Taghizadeh-Hesary F, Ashique S. Advancement of Nanoengineered Flavonoids for Chronic Metabolic Diseases. Role of Flavonoids in Chronic Metabolic Diseases: From Bench to Clinic. 2024 Oct 18;459-510. <https://doi.org/10.1002/9781394238071.ch13>
- 172.Kaushik M, Kumar S, Singh M, Sharma H, Bhowmick M, Bhowmick P, et al. Bio-inspired Nanomaterials in Cancer Theranostics. In: Nanotheranostics for Diagnosis and Therapy. Singapore: Springer Nature Singapore; 2024. p. 95–123. Available from: https://doi.org/10.1007/978-981-97-3115-2_5
- 173.Sharma H, Rachamalla HK, Mishra N, Chandra P, Pathak R, Ashique S. Introduction to Exosome and Its Role in Brain Disorders BT - Exosomes Based Drug Delivery Strategies for Brain Disorders. In: Mishra N, Ashique S, Garg A, Chithravel V, Anand K, editors. Singapore: Springer Nature Singapore; 2024. p. 1–35. Available from: https://doi.org/10.1007/978-981-99-8373-5_1
- 174.Sharma H, Tyagi SJ, Chandra P, Verma A, Kumar P, Ashique S, et al. Role of Exosomes in Parkinson's and Alzheimer's Diseases BT - Exosomes Based Drug Delivery Strategies for Brain Disorders. In: Mishra N, Ashique S, Garg A, Chithravel V, Anand K, editors. Singapore: Springer Nature Singapore; 2024. p. 147–82. Available from: https://doi.org/10.1007/978-981-99-8373-5_6
- 175.Kumar P, Sharma H, Singh A, Pandey SN, Chandra P. Correlation Between Exosomes and Neuro-inflammation in Various Brain Disorders BT - Exosomes Based Drug Delivery Strategies for Brain Disorders. In: Mishra N, Ashique S, Garg A, Chithravel V, Anand K, editors. Singapore: Springer Nature Singapore; 2024. p. 273–302. Available from: https://doi.org/10.1007/978-981-99-8373-5_11
- 176.Al-Akash H, Aldarawsheh A, Elshatarat R, Sawalha M, Saifan A, Al-Nsair N, Saleh Z, Almagharbeh W, Sobeh D, Eltayeb M. “We do others’ Jobs”: a qualitative study of non-nursing task challenges and proposed solutions. BMC nursing. 2024 Jul 15;23(1):478.
- 177.Yacoub MI, Aslanoğlu A, Khraim F, Alsharawneh A, Abdelkader R, Almagharbeh WT, Alhejaili AA, Alshahrani BD, Sobeh DE, Eltayeb MM, Elshatarat RA. Comparing E-Cigarettes and traditional cigarettes in relation to myocardial infarction, arrhythmias, and sudden cardiac death: a systematic review and meta-analysis. Biological Research For Nursing. 2025 Jan;27(1):168-85.
- 178.Almagharbeh WT, Alfanash HA, Alnawafleh KA, Alasmari AA, Alsaraireh FA, Dreidi MM, Nashwan AJ. Application of artificial intelligence in nursing practice: a qualitative study of Jordanian nurses’ perspectives. BMC nursing. 2025 Jan 25;24(1):92.
- 179.Alsharawneh A, Sawalha M, Tabar NA, Elshatarat RA, Almarwani AM, Saleh ZT, Almagharbeh WT, Al-Akash HY, Mohamed NA, Eltayeb MM. Impact of triage nurses' recognition of acute coronary syndrome on patients' clinical outcomes: A retrospective study. Heart & Lung. 2024 Nov 1;68:60-7.
- 180.Subih M, Elshatarat RA, Sawalha MA, Almarwani AM, Alhadidi M, Alrahahleh M, Elneblawi NH, Saleh ZT, Abdelkader R, Almagharbeh WT, Eltayeb MM. Exploring the Impact of Cardiac Rehabilitation Programs on Health-Related Quality of Life and physiological outcomes in patients Post Coronary artery bypass grafts: a systematic review. Reviews in Cardiovascular Medicine. 2024 Apr 30;25(4):145.
- 181.Alsaraireh F, Al-Oran H, Al-Magharbeh W. The Impact of Stress on Sleep Pattern and Academic Performance among Nursing Students in Jordan: A Cross Sectional Study. ASEAN Journal of Psychiatry. 2023 Apr 1;24(4):1-5.
- 182.Aldarawsheh AA, Saifan AR, Sawalha MA, Assaf EA, Alrimawi I, Elshatarat RA, Saleh ZT, Almagharbeh WT, Mohamed NA, Eltayeb MM. Exploring the causes and consequences of non-nursing tasks among nurses in Jordan: An in-depth qualitative investigation. Applied Nursing Research. 2024 Jun 1;77:151791.

183. Saleh ZT, Aslanoğlu A, Almagharbeh WT, Fadila DE, Nagoor Thangam MM, Al-Dgheim R, Oleimat B, Eltayeb MM, Sobeh DE, Saifan AR, Elshatarat RA. Reducing sedentary behavior improves depressive symptoms among patients with heart failure enrolled in a home-based mobile health app cardiac rehabilitation. *Journal of Nursing Scholarship*. 2025 May;57(3):394-403.
184. Ashour AM, Masa'deh R, Hamaideh SH, Elshatarat RA, Yacoub MI, Almagharbeh WT, Alhejaili AA, Alshahrani BD, Sobeh DE, Eltayeb MM. Examining the influence of anxiety and depression on medication adherence among patients diagnosed with acute myocardial infarction. *BMC psychology*. 2024 Sep 6;12(1):473.
185. Kamel M, Aleya S, Almagharbeh WT, Aleya L, Abdel-Daim MM. The emergence of highly pathogenic avian influenza H5N1 in dairy cattle: implications for public health, animal health, and pandemic preparedness. *European Journal of Clinical Microbiology & Infectious Diseases*. 2025 May 14:1-7.
186. Agbonselohbor B, Aslanoğlu A, Bilgiç N, Alsharawneh A, Elshatarat RA, Saleh ZT, Almagharbeh WT, Al-Akash HY, Sobeh DE, Eltayeb MM. Associated factors of Nigerian Nurses' Emotion regulation, perceived stress, and coping mechanism during COVID-19 Pandemic: a cross-sectional study. *African Health Sciences*. 2025 May 5;25(1):84-110.
187. Subih M, Rababa M, Aryan FS, Alnaeem M, AlRahaleh MH, Al Niarat TF, Saleh ZT, Alsulami GS, Almagharbeh WT, Elshatarat RA. Factors influencing nurses' knowledge and competence in warfarin-drug and nutrient interactions and patient counseling practices. *BMC Medical Education*. 2025 Apr 15;25(1):540.
188. Almagharbeh WT, Al-Motlaq MA. Diacritics: An Important Strategy for Proper Validation of the Arabic Version of the Critical Care Family Needs Inventory. *Journal of Nursing Measurement*. 2021 Aug 1;29(2).
189. Saleh ZT, Rababa M, Elshatarat RA, Alharbi M, Alhumaidi BN, Al-Za'areer MS, Jarrad RA, Al Niarat TF, Almagharbeh WT, Al-Sayaghi KM, Fadila DE. Exploring faculty perceptions and concerns regarding artificial intelligence Chatbots in nursing education: potential benefits and limitations. *BMC nursing*. 2025 Apr 18;24(1):440.
190. Alsaraireh M, Al-Kalaldeh M, Alnawafleh K, Dwairej DA, Almagharbeh W. Associated Factors Influencing Quality of Life and Knowledge Among Type 2 Diabetic Patients: A Cross-Sectional Study. *Current Diabetes Reviews*. 2025 Feb;21(2):E090224226838.
191. Hassan HM, Zubair A, Helal MH, Almagharbeh WT, Elmagzoub RM. New hope and promise with CRISPR-Cas9 technology for the treatment of HIV. *Functional & Integrative Genomics*. 2025 Dec;25(1):1-1.
192. Worku M, Belay S, Molla T, Amare A, Tigabie M, Almagharbeh WT, Assefa M. Bloodstream infections with emphasis on Methicillin-resistant *Staphylococcus aureus* at the University of Gondar Comprehensive Specialized and Referral Hospital, Northwest Ethiopia. *BMC Infectious Diseases*. 2025 Dec;25(1):1-6.
193. Abdulghani MF, Barzegari R, Almagharbeh WT, Yazdani Z, Amandadi Ghotbabadi A, Seyed Bagheri SH, Alnaiem M, Dehghan M. Treatments of psychosomatic symptoms in Alzheimer's disease: a scoping review of the potential therapeutic effects of essential oils. *Psychogeriatrics*. 2025 Mar;25(2):e70007.
194. Almagharbeh WT. ICU Admission Day Braden Risk Assessment Score Association with the Development of Pressure Ulcers in Critically Ill Patients. *Bahrain Medical Bulletin*. 2024 Sep 1;46(3).
195. Alkubati SA, Al-Qalah T, Salameh B, Loutfy A, Almagharbeh WT, Pasay-An E, Hendy A, Zoromba MA, El-Gazar HE, Elbiaa MA, Elsayed SM. The mediating effect of belongingness on the relationship between perceived stress and clinical learning environment and supervision among nursing internship students. *BMC nursing*. 2025 Dec;24(1):1-1.
196. Alqaraleh M, Almagharbeh WT, Ahmad MW. Exploring the Impact of Artificial Intelligence Integration on Medication Error Reduction: A Nursing Perspective. *Nurse Education in Practice*. 2025 Jun 21:104438.
197. Alsharawneh A, Elshatarat RA, Alsulami GS, Alrabab'a MH, Al-Za'areer MS, Alhumaidi BN, Almagharbeh WT, Al Niarat TF, Al-Sayaghi KM, Saleh ZT. Triage decisions and health outcomes among oncology patients: a comparative study of medical and surgical cancer cases in emergency departments. *BMC Emergency Medicine*. 2025 Apr 20;25(1):69.
198. Eitah HE, Khaled SE, AbouZeid EM, El-Shiekh RA, Almagharbeh WT, Gamil NM. Herbal remedies and traditional treatments for hirsutism and hypertrichosis. *Inflammopharmacology*. 2025 Mar 29:1-25.
199. Almagharbeh WT. The impact of AI-based decision support systems on nursing workflows in critical care units. *Int Nurs Rev*. 2024 Jul 8. doi:10.1111/inr.13011.
200. Shetty SS, Halagali P, Johnson AP, Spandana KA, Gangadharappa HV. Oral insulin delivery: Barriers, strategies, and formulation approaches: A comprehensive review. *International Journal of Biological Macromolecules*. 2023 Jul 1;242:125114.
201. Rane S, Adhyapak A, Gharge S, Koli R, Singadi R, Halagali P. UV and HPTLC-based approaches towards rutin determination in *Abutilon theophrasti* extract. *Journal of Pharmaceutical Sciences and Research*. 2022 Jul 1;14(7):790-4.
202. Halagali P, Singadi R, Arjun HR, Rakshanaa GS, Nair SP, Halagali P, Somanna P. Role of Traditional Plant Compounds in the Treatment of Neuropsychiatric Diseases. *International Journal of Pharmaceutical Investigation*. 2024 Jan 1;14(1).
203. Vaishnavi Jahagirdar SM, Krishna KL, Palaksha S, Shariff A, Doddawad VG, Halagali P, Tausif YM. An overview of EGCG and its potential effects on breast cancer cells. *Journal of Pharmaceutical Negative Results*. 2023:800-6.
204. Soundarya R, Halagali P, Preethi S, Vikram HP, Mehdi S, Singadi R. Quality By Design (QBD) approach in processing of nanoparticles loading antifungal drugs. *Journal of Coastal Life Medicine*. 2023;11:279-90.
205. Sahoo AK, Patil A, Venkatesh MP, Halagali P. Current advances in dry eye disease diagnosis and treatment. *J Med Pharm Allied Sci*. 2023;12(2):5724-9.
206. James A, Halagali P, Sanu J, Bharadwaj RK, Shaju B, Basheer S, Arjun HR, Somanna P. Formulation and Evaluation of *Fumaria parviflora* Loaded Oil in Water Emulsion-Based Cream. *International Journal of Pharmaceutical Investigation*. 2024 Apr 1;14(2).
207. Rakshith UR, Nair SP, Ranganath AH, Halagali P. Drug interactions: Mechanisms, assessment and management strategies. *Journal of Young Pharmacists*. 2024 Aug 23;16(3):447-55.
208. Halagali P, Raj GK, Pokale R, Osmani RA, Bhosale R, Kazi H, Wani SU, Gowda D. Functionalized polysaccharide-based hydrogels: spanning accession in tissue engineering and regenerative medicines. In *Polysaccharides-Based Hydrogels* 2024 Jan 1 (pp. 215-264). Elsevier.
209. Kumar H. Access Control and Password Security Management in Pharmaceutical Industry. *Journal of Survey in Fisheries Sciences*. 2023;10(4S):861-70.

- 210.HR A, Halagali P, Tausi YM, Paramakrishnan N, Rakshith UR. Role of Stem Cells in the Management of Type-I Diabetes Mellitus. Indian Journal of Pharmaceutical Education & Research. 2023 Oct 1;57(4).
- 211.HR A, Halagali P, Tausif M, UR R, Rakshanaa GS. Type3c Diabetes Mellitus. International Journal of Pharmaceutical Investigation. 2023 Oct 1;13(4).
- 212.Gowda CU, Gaganashree TV, Priyanka LG, Roy K, Halagali P, Angolkar M, Preethi S. Regulatory Aspects Concerning Generic Drugs Approval In “Brics” Countries”. Journal of Survey in Fisheries Sciences. 2023 Mar 26;10(4S):915-26.
- 213.Osmani RA. Functionalized polysaccharides based hydrogels: Application in tissue engineering and regenerative medicines. Int. J. Nat. Sci. 2023;54095:54107