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RESPONSE OF NEW IMINO ANALOGUE OF MENTHOL AND SILVER NANOPARTICLES OF MENTHA OIL AGAINST MENINGITIS CAUSING BACTERIA

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ABSTRACT:

Infection of meningeal layer due to *Streptococcus pneumoniae* results in meningitis that can be treated by antibacterial agents. Resistance development on continuous exposure to antibacterial agents, alarms investigators to find some new antibacterial agents both synthetically and naturally via plants sources. Current investigation was intended to compare the antibacterial response of new menthol analogues and biosynthesized silver nanoparticles against *S. pneumoniae* (the meningitis causing bacteria). The study involved synthesis of new imino analogues of menthol (IAM) and silver nanoparticles of menthol rich mentha oil. Current investigation involved synthesis of IAM by esterification of menthol followed by hydrazination and Schiff's reaction. This study also involved biosynthesis of silver nanoparticles of mentha oil (SNPMO) using AgNO₃. The synthesized IAM and biosynthesized SNPMO were characterized using IR, NMR & MASS spectrometry, and UV-Vis. Spectrometry respectively. The synthesized IAM and SNPMO were further evaluated for their antibacterial potential against *S. pneumoniae* using disk diffusion method. Study revealed high antibacterial potential of IAM when compared to SNPMO. Although, current study reports the new IAM as promising antibacterial agents for infectious meningitis, however, the new IAM should be further evaluated for its preclinical and clinical significance.

Key words: Synthesis; menthol; Imine; Silver nanoparticles; Meningitis; Characterization

1. INTRODUCTION

Facts suggests human microbiota to accommodate bacterial and human cells in the ratio of 1:1 [1-4]. A very small change in this ratio of might lead to different infectious diseases [5-8]. A minor change in this ratio invites countless infections in the human body. Infectious meningitis is generally caused by *S. pneumoniae* [9]. For meningitis treatment use of strong antibacterial agents is the first choice [10-12]. High use of antibacterial generally offers resistance development, which forces investigators to explore some new antibacterial moieties from synthetic and natural sources [13-32]. Phenols both from natural and synthetic sources exhibits strong antibacterial activity [33-72]. Several studies reported synthesis of various antibacterial agents, via esterification, hydrazination and imination [73-78]. Plants are rich source for the medicines in various indications such as cancer [79-99], cardiac disorders [100-104], ageing [105], arthritis [106,107], nephrotoxicity [108], infections [109-116], anti-inflammatory [117-123], parkinsonism [124], dengue [125-129], hyperlipidemia [130,131], diabetes [132-140], depression [141], hepatic disorders [142-151], Alzheimer disease [152,153], diabetes [154], neurodegeneration [155-164] and many other disorders [165-181]. Due to high phenolic content, they are reported to possess high antioxidant activity [182-195] and thereby maintain the health [196]. Studies highlight the importance of nanotechnology and biomaterials in drug development [197-267]. Nano-formulations, especially nanoparticles from natural sources always attract the investigators. Long range of application of silver nanoparticles (SNP) with improved antibacterial and other biological activities, among metallic nanocomposites always draws high researchers' attention [268-286]. Synthesis of SNP using plants source is common approach attributed to their environmental biosafety and cost effectiveness [287-300]. Economy of treatment is major factor that is considered while selection of modality for any treatment [301-303]. The phytomolecules may synergistically act with SNP and are applicable various food, medical and pharmaceutical industries. Phytochemicals act as reducing agent for green synthesis of SNP [304-317]. Therefore, based on the involvement of *S. pneumoniae* in meningitis, and importance of nanotechnology, and antibacterial agents both from natural and synthetic sources present study was intended to compare the effect of new imino analogue of menthol and silver nanoparticles of mentha oil (SNPMO) against meningitis causing bacteria.

2. MATERIAL AND METHODS

Reagents and chemicals for current study were procured from various companies such as: Sigma-Aldrich Co. (USA), Merck KGaA (Germany), and Hi-Media. Melting points of new compound was determined using Stuart SMP11 melting point apparatus and are uncorrected. The proton magnetic resonance (¹H-NMR) spectrum was recorded on a Bruker 400 MHz instrument using tetramethylsilane (TMS) as internal standard. Infrared (IR) spectrum was recorded using KBr on Shimadzu FT-IR 8300 instrument between 400 to 4000 cm⁻¹. Mass spectrum was recorded on JEOL DX 303 HF spectrometer with MASPEC SYSTEM (msw/9629) at 70 eV. Compounds purity was monitored by TLC.

Synthesis of N-(1-(4-aminophenyl)ethylidene)-2-((2S)-2-isopropyl-5-methylcyclohexyloxy) acetohydrazide (2)

Synthesis of compound 2 (IAM) was done based on standard literature with minor modification [4,5]. Briefly, hydrazide (1) was subjected to Schiff reaction by refluxing with 4-aminoacetophenone in equimolar concentration (0.001 M) using 1 drop of acetic acid for 8 hours. Obtained crude was recrystallized to offer pure compound 2. The reaction monitoring was done by TLC. Pale yellow crystals (yield: 82%, m.p.: 205 °C); IR spectrum (cm⁻¹): 3264 (N-H str.), 3069 (=C-H), 2929 (C-H str.), 1684 (C=O), and 1586 (C=N)); ¹H-NMR spectrum

(DMSO, ppm) δ : 1.04 (s, 3H, CH₃), 1.09 (d, 6H, (CH₃)₂), 1.15 (d, 3H, CH₃-7), 1.58 (m, 4H, CH₃-5 & CH₃-6), 1.61 (m, 1H, CH₃-1), 1.66 (m, 2H, CH₃-2), 1.71 (m, 1H, CH₃-4), 1.85 (m, 1H, CH₃-8), 3.15 (m, 2H, CH₃-3), 4.5 (s, 2H, NH₂), 4.83 (s, 2H, CH₂-C=O), 6.62-7.57 (m, 4H, Ar-H), 9.04 (s, 1H, CONH); Mass spectrum (m/z): 345 (M⁺)

Preliminary Phytochemical screening of mentha oil

The mentha oil was subjected to qualitative testing as per the standard procedure given in the literature [318-335].

Biosynthesis of SNPMO

Biosynthesis was done based on the standard literature with minor modifications [220,221]. Briefly, the mentha oil was diluted in acetone at a ratio of 1:150 and 1 mM of AgNO₃ solution was prepared and stirred on magnetic stirrer. 2 mL of the dilute mentha oil was added drop by drop into AgNO₃ solution with stirring until color of solution changed from colorless to brown. The mixture was next incubated at room temperature in dark overnight, followed by centrifugation for 15 min at 10,000 rpm to separate SNPMO and addition of few drops of distilled water to resultant SNPMO pellet. Finally, SNPMO pellet was scraped, dried and stored at room temperature.

Biological Evaluation

The newly synthesized IAM and SNPMO were further tested for their antibacterial activity against *S. pneumoniae* by modified disk diffusion method based on standard literature [336-352]. The experiment involved 90 mm circular Mueller-Hinton plates, and dissolution of IAM and SNPMO in 1 mL of acetone. For study, bacteria were grown to log phase overnight at 37 °C, followed by spreading of *S. pneumoniae* cultures onto the MH plates agar media, placement of discs of 6 mm diameters impregnated with 100 µg/mL solution of IAM and SNPMO, 50 µg/mL of gentamicin and acetone over MH plates agar media. Next, the plates were incubated for 24 h at 37 °C in triplicate, and finally the zones of inhibition of were measured on mm scale.

3. RESULTS AND DISCUSSION

Synthesis

For the synthesis of compound 2 firstly esterification of menthol was done based on standard literature with minor modification [65,72]. Briefly, menthol was refluxed with ethylchloroacetate in equimolar concentration for 17 hours. The synthesized ester was further hydrazinated using hydrazine hydrate in equimolar concentration. The obtained hydrazide was subjected to Schiff reaction on refluxing with 4-aminoacetophenone in equimolar concentration (0.001 M) following standard procedures with minor modification. Synthesized compound was further subjected to IR, 1H-NMR, and Mass spectral analysis. The scheme to synthesize compounds 2 is presented in figure 1.

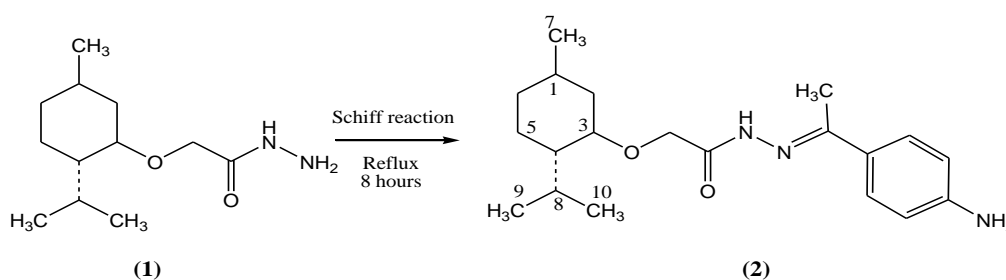


Figure 1: Scheme to synthesize compound 2 (IAM)

The synthesis and characterizations study result compound 2 (IAM) were also correlated with other studies [65-72]. This study successfully synthesized and elucidated structure of compound 2 (IAM), which correlates synthesis of IAM with its physical and chemical structures of present study [353,354].

Preliminary Phytochemical screening of mentha oil

The mentha oil was subjected to qualitative testing as per the procedure given in standard references [325-330] and group of compounds identified are presented in table 1.

Table1: Preliminary data for phytochemical screening of mentha oil

S. No.	Tests	Phytoconstituents
1	Carbohydrates	+
2	Terpenoids	+
3	Alkaloids	+
4	Flavonoids	+
5	Glycosides	+
6	Steroids and sterols	+
7	Tannins and Phenols	+
8	Saponins	+

Biosynthesis of SNPMO

The visual inspection and UV-Visible spectrometric analysis revealed successful synthesis of SNPMO. The visual color changes from yellow to brown after 60 min indicated the formation of SNPMO. The SNPMO synthesis was also confirmed by UV-Visible spectrometry, which offered an absorption spectrum containing curves 1, 2, & 3 (Figure 1). In figure 1, curve 1 represents AgNO_3 , curve 2 represents SNPMO, and curve 3 represents mentha oil. Appearance of SPR peak at 398 nm in curve 2 confirmed synthesis of SNPMO. In UV-Vis. spectrum, curve 3 of the mentha oil did not shown any signal near 406 nm.

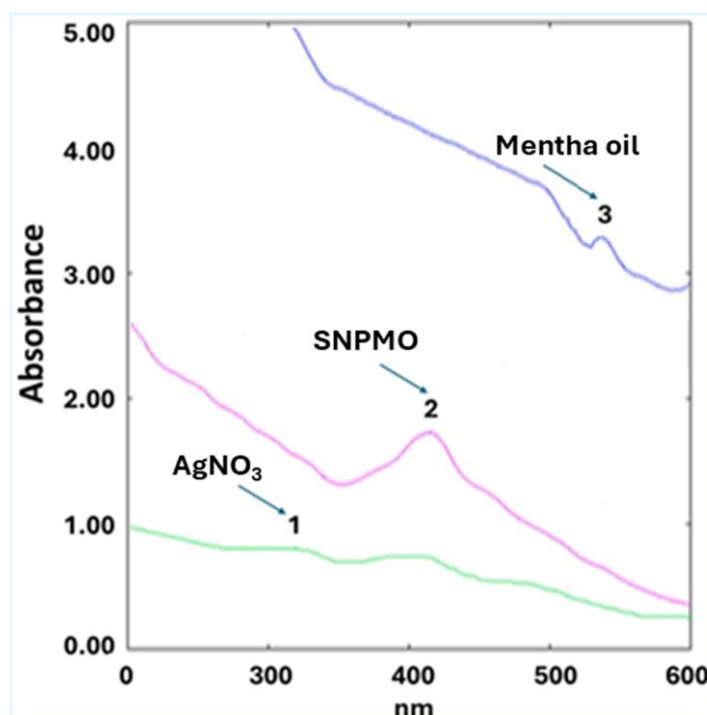


Figure 1. UV-Vis spectrum of AgNO_3 , SNPMO, and Mentha oil

Biological evaluation

The antibacterial activity of IAM, SNPMO and mentha oil was determined using standard protocols as mentioned in the experimental section. The inhibitory potential of IAM, SNPMO and mentha oil was determined against *S. pneumoniae* (the meningitis triggering pathogen). Table 2 presents the zones of inhibition (ZOI) exhibited by SNPMO and mentha oil.

Table 2: Antibacterial activity (Zone of inhibition)

Compound	Zone of inhibition in mm
2 (IAM)	22
SNPMO	21
Mentha oil	22
DMSO (10%)	-
Amoxycillin	25

After carrying out the antibacterial activity, it was found that compound 2 (IAM), SNPMO and dilute mentha oil possess good antibacterial activity against *S. pneumoniae* when compared with amoxycillin (+ve control). Also, the new compound 2 (IAM) exhibits higher inhibitory activity when compared with SNPMO. The results of present study are also compared with other studies. Hence based on the antibacterial activity it is clear that synthesized IAM and SNPMO can be indicated for meningitis treatment, however prior to that preclinical and clinical investigations are must.

4. CONCLUSION

Current study reveals that biosynthesis of SNPMO is eco-friendly, and cost-effective technique. In this study, compound 2 (IAM) and SNPMO exhibited good inhibitory potential against *S. pneumoniae*. Many studies highlighted the various mechanism of actions of phytomolecules [355-399]. Present study establishes mentha oil as an efficient biomaterial for the biosynthesis of silver nanoparticles. This study confirms that compared to SNPMO, and mentha oil, the compound 2 (IAM) exhibits the highest antibacterial potential against *S. pneumoniae*. Hence, current study establishes that synthesized IAM and SNPMO can be indicated for meningitis treatment, however prior to that preclinical and clinical investigations are must.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest.

5. REFERENCES

- Selvaraj S, Naing NN, Wan-Arfah N, Djearmane S, Wong LS, Subramaniyan V, Fuloria NK, Sekar M, Fuloria S, de Abreu MH. Epidemiological factors of periodontal disease among south indian adults. *Journal of Multidisciplinary Healthcare*. 2022:1547-57.
- Porwal O, Nee JL, Fuloria S. Response of hydroalcoholic extract of plumeria alba leaves against periodontal disease triggering microbiota. *NVEO-Natural Volatiles & Essential Oils Journal| NVEO*. 2021:14895-901.
- La Jun Ting N, Fuloria S, Subramaniyan V, Sharma PK, Unnikrishnan Meenakshi D, Chinnasamy V, Palanisamy SM, Fuloria NK. Response Of Various Extracts Of

- Manilkarazapota (L) Seeds Against Periodontitis Triggering Microbiota. NVEO-Natural Volatiles & Essential Oils Journal| NVEO. 2021:13047-63.
4. Sa'ad MA, Kavitha R, Fuloria S, Fuloria NK, Ravichandran M, Lalitha P. Synthesis, Characterization and Biological Evaluation of Novel Benzamidine Derivatives: Newer Antibiotics for Periodontitis Treatment. *Antibiotics*. 2022;11(2):207.
 5. Kavitha R, Sa'ad MA, Fuloria S, Fuloria NK, Ravichandran M, Lalitha P. Synthesis, characterization, cytotoxicity analysis and evaluation of novel heterocyclic derivatives of benzamidine against periodontal disease triggering bacteria. *Antibiotics*. 2023;12(2):306.
 6. Fuloria S, Ru CS, Paliwal N, Karupiah S, Sathasivam K, Singh S, Gupta K, Fuloria NK. Response of biogenic zinc oxide nanoparticles against periimplantitis triggering non-periodontal pathogen. *International Journal of Research in Pharmaceutical Sciences*. 2020;11(3):3889-96.
 7. Fuloria NK, Ko MY, Rui CS, Hang CZ, Karupiah S, Paliwal N, Kumari U, Gupta K, Sathasivam K, Fuloria S. Green synthesis and evaluation of dimocarpus longan leaves extract based chitosan nanoparticles against periodontitis triggering bacteria. *Asian Journal of Chemistry*. 2020;32(7):1660-6.
 8. Hang CZ, Fuloria NK, Hong OJ, Kim CB, Ting BY, Ru CS, Ko MY, Fuloria S. Biosynthesis of DLLAE blended silver nanoparticles and their response against periodontitis triggering bacteria. *International Journal of Research in Pharmaceutical Sciences*. 2020;11(2):1849-56.
 9. Fuloria NK, Fuloria S, Chia KY, Karupiah S, Sathasivam K. Response of green synthesized drug blended silver nanoparticles against periodontal disease triggering pathogenic microbiota. *Journal of Applied Biology and Biotechnology*. 2019;7(4):46.
 10. Gothwal SK, Goyal K, Garg AS, Sahu BK, Agrawal M, Mishra A, Singh Y, Subramaniyan V, Singla N, Hussain MS, Gupta G. A Rare Case of Brucellosis with Multivalvular Endocarditis and Complete Heart Block. *Current cardiology reviews*.
 11. Gupta R, Fuloria NK, Fuloria S. Synthesis and antimicrobial activity evaluation of some schiff bases derived from 2-aminothiazole derivatives. *Indonesian Journal of Pharmacy*. 2013;24(1):35-9.
 12. Nivatya HK, Singh A, Verma R, Varshney S. Review on: Synthesis and biological evaluation of different benzothiazole derivatives. *World J. Pharm. Pharm. Sci*. 2018;7:865-81.
 13. Mujafarkani N, Ahamed FM, Babu KS, Debnath S, Sayed AA, Albadrani GM, Al-Ghadi MQ, Kumarasamy V, Subramaniyan V, Kamaraj C, Abdel-Daim MM. Unveiling a novel terpolymer-metal complex: A detailed exploration of synthesis, characterization, and its potential as an antimicrobial and antioxidant agent. *Heliyon*. 2023 Oct 1;9(10).
 14. Sekar M, Hazlin Nadira MH, Fatin Shahirah AF, Syafina Syafawati MS, Nurul Noorain MZ, Muhammad Nafiz N, Mohd Syafiq A. Antibacterial Activity of the Methanolic Extract of *Hibiscus sabdariffa* Leaves and Fruits. *British Microbiology Research Journal* 2015;10:1-6.
 15. Dash GK, Sekar M, Syarifah Syamimi PA, Afzan M. Antibacterial Activity of *Muuaya koenigii* Against Few *Staphylococcus spp.* and Development of a Topical Cream. *Indo American Journal of Pharmaceutical Sciences* 2017;4(9):2976-2980
 16. Nurul Azima M, Shazalyana A, Nurin Fatini G, Puteri Zarith Sofea Y, Hikmah MI, Masitah I, Sekar M. Synergistic Antibacterial Activity of Mangiferin with Antibiotics against *Staphylococcus aureus*. *Drug Invention Today* 2019;12:14-17.
 17. Shivkanya J, Shilpa P, Sangita K, Neeraj F. Pharmacognostical studies and antibacterial activity of the leaves of *Murraya koenigii*. *Pharmacognosy Journal*. 2009 Oct 1;1(3).
 18. Fuloria SB, Fuloria NK, Bhargav KL. Anthelmintic activity of *Ferula foetida* Regel.

- Antiseptic, 107(2), 97, 2010.
19. Velu V, Fuloria N, Fuloria S, Panda J, Panda BP, Malipeddi H. In vitro and In vivo anti-urolithiatic activity of terpenoid-rich ethyl acetate extract of rhizomes of *Curcuma zedoaria*.
 20. Sharma PK, Fuloria S, Alam S, Sri MV, Singh A, Sharma VK, Kumar N, Subramaniyan V, Fuloria NK. Chemical composition and antimicrobial activity of oleoresin of *Capsicum annum* fruits. *Mindanao Journal of Science and Technology*. 2021;19(1).
 21. Jain A, Ravichandran M, Ugrappa S, Lalitha P, Wu YS, Noor SN, Fuloria S, Subramaniyan V, Fuloria NK. Synthesis, Characterization and Response of Newer Benzamidine Analogues against *Porphyromonas gingivalis* mediated Peri-Implantitis. *Asian Journal of Chemistry*. 2024;36(4):829-36.
 22. Reshma A, Tamilanban T, Chitra V, Subramaniyan V, Gupta G, Fuloria NK, Sekar M, Fuloria S, Sahu R, Narayanan J, Chakravarthy S. Anti-obesity effects of olivetol in adult zebrafish model induced by short-term high-fat diet. *Scientific reports*. 2023;13(1):18449.
 23. Amir Yusri MA, Sekar M, Wong LS, Gan SH, Ravi S, Subramaniyan V, Mat Rani NN, Chidambaram K, Begum MY, Ramar M, Safi SZ. Celastrol: A potential natural lead molecule for new drug design, development and therapy for memory impairment. *Drug Design, Development and Therapy*. 2023:1079-96.
 24. Nabihah Nasir N, Sekar M, Ravi S, Wong LS, Sisinthy SP, Gan SH, Subramaniyan V, Chidambaram K, Mat Rani NN, Begum MY, Ramar M, Safi SZ, Selvaraj S, Maruthu SKC, Fuloria S, Fuloria NK, Lum PT, Djearmane S. Chemistry, biosynthesis and pharmacology of streptonigrin: an old molecule with future prospects for new drug design, development and therapy. *Drug Design, Development and Therapy*. 2023:1065-78.
 25. Selvaraj LK, Jeyabalan S, Wong LS, Sekar M, Logeshwari B, Umamaheswari S, Premkumar S, Sekar RT, Begum MY, Gan SH, Izzati Mat Rani NN. Baicalein prevents stress-induced anxiety behaviors in zebrafish model. *Frontiers in Pharmacology*. 2022;13:990799.
 26. Sharma A, Sundaram S, Malviya R, Verma S, Fuloria NK, Fuloria S, Sekar M, Mishra N, Meenakshi DU. Patient care and treatment strategies for skin diseases in sub-Saharan Africa: Role of traditional and western medicines. *Infectious Disorders-Drug Targets (Formerly Current Drug Targets-Infectious Disorders)*. 2023;23(3):69-85.
 27. Kaur I, Behl T, Sehgal A, Singh S, Sharma N, Subramanian V, Fuloria S, Fuloria NK, Sekar M, Dailah HG, Alsubayiel AM. A motley of possible therapies of the COVID-19: reminiscing the origin of the pandemic. *Environmental Science and Pollution Research*. 2022;29(45):67685-703.
 28. Sekar M, Jeyabalan D, Bala L, Subramanian K, Jabaris SL, Wong LS, Subramaniyan V, Chidambaram K, Gan SH, Izzati NN, Begum MY. Neuropharmacological evaluation of *Morinda citrifolia* Linn fruits extract in animal models of obsessive-compulsive disorder. *Frontiers in Pharmacology*. 2022.
 29. Fuloria S, Sekar M, Khattulanuar FS, Gan SH, Rani NN, Ravi S, Subramaniyan V, Jeyabalan S, Begum MY, Chidambaram K, Sathasivam KV. Chemistry, biosynthesis and pharmacology of viniferin: potential resveratrol-derived molecules for new drug discovery, development and therapy. *Molecules*. 2022;27(16):5072.
 30. Fuloria S, Mehta J, Talukdar MP, Sekar M, Gan SH, Subramaniyan V, Rani NN, Begum MY, Chidambaram K, Nordin R, Maziz MN. Synbiotic effects of fermented rice on human health and wellness: a natural beverage that boosts immunity. *Frontiers in Microbiology*. 2022;13:950913.
 31. Malik MK, Kumar V, Sharma PP, Singh J, Fuloria S, Subrimanyan V, Fuloria NK, Kumar

- P. Improvement in digestion resistibility of mandua starch (*Eleusine coracana*) after cross-linking with epichlorohydrin. *ACS omega*. 2022;7(31):27334-46.
32. Balakumar P, Venkatesan K, Khan NA, Raghavendra NM, Venugopal V, Bharathi DR, Fuloria NK. Mechanistic insights into the beneficial effects of curcumin on insulin resistance: opportunities and challenges. *Drug Discovery Today*. 2023;28(7):103627.
 33. Thayumanavan G, Jeyabalan S, Fuloria S, Sekar M, Ravi M, Selvaraj LK, Bala L, Chidambaram K, Gan SH, Rani NN, Begum MY. Silibinin and Naringenin against Bisphenol A-Induced neurotoxicity in zebrafish model—Potential flavonoid molecules for new drug design, development, and therapy for neurological disorders. *Molecules*. 2022;27(8):2572.
 34. Mustafa NH, Sekar M, Fuloria S, Begum MY, Gan SH, Rani NN, Ravi S, Chidambaram K, Subramaniyan V, Sathasivam KV, Jeyabalan S. Chemistry, biosynthesis and pharmacology of sarsasapogenin: a potential natural steroid molecule for new drug design, development and therapy. *Molecules*. 2022;27(6):2032.
 35. Dahiya S, Dahiya R, Fuloria NK, Mourya R, Dahiya S, Fuloria S, Kumar S, Shrivastava J, Saharan R, Chennupati SV, Patel JK. Natural bridged bicyclic peptide macrobiomolecules from *celosia argentea* and *amanita phalloides*. *Mini Reviews in Medicinal Chemistry*. 2022;22(13):1772-88.
 36. Mohd Zaid NA, Sekar M, Bonam SR, Gan SH, Lum PT, Begum MY, Mat Rani NN, Vaijanathappa J, Wu YS, Subramaniyan V, Fuloria NK. Promising natural products in new drug design, development, and therapy for skin disorders: An overview of scientific evidence and understanding their mechanism of action. *Drug design, development and therapy*. 2023:23-66.
 37. Fuloria S, Yusri MA, Sekar M, Gan SH, Rani NN, Lum PT, Ravi S, Subramaniyan V, Azad AK, Jeyabalan S, Wu YS. Genistein: A potential natural lead molecule for new drug design and development for treating memory impairment. *Molecules*. 2022;27(1):265.
 38. Lum PT, Sekar M, Gan SH, Jeyabalan S, Bonam SR, Rani NN, Ku-Mahdzir KM, Seow LJ, Wu YS, Subramaniyan V, Fuloria NK. Therapeutic potential of mangiferin against kidney disorders and its mechanism of action: A review. *Saudi Journal of Biological Sciences*. 2022;29(3):1530-42.
 39. Watroly MN, Sekar M, Fuloria S, Gan SH, Jeyabalan S, Wu YS, Subramaniyan V, Sathasivam KV, Ravi S, Mat Rani NN, Lum PT. Chemistry, biosynthesis, physicochemical and biological properties of rubiadin: A promising natural anthraquinone for new drug discovery and development. *Drug design, development and therapy*. 2021:4527-49.
 40. Sharma P, Bajaj S, Fuloria S, Porwal O, Subramaniyan V. Ethnomedicinal and pharmacological uses of *Curcuma caesia*. *Nveo-Natural Volatiles & Essential OILS Journal| NVEO*. 2021:14902-10.
 41. Subramaniyan V, Fuloria S, Chakravarthi S, Aaleem AA, Jafarullah SM, Fuloria NK. Dental Infections and Antimicrobials. *Journal of Drug and Alcohol Research*. 2021;10(4):1-5.
 42. Barkatullah, Raul A, Ibrar M, Khan H, Bashir K, Fuloria S, Fuloria NK, Mabkhot YN, Naz H, Algarni H. Antimicrobial, cytotoxic and phytotoxic activities of *Skimmia laureola*. *Zeitschrift Fur Arznei- & Gewurzpflanzen*, 2020;25 (2):88-91.
 43. Dahiya R, Dahiya S, Fuloria NK, Kumar S, Mourya R, Chennupati SV, Jankie S, Gautam H, Singh S, Karan SK, Maharaj S. Natural bioactive thiazole-based peptides from marine resources: structural and pharmacological aspects. *Marine Drugs*. 2020;18(6):329.
 44. Sathasivam KV, Fuloria NK, Fuloria S, Darshenee PJ, Xavier R, Marimuthu K, Sundram K. Kinetic, equilibrium and thermodynamic studies on removal of Cu (II) and Pb (II) by activated carbon prepared from macro-algae (*Kappaphycus alvarezii*). *Asian Journal of*

- Chemistry. 2019;31(6):1343.
45. Singh A, Verma S, Al Jarari NM, Singh AP, Fuloria NK, Fuloria S, Sharma PK. Effect of piperine on pharmacokinetics of rifampicin and isoniazid: development and validation of high performance liquid chromatography method. *Journal of applied pharmaceutical science*. 2018 Mar 30;8(3):072-81.
 46. Khan H, Khan MA, Rauf A, Haleemi A, Fuloria S, Fuloria NK. Inhibition on Urease and Thermal Induced Protein Denaturation of commonly used Antiulcer Herbal Products. Study based on in-vitro assays. *Pharmacognosy Journal*. 2015;7(3).
 47. Sharma VK, Fuloria NK, Dhanaraj SA, Fuloria S, Vyas G. Optimization of formulation of micro-granules of acetylsalicylic acid using aqueous system. *World Journal of Pharmacy and Pharmaceutical Sciences*. 2014;3(3):2042-62.
 48. Supramanian K; Sekar M, Zahari I, Rashidah S, Ramaiah P, Aini A. Reliability and Validation of MSCEIT to Evaluate Emotional Intelligence for Chronic Kidney Disease Patients. *Journal of Liaquat University of Medical & Health Sciences*. 2024;31(40):60-64.
 49. Wu YS, Osman AI, Hosny M, Elgarahy AM, Eltaweil AS, Rooney DW, Chen Z, Rahim NS, Sekar M, Gopinath SCB, Rani NNIM, Batumalaie K, Yap PS. The Toxicity of Mercury and Its Chemical Compounds: Molecular Mechanisms and Environmental and Human Health Implications: A Comprehensive Review. *ACS Omega* 2024;9:5100-5126.
 50. Bhat AA, Gupta G, Goyal A, Thapa R, Almalki WH, Kazmi I, Alzarea SI, Kukreti N, Sekar M, Meenakshi DU, Singh SK, MacLoughlin R, Dua K. Unwinding circular RNA's role in inflammatory pulmonary diseases. *Naunyn Schmiedeberg's Archives of Pharmacology*. 2024;397:2567-2588.
 51. Osman AI, Hosny M, Eltaweil AS, Omar S, Elgarahy AM, Farghali M, Yap P, Wu Y, Nagandran S, Batumalaie, K, Gopinath, SCB, John, OD, Sekar M, Saikia T, Karunanithi P, Mohd Hatta MH, Akinyede KA. Microplastic sources, formation, toxicity and remediation: a review. *Environmental Chemistry Letters*. 2023;21:2129-2169.
 52. Velayutham NK, Thamaraiyani T, Wahab S, Khalid M, Ramachawolran G, Abullais SS, Wong LS, Sekar M, Gan SH, Ebenezer AJ, Ravikumar M, Subramaniyan V, Mat Rani NNI, Wu YS, Jeyabalan S. Stylopine: A potential natural metabolite to activate vascular endothelial growth factor receptor 2 (VEGFR2) in osteosarcoma therapy. *Frontiers in Pharmacology* 2023;14:1150270. doi:
 53. Subramanian S, Duraipandian C, Alsayari A, Ramachawolran G, Wong LS, Sekar M, Gan SH, Subramaniyan V, Seethalakshmi S, Jeyabalan S, Dhanasekaran S, Chinni SV, Mat Rani NNI, Wahab S. Wound healing properties of a new formulated flavonoid-rich fraction from *Dodonaea viscosa* Jacq. leaves extract. *Frontiers in Pharmacology*. 2023;14:1096905.
 54. Govindan SN, Singh HK, Ling LW, Sekar M. Effect of blended self-directed learning on nursing students: Quasi-experimental approach. *Journal of Education and Health Promotion*. 2023;12:229.
 55. Subramanian A, Tamilanban T, Alsayari A, Ramachawolran G, Wong LS, Sekar M, Gan SH, Subramaniyan V, Chinni SV, Rani NNIM, Suryadevara N, Wahab S. Trilateral association of autophagy, mTOR and Alzheimer's disease: Potential pathway in the development for Alzheimer's disease therapy. *Frontiers in Pharmacology* 2022;13:1094351.
 56. Al-Sunaidar KA, Aziz NA, Hassan Y, Jamshed S, Sekar M. Association of Multidrug Resistance Bacteria and Clinical Outcomes of Adult Patients with Sepsis in the Intensive Care Unit. *Tropical Medicine and Infectious Disease* 2022;7(11):365.
 57. Azman S, Sekar M, Wahidin S, Gan SH, Vaijanathappa J, Bonam SR, Alvala M, Lum PT, Thakur V, Beladiya VJ, Mehta AA. Embelin Alleviates Severe Airway Inflammation

- in OVA-LPS-Induced Rat Model of Allergic Asthma. *Journal of Asthma and Allergy* 2021;14:1511-1525.
58. Bonam SR, Sekar M, Guntuku GS, Nerella SG, Pawar AKM, Challa SR, Eswara GKMT, Mettu S. Role of pharmaceutical sciences in future drug discovery. *Future Drug Discovery* 2021;3(3):64.
 59. Supramanian K, Shahrudin R, Sekar M. Emotional Intelligence Using Ability Model in Context of Nursing and its Impact on End-Stage Renal Disease Patients: A Narrative Review. *International Journal of Current Research and Review*, 2021;13(16):151-158.
 60. Vetrivelan S, Shankar J, Gayathiri S, Ishwin S, Devi CH, Yaashini A, Sheerenjet G. Comparative evaluation of in vitro antibacterial and antioxidant activity using standard drug and polyherbal formulation. *Int J Phytopharm.* 2012;3:112-6.
 61. Muhamad Fadzil NS, Sekar M, Gan SH, Bonam SR, Wu YS, Vaijanathappa J, Ravi S, Lum PT, Dhadde SB. Chemistry, Pharmacology and Therapeutic Potential of Swertiamarin - A Promising Natural Lead for New Drug Discovery and Development. *Drug Design, Development and Therapy* 2021;15:2721-2746.
 62. Azman S, Sekar M, Bonam SR, Gan SH, Wahidin S, Lum PT, Dhadde SB. Traditional Medicinal Plants Conferring Protection Against Ovalbumin-Induced Asthma in Experimental Animals: A Review. *Journal of Asthma and Allergy* 2021;14:641-662.
 63. Fuloria SH, Fuloria NK, Sundram K, Kathiresan S, Saurabh S, Khushboo G, Ajay J, Ugrappa S, Malipeddi H, Shiva S. Synthesis and discerning of antibiotic potential of PCMX based novel azetidiones. *Acta Poloniae Pharmaceutica.* 2017;76(6):171-5.
 64. Fuloria NK, Fuloria SH, Sathasivam KA, Karupiah S, Balaji KA, Jin LW, Jade OD, Jing IC. Synthesis and discerning of antimicrobial potential of novel oxadiazole derivatives of chloroxylenol moiety. *Acta Poloniae Pharmaceutica.* 2017;74(4):1125.
 65. Chigurupati S, Fuloria NK, Fuloria S, Karupiah S, Veerasamy R, Nemala AR, Yi LJ, xiang Ilan A, Shah SA. Synthesis and antibacterial profile of novel azomethine derivatives of β -phenylacrolein moiety. *Tropical Journal of Pharmaceutical Research.* 2016;15(4):821-6.
 66. Fuloria S, Fuloria NK, Balaji K, Karupiah S, Sathasivam K, Jain A, Sridevi U, Himaja M. Synthesis and discerning of the antimicrobial potential of new azomethines derived from chloroxylenol. *Indian Journal of Heterocyclic Chemistry.* 2016;26(1-2):95-.
 67. Fuloria NK, Balaji K, Karupiah S, Sathasivam K, Jain A, Sridevi U, Himaja M. Synthesis, characterization and antimicrobial evaluation of 2-phenylpropanoic acid derived new oxadiazoles. *Indian Journal of Heterocyclic Chemistry.* 2016 Jul 1;1:2-37.
 68. Fuloria NK, Fuloria S, Balaji K, Karupiah S, Sathasivam K, Jain A, Sridevi U, Himaja M. Synthesis and evaluation of antimicrobial potential of novel oxadiazoles derived from tolyloxy moiety. *Indian Journal of Heterocyclic Chemistry.* 2016;26(3-4):101-5.
 69. Fuloria NK, Fuloria S, Balaji K, Sundram KM. Evidences of Antitubercular Potential of Novel Thiazolidinone Derivatives Bearing Chloroxylenol Moiety. *Malaysian Journal of Pharmacy.* 2015;2(1):67.
 70. Fuloria NK, Fuloria S, Gupta R. Synthesis and antimicrobial profile of newer Schiff bases and thiazolidinone derivatives. *International Journal of Pharmacological and Pharmaceutical Sciences.* 2014;8(12):1329-32.
 71. Gupta R, Fuloria NK, Fuloria S. Synthesis and antimicrobial profile of some newer 2-amino-thiazole derivatives. *Turkish Journal of Pharmaceutical Sciences.* 2013;10(3).
 72. Varshney MM, Husain A, Percha V, Fuloria N. Synthesis, characterization and biological evaluations of some 5-(substituted amino alkyl)-2- $\{(1, 3\text{-benzothiazole-2-yl})\}$ -thiazolidine-4 one Mannich bases as potent antibacterial agents. *Journal of Applied Pharmaceutical Science.* 2013;3(4):135-8.

73. Fuloria NK, Singh V, Yar MS, Ali M. Synthesis, characterization and antimicrobial evaluation of novel imines and thiazolidinones. *Acta Poloniae Pharmaceutica-Drug Research*. 2009;66(2):141-6.
74. Fuloria NK, Singh V, Shaharyar M, Ali M. Antimicrobial evaluation of imines and thiazolidinones derived from 3-phenyl propanehydrazide. *Acta Poloniae Pharmaceutica-Drug Research*. 2009 Jul 1;66(4):371-7.
75. Fuloria NK, Singh V, Shaharyar M, Ali M. Synthesis, characterization and biological studies of new schiff bases and azetidinones derived from propionic acid derivatives. *Asian Journal of Chemistry*. 2008;20(8):6457.
76. Fuloria NK, Singh V, Shaharyar M, Ali M. Synthesis, characterization and biological studies of novel imines and azetidinones derivatives of haloaryloxy moiety. *Asian Journal of Chemistry*. 2008;20(6):4891.
77. Fuloria NK, Singh V, Shaharyar M, Ali M. Synthesis and antimicrobial studies of novel imines and oxadiazoles. *Southern Brazilian Journal of Chemistry*. 2008;16(16):11-22.
78. Ajay J, Auwal M, Kavitha R, Dharshini J, Wu YS, Pattabhiraman L, Manickam R, Noor S NF, Fuloria S, Fuloria NK. Synthesis, Characterization and Biological Evaluation of New Benzimidine Derivatives: Antibiotics for Periimplantitis Causing Pathogen. *Asian Journal of Chemistry*. 2023;35(8).
79. Wu YS, Lee MF, Guad RM, Ozeer FZ, Velaga AP, Subramaniyan VE. Insights on Anticancer Activities, associated ahytochemicals and potential molecular mechanisms of *Quisqualis indica*: a Mini review. *Sains Malaysiana*. 2023;52(6):1749-58.
80. Rahim NS, Wu YS, Sim MS, Velaga A, Bonam SR, Gopinath SCB, Subramaniyan V, Choy KW, Teow S-Y, Fareez IM, Samudi C, Sekaran SD, Sekar M, Guad RM. Three Members of Transmembrane-4-Superfamily, TM4SF1, TM4SF4, and TM4SF5, as Emerging Anticancer Molecular Targets against Cancer Phenotypes and Chemoresistance. *Pharmaceuticals*. 2023;16(1):110.
81. Stephen A, Tune BX, Wu YS, Batumalaie K, Sekar M, Sarker MM, Subramaniyan V, Fuloria NK, Fuloria S, Gopinath SC. Withanone as an Emerging Anticancer Agent and Understanding Its Molecular Mechanisms: Experimental and Computational Evidence. *Current Cancer Drug Targets*. 2024.
82. Kumar N, Singh H, Gupta AK, Singh A, Fuloria N. Comparative study of the toxicity profile in patients receiving cisplatin-paclitaxel vs carboplatin paclitaxel in ovarian cancer. *World Journal of Pharmaceutical Research*. 2019 Jan 4;8(3):1063-70.
83. Yap KM, Sekar M, Seow LJ, Gan SH, Bonam SR, Mat Rani NN, Lum PT, Subramaniyan V, Wu YS, Fuloria NK, Fuloria S. *Mangifera indica* (Mango): A promising medicinal plant for breast cancer therapy and understanding its potential mechanisms of action. *Breast Cancer: Targets and Therapy*. 2021:471-503.
84. Yap KM, Sekar M, Wu YS, Gan SH, Rani NN, Seow LJ, Subramaniyan V, Fuloria NK, Fuloria S, Lum PT. Hesperidin and its aglycone hesperidin in breast cancer therapy: A review of recent developments and future prospects. *Saudi Journal of Biological Sciences*. 2021;28(12):6730-47.
85. Tune BXJ, Wu YS, Guad RM, Manap ASA, Afzal S, Batumalaie K, Choy KW, Fuloria NK, Fuloria S, Subramaniyan V, Sekar M. Preclinical Therapeutic Effects of Quercetin on Gastrointestinal Cancers. In: *Quercetin – Effects on Human Health*. IntechOpen, London, 2024.
86. Safi SZ, Saeed L, Shah H, Latif Z, Ali A, Imran M, Muhammad N, Emran TB, Subramaniyan V, Ismail IS. Mechanisms of β -adrenergic receptors agonists in mediating pro and anti-apoptotic pathways in hyperglycemic Müller cells.
87. Rizwi FA, Abubakar M, Puppala ER, Goyal A, Bhadrawamy CV, Naidu VG, Roshan S, Tazneem B, Almalki WH, Subramaniyan V, Rawat S. Janus kinase-signal transducer and

- activator of transcription inhibitors for the treatment and management of cancer. *Journal of Environmental Pathology, Toxicology and Oncology*. 2023;42(4).
88. De Rubis G, Paudel KR, Allam VS, Malyla V, Subramaniyan V, Singh SK, Panth N, Gupta G, Hansbro PM, Chellappan DK, Dua K. Involvement of osteopontin, EpCAM, estrogen receptor-alpha, and carbonic anhydrase IX protein in managing lung cancer via Berberine-loaded liquid crystalline nanoparticles. *Pathology-Research and Practice*. 2024 Jan 1;253:154971.
 89. Bharadwaj KK, Rabha B, Ahmad I, Mathew SP, Bhattacharjee CK, Jaganathan BG, Poddar S, Patel H, Subramaniyan V, Chinni SV, Ramachawolran G. Rhamnetin, a nutraceutical flavonoid arrests cell cycle progression of human ovarian cancer (SKOV3) cells by inhibiting the histone deacetylase 2 protein. *Journal of Biomolecular Structure and Dynamics*. 2023 Oct 25:1-6.
 90. Kazmi I, Altamimi AS, Afzal M, Majami AA, AlGhamdi AS, Alkinani KB, Al Abbasi F, Almalki WH, Alzera SI, Kukreti N, Fuloria NK. The emerging role of non-coding RNAs in the Wnt/ β -catenin signaling pathway in Prostate Cancer. *Pathology-Research and Practice*. 2024:155134.
 91. Varshney P, Kumar Y, Yadav D, Singh A, Kagithala NR, Sharma PK, Porwal O, Fuloria NK, Sharma PK, Gupta AK, Rao GS. A Systemic Review on Photodynamic Therapy: Emerging Technology with Healing Process. *Current Cancer Therapy Reviews*. 2024;20(3):283-306.
 92. Varshney P, Sharma V, Yadav D, Kumar Y, Singh A, Kagithala NR, Sharma PK, Porwal O, Fuloria NK, Sharma PK, Gupta AK. The impacts and changes related to the cancer drug resistance mechanism. *Current Drug Metabolism*. 2023;24(12):787-802.
 93. Mukherjee S, Nag S, Mukerjee N, Maitra S, Muthusamy R, Fuloria NK, Fuloria S, Adhikari MD, Anand K, Thorat N, Subramaniyan V. Unlocking exosome-based theragnostic signatures: deciphering secrets of ovarian cancer metastasis. *ACS omega*. 2023;8(40):36614-27.
 94. Bhat AA, Goyal A, Thapa R, Kazmi I, Alzarea SI, Singh M, Rohilla S, Saini TK, Kukreti N, Meenakshi DU, Fuloria NK. Uncovering the complex role of interferon-gamma in suppressing type 2 immunity to cancer. *Cytokine*. 2023;171:156376.
 95. Goh KW, Stephen A, Wu YS, Sim MS, Batumalaie K, Gopinath SC, Mac Guad R, Kumar A, Sekar M, Subramaniyan V, Fuloria NK. Molecular targets of aptamers in gastrointestinal cancers: Cancer detection, therapeutic applications, and associated mechanisms. *Journal of Cancer*. 2023;14(13):2491.
 96. Hussain MS, Afzal O, Kumar G, Altamimi AS, Almalki WH, Alzarea SI, Kazmi I, Fuloria NK, Sekar M, Meenakshi DU, Thangavelu L. Long non-coding RNAs in lung cancer: Unraveling the molecular modulators of MAPK signaling. *Pathology-Research and Practice*. 2023:154738.
 97. Ramli S, Sim MS, Guad RM, Gopinath SC, Subramaniyan V, Fuloria S, Fuloria NK, Choy KW, Rana S, Wu YS. Long noncoding RNA UCA1 in gastrointestinal cancers: molecular regulatory roles and patterns, mechanisms, and interactions. *Journal of oncology*. 2021;2021(1):5519720.
 98. Hamid UZ, Sim MS, Guad RM, Subramaniyan V, Sekar M, Fuloria NK, Fuloria S, Choy KW, Fareez IM, Bonam SR, Wu YS. Molecular regulatory roles of long non-coding RNA HOTTIP: an overview in gastrointestinal cancers. *Current molecular medicine*. 2022;22(6):478-90.
 99. Bhat AA, Afzal O, Afzal M, Gupta G, Thapa R, Ali H, Almalki WH, Kazmi I, Alzarea SI, Saleem S, Samuel VP. MALAT1: A key regulator in lung cancer pathogenesis and therapeutic targeting. *Pathology, research and practice*.;253:154991.
 100. Ze P, Yu CX, Jo LS, Subramaniyan V, Sharma PK, Meenakshi D, Chinnasamy V,

- Palanisamy S, Kishore N, Rajasekaran S, Adinarayana S. In-vitro antimicrobial activity of *Cymbopogon citratus* Stem extracts. *Journal of Cardiovascular Disease Research*. 2021;12(5):1121.
101. Khattulanuar FS, Sekar M, Fuloria S, Gan SH, Rani NN, Ravi S, Chidambaram K, Begum MY, Azad AK, Jeyabalan S, Dhiravidamani A. Tiliarin: A potential natural lead molecule for new drug design and development for the treatment of cardiovascular disorders. *Molecules*. 2022;27(3):673.
 102. Zuraini NZ, Sekar M, Wu YS, Gan SH, Bonam SR, Mat Rani NN, Begum MY, Lum PT, Subramaniyan V, Fuloria NK, Fuloria S. Promising nutritional fruits against cardiovascular diseases: An overview of experimental evidence and understanding their mechanisms of action. *Vascular health and risk management*. 2021:739-69.
 103. Singh S, Gupta K, Garg KN, Fuloria NK, Fuloria S, Jain T. Dental management of the cardiovascular compromised patient: a clinical approach. *Journal of Young Pharmacists*. 2017;9(4):453.
 104. Siti Nurul Najiha O, Lum PT, Gan SH, Shankar M, Sekar M. Protective Effect of Natural Products against Chemotherapy-Induced Cardiotoxicity: A Review. *Pharmacognosy Journal* 2020;12(5):1180-1189.
 105. Hussain MS, Altamimi AS, Afzal M, Almalki WH, Kazmi I, Alzarea SI, Gupta G, Shahwan M, Kukreti N, Wong LS, Kumarasamy V. Kaempferol: Paving the path for advanced treatments in aging-related diseases. *Experimental gerontology*.:112389.
 106. Chinnasamy V, Subramaniyan V, Chandiran S, Kayarohanam S, Kannian DC, Velaga VS, Muhammad S. Antiarthritic Activity of *Achyranthes Aspera* on Formaldehyde-Induced Arthritis in Rats. *Open Access Maced J Med Sci*.
 107. Sharma A, Sharma C, Sharma L, Wal P, Mishra P, Sachdeva N, Yadav S, Vargas De-La Cruz C, Arora S, Subramaniyan V, Rawat R. Targeting the vivid facets of apolipoproteins as a cardiovascular risk factor in rheumatoid arthritis. *Canadian Journal of Physiology and Pharmacology*. 2024 Feb 9;102(5):305-17.
 108. Subramaniyan V, Shaik S, Bag A, Manavalan G, Chandiran S. Potential action of *Rumex vesicarius* (L.) against potassium dichromate and gentamicin induced nephrotoxicity in experimental rats. *Pakistan journal of pharmaceutical sciences*. 2018 Mar 1;2:509-16.
 109. Rani NNIM, Hussein ZM, Mustapa F, Yi CX, Azhari H, Sekar M, Mohd Amin MCI. Exploring the Possible Targeting Strategies of Liposomes against Methicillin-Resistant *Staphylococcus aureus* (MRSA). *European Journal of Pharmaceutics and Biopharmaceutics* 2021;165:84-105.
 110. Nur Mursyida S, Sekar M, Gan SH, Lum PT, Vaijanathappa J, Ravi S. Resveratrol: Latest Scientific Evidences of its Chemical, Biological Activities and Therapeutic Potentials. *Pharmacognosy Journal* 2020;12(6s):1779-1791.
 111. Nurul Iman NF, Sekar M, Gan SH, Lum PT, Vaijanathappa J, Ravi S. Lutein: A Comprehensive Review on its Chemical, Biological Activities and Therapeutic Potentials. *Pharmacognosy Journal* 2020;12(6s):1769-1778.
 112. Siti Nurul Najiha O, Lum PT, Nurul Azima M, Puteri Zarith Sofea Y, Nurin Fatini G, Hikmah MI, Shazalyana A, Masitah I, Aina Akmal MN, Sekar M. Molecules of Interest – Embelin – A Review. *Research Journal of Pharmacy and Technology* 2020;13(7):3485-3493.
 113. Aina Akmal MN, Siti Nurul Najiha O, Lum PT, Shankar M, Shaikh MF, Sekar M. Molecules of Interest – Karanjin – A Review. *Pharmacognosy Journal* 2020;12(4):938-945.
 114. Siti Nurul Najiha O, Lum PT, Aina Akmal MN, Nurul Azima M, Puteri Zarith Sofea Y, Nurin Fatini G, Hikmah MI, Shazalyana A, Masitah I, Shankar M, Sekar M. Ten Commonly Available Medicinal Plants in Malaysia Used for Cosmetic Formulations – A

- Review. *International Journal of Research in Pharmaceutical Sciences* 2020;11(2):1716-1728.
115. Nurul Azima M, Shazalyana A, Nurin Fatini G, Puteri Zarith Sofea Y, Hikmah MI, Masitah I, Sekar M. Combinatory Effect of Embelin with Antibiotics against *Staphylococcus aureus*. *Drug Invention Today* 2019;12:18-20.
 116. Sekar M, Nur Asyikin I. Formulation and Evaluation of Embelin Emulgel for Topical Delivery. *International Journal of Green Pharmacy* 2019;13:60-64.
 117. Balasubramaniam G, Sekar M, Badami S. Analgesic and Anti-inflammatory Activities of *Strobilanthes kunthianus* in Experimental Animal Models. *Research Journal of Pharmacy and Technology* 2020;13(12):5844-5850.
 118. Sekar M, Nur Syahira AJ. Formulation and Evaluation of Novel Antibacterial and Anti-Inflammatory Cream Containing *Muntingia calabura* Leaves Extract. *Asian Journal of Pharmaceutical and Clinical Research* 2017;10(12):376-379
 119. Subramaniyan V, Paramasivam V. Potential anti-inflammatory activity of *Plumbago zeylanica*. *Asian Journal of Pharmaceutical and Clinical Research*. 2017 Oct;10(10):372-5
 120. Nasir NN, Sekar M, Fuloria S, Gan SH, Rani NN, Ravi S, Begum MY, Chidambaram K, Sathasivam KV, Jeyabalan S, Dhiravidamani A. Kirenol: a potential natural lead molecule for a new drug design, development, and therapy for inflammation. *Molecules*. 2022;27(3):734.
 121. Bajaj S, Fuloria S, Subramaniyan V, Meenakshi DU, Wakode S, Kaur A, Bansal H, Manchanda S, Kumar S, Fuloria NK. Chemical characterization and anti-inflammatory activity of phytoconstituents from *Swertia alata*. *Plants*. 2021;10(6):1109.
 122. Sekar M, Badami S, Ravi S, Thippeswamy BS, Veerapur VP. Synthesis and Evaluation of Analgesic and Anti-Inflammatory Activities of Most Active Free Radical Scavenging Derivatives of Mangiferin. *British Journal of Applied Science & Technology* 2014;4:4959-4973.
 123. Subramaniyan V. *Hemidesmus indicus* and usage for arthritic conditions. In *Bioactive Food as Dietary Interventions for Arthritis and Related Inflammatory Diseases* 2019 Jan 1 (pp. 507-521). Academic Press.
 124. Hussain MS, Moglad E, Afzal M, Sharma S, Gupta G, Sivaprasad GV, Deorari M, Almalki WH, Kazmi I, Alzarea SI, Shahwan M. Autophagy-associated non-coding RNAs: Unraveling their impact on Parkinson's disease pathogenesis. *CNS Neuroscience & Therapeutics*. 2024.
 125. Naveenkumar S, Kamaraj C, Prem P, Raja RK, Priyadharsan A, Alrefaei AF, Govindarajan RK, Thamarai R, Subramaniyan V. Eco-friendly synthesis of palladium nanoparticles using *Zaleya decandra*: Assessing mosquito larvicidal activity, zebrafish embryo developmental toxicity, and impacts on freshwater sludge worm *Tubifex tubifex*. *Journal of Environmental Chemical Engineering*. 2024 Apr 1;12(2):111912.
 126. Alagasamy SV, Fuloria S, Raju CS, Franklin F, Jagadeesan D, Saad MA, Veerasamy R, Karupiah S, Fuloria NK. Synthesis, characterization, cytotoxicity analysis and anti-dengue activity of newer nucleoside analogues. *Asian Journal of Chemistry*. 2023;35(5):1095
 127. Al Quwatli L, Lee MF, Wu YS, Poh CL, Batumalaie K, Ahemad N, Fuloria NK, Fuloria S, Sekar M, Subramaniyan V, Sarke MR. Antiviral Activity of Withanolide A Against Different Infectivity Phases of Dengue Virus Serotype 2 in Vero Cell Line. *Revista Brasileira de Farmacognosia*. 2024;34(3):609-17.
 128. Sekar M, Fara Nurliyana AD. Formulation and Evaluation of Natural Mosquito repellent liquid to prevent Dengue Mosquitos. *Annual Research and Review in Biology* 2017;18(1):1-6.

129. Guad RM, Wu YS, Aung YN, Sekaran SD, Wilke AB, Low WY, Sim MS, Carandang RR, Jeffree MS, Taherdoost H, Sunggip C. Different domains of dengue research in Malaysia: A systematic review and meta-analysis of questionnaire-based studies. *International Journal of Environmental Research and Public Health*. 2021;18(9).
130. Venkateshan S, Subramaniyan V, Chinnasamy V, Chandiran S. Anti-oxidant and anti-hyperlipidemic activity of *Hemidesmus indicus* in rats fed with high-fat diet. *Avicenna J Phytomed*. 2016;6(5):516-525.
131. Kayarohanam S, Subramaniyan V, Janakiraman AK, Kumar SJ. Antioxidant, antidiabetic, and antihyperlipidemic activities of dolichandrone atrovirens in albino Wistar rats. *Research Journal of Pharmacy and Technology*. 2019;12(7):3511-6.
132. Nivetha V, Subramaniyan V, Manikandan G, Manjula K. In vitro antidiabetic and antioxidant activities of the methanolic extract of *Alpinia purpurata* root. *Journal of Pharmacognosy and Phytochemistry*. 2019;8(3):1060-4.
133. Nag S, Stany B, Mishra S, Kumar S, Mohanto S, Ahmed MG, Mathew B, Subramaniyan V. Multireceptor Analysis for Evaluating the Antidiabetic Efficacy of Karanjin: A Computational Approach. *Endocrinology, Diabetes & Metabolism*. 2024 Jul;7(4):e509.
134. Dh HS, Sultana R, Prabhu A, Pavan SR, Mohanto S, Subramaniyan V. Biomedicine and pharmacotherapeutic effectiveness of combinatorial atorvastatin and quercetin on diabetic nephropathy: An in vitro study. *Biomedicine & Pharmacotherapy*. 2024 May 1;174:116533.
135. Nirenjen S, Narayanan J, Tamilanban T, Subramaniyan V, Chitra V, Fuloria NK, Wong LS, Ramachawolran G, Sekar M, Gupta G, Fuloria S. Exploring the contribution of pro-inflammatory cytokines to impaired wound healing in diabetes. *Frontiers in immunology*. 2023;14:1216321.
136. Zahoor I, Singh S, Behl T, Sharma N, Naved T, Subramaniyan V, Fuloria S, Fuloria NK, Bhatia S, Al-Harrasi A, Aleya L. Emergence of microneedles as a potential therapeutics in diabetes mellitus. *Environmental Science and Pollution Research*. 2021:1-21.
137. Sekar M, Zaid NAM, Rani NNIM, Gan SH. Use of Honey in Diabetes. In: Khalil MI, Gan SH, Goh BH. *Honey: Composition and Health Benefits*. (1st ed.). John Wiley & Sons Ltd. 2023; pp 210-219.
138. Sekar M, Muhammad Zulhilmi A, Ahmad Yasser Hamdi NA, Siti Nabila N, Zahida Z, Mohd Syafiq A. Ten Commonly Available Medicinal Plants in Malaysia Used for the Treatment of Diabetes – A Review. *Asian Journal of Pharmaceutical and Clinical Research* 2014;7:1-5.
139. Jaju SB, Indurwade NH, Sakarkar DM, Ali M, Fuloria NK. Antidiabetic and Antiinflammatory Studies of *Alpinia galanga* Rhizome. *Asian Journal of Chemistry*. 2011;23(3):1230.
140. Amin Z, Alkhatabi HA, Subramaniyan V, Alreemi RM, Husn M, Fayaz W, Thatsananchalee P, Khalid A, Shah SA, Wadood A. Therapeutic Potential of 6-Amino Flavone: A Novel Approach for Diabetes and Inflammation via TNF- α /p-IRS Signaling Pathway in Albino Mice.
141. Velmurugan C, Muthuramu T, Venkatesh S, Vetriselvan S. Anti-depressant activity of ethanolic extract of bark of *Ougeinia oojeinensis* (Roxb.) in mice. *International Journal of Biological and Pharmaceutical Research*. 2013;4(5):382-5.
142. Sekar M, Badami S, Geetha B. Antioxidant and Hepatoprotective Activity of Methanolic Extract of *Strobilanthes kunthianus* Flower. *Malaysian Journal of Public Health Medicine* 2013;13:132.
143. Vetriselvan S, Subasini U. Hepatoprotective activity of *Andrographis paniculata*. *International journal of Research in Pharmaceutical and Nano Sciences*. 2012;1(2):307-16.

144. Subramaniyan V, Lubau NS, Mukerjee N, Kumarasamy V. Alcohol-induced liver injury in signalling pathways and curcumin's therapeutic potential. *Toxicology Reports*. 2023 Oct 12.
145. Vakiloddin S, Fuloria N, Fuloria S, Dhanaraj SA, Balaji K, Karupiah S. Evidences of hepatoprotective and antioxidant effect of *Citrullus colocynthis* fruits in paracetamol induced hepatotoxicity. *Pak J Pharm Sci*. 2015;28(3):951-7
146. Singh I, Vetrivelvan S, Shankar J, Gayathiri S, Hemah C, Shereenjeet G, Yaashini A. Hepatoprotective activity of aqueous extract of *curcuma longa* in ethanol induced hepatotoxicity in albino wistar rats. *Int J Phytopharmacol*. 2012;3(3):226-33
147. Sivaraj A, Vinothkumar P, Sathiyaraj K, Sundaresan S, Devi K, Senthilkumar B. Hepatoprotective potential of *Andrographis paniculata* aqueous leaf extract on ethanol induced liver toxicity in albino rats. *Journal of Applied Pharmaceutical Science*. 2011 Aug 30(Issue):204-8.
148. Vetrivelvan S, Victor Rajamanikkam VR, Parimala Devi PD, Subasini S, Arun G. Comparative evaluation of hepatoprotective activity of *andrographis paniculata* and *Silymarin* in ethanol induced hepatotoxicity in albino wistar rats.
149. Kaur S, Vetrivelvan S, Hemah C, Gayathiri S, Yaashini A, Singh I, Shankar J. Hepatoprotective activity of aqueous extract of *Picrorhiza kurroa* in carbon tetrachloride (ccl4) induced hepatotoxicity in albino wistar rats. *Int J Pharm Ther*. 2012;3(2):207-14.
150. Subramaniam S, Hedayathullah Khan HB, Elumalai N, Sudha Lakshmi SY. Hepatoprotective effect of ethanolic extract of whole plant of *Andrographis paniculata* against CCl 4-induced hepatotoxicity in rats. *Comparative Clinical Pathology*. 2015 Sep;24:1245-51.
151. Wahab NW, Guad RM, Subramaniyan V, Fareez IM, Choy KW, Bonam SR, Selvaraju C, Sim MS, Gopinath SC, Wu YS. Human exfoliated deciduous teeth stem cells: features and therapeutic effects on neurogenerative and hepatobiliary-pancreatic diseases. *Current stem cell research & therapy*. 2021 Jul 1;16(5):563-76.
152. Subramanian A, Tamilanban T, Alsayari A, Ramachawolran G, Wong LS, Sekar M, Gan SH, Subramaniyan V, Chinni SV, Izzati Mat Rani NN, Suryadevara N. Trilateral association of autophagy, mTOR and Alzheimer's disease: Potential pathway in the development for Alzheimer's disease therapy. *Frontiers in Pharmacology*. 2022;13:1094351.
153. Khan F, Joshi A, Devkota HP, Subramaniyan V, Kumarasamy V, Arora J. Dietary glucosinolates derived isothiocyanates: chemical properties, metabolism and their potential in prevention of Alzheimer's disease. *Frontiers in Pharmacology*. 2023 Jul 17;14:1214881.
154. Gothwal SK, Goyal K, Barjatya HC, Bhakar BL, Dahiya R, Singh Y, Saini TK, Agrawal M, Subramaniyan V, Gupta G. Estimating the correlation between TYG and CIMT in non-diabetic adult patients. *Obesity Medicine*. 2022;35:100460.
155. Subramanian A, Tamilanban T, Sekar M, Begum MY, Atiya A, Ramachawolran G, Wong LS, Subramaniyan V, Gan SH, Mat Rani NN, Wu YS. Neuroprotective potential of *Marsilea quadrifolia* Linn against monosodium glutamate-induced excitotoxicity in rats. *Frontiers in pharmacology*. 2023;14:1212376.
156. Lum PT, Sekar M, Gan SH, Bonam SR, Shaikh MF. Protective Effect of Natural Products against Huntington's Disease: An Overview of Scientific Evidence and Understanding Their Mechanism of Action. *ACS Chemical Neuroscience* 2021;12:391-418
157. Lum PT, Sekar M, Gan SH, Pandey V, Bonam SR. Protective Effect of Mangiferin on Memory Impairment: A systematic review. *Saudi Journal of Biological Sciences* 2021;28(1):917-927.
158. Thippeswamy BS, Nagakannan P, Shivasharan BD, Mahendran S, Veerapur VP, Badami

- S. Protective Effect of Embelin from *Embelia ribes* against Global Ischemia-Induced Brain Damage in Rats. *Neurotoxicity Research* 2011;20:379-86.
159. Gupta G, Almalki WH, Kazmi I, Fuloria NK, Fuloria S, Subramaniyan V, Sekar M, Singh SK, Chellappan DK, Dua K. Current update on the protective effect of naringin in inflammatory lung diseases. *EXCLI journal*. 2022;21:573-9.
160. Lum PT, Sekar M, Seow LJ, Shaikh MF, Arulsamy A, Retinasamy T, Gan SH, Gnanaraj C, Esa NM, Ramachawolran G, Subramaniyan V, Chinni SV and Wu YS. Neuroprotective potency of mangiferin against 3-nitropropionic acid induced Huntington's disease-like symptoms in rats: possible antioxidant and anti-inflammatory mechanisms. *Frontiers in Pharmacology*. 2023;14:1189957.
161. Gupta G, Hussain MS, Thapa R, Dahiya R, Mahapatra DK, Bhat AA, Singla N, Subramaniyan V, Rawat S, Jakhmola V, Roshan S. Hope on the horizon: Wharton's jelly mesenchymal stem cells in the fight against COVID-19. *Regenerative Medicine*. 2023 Jul
162. Subramaniyan V, Kayarohanam S, Kumar JA, Kumarasamy V. Impact of herbal drugs and its clinical application. *International Journal of Research in Pharmaceutical Sciences*. 2019;10(2):1340-5.
163. Thapa R, Goyal A, Gupta G, Bhat AA, Singh SK, Subramaniyan V, Sharma S, Prasher P, Jakhmola V, Singh SK, Dua K. Recent developments in the role of protocatechuic acid in neurodegenerative disorders. *EXCLI journal*. 2023;22:595.
164. Singla M, Verma S, Thakur K, Goyal A, Sharma V, Sharma D, Porwal O, Subramaniyan V, Behl T, Singh SK, Dua K. From Plants to Therapies: Exploring the Pharmacology of Coumestrol for Neurological Conditions. *Current Medicinal Chemistry*. 2024.
165. Bajaj S, Fuloria NK, Fayaz F, Kumar B, Fuloria S, Pottoo FH. Bioactive Nutraceuticals for Amyotrophic Lateral Sclerosis. In *Exploring Complementary and Alternative Medicinal Products in Disease Therapy 2023* (pp. 1-37). IGI Global
166. Subramaniyan V, Fuloria S, Sekar M, Shamugavelu S, Vijeepallam K, Kumar U, Narain K, Meenakshi Du, Fuloria NK. Targeting Epigenetics in Inflammatory Lung Diseases. In: Balachandran V. *Introduction to lung diseases*. Springer nature, 2023. https://doi.org/10.1007/978-981-99-4780-5_1
167. Francis AP, Khan SA, Fuloria S, Fuloria NK, Meenakshi DU. Big Data and Precision Oncology in Healthcare. In *Big Data in Oncology: Impact, Challenges, and Risk Assessment* (pp. 47-74). River Publishers
168. Meenakshi DU, Ahuja A, Francis AP, Kishore N, Kurra P, Fuloria S, Fuloria NK. Big Data in Disease Diagnosis and Healthcare. In *Big Data in Oncology: Impact, Challenges, and Risk Assessment* (pp. 145-176). River Publishers
169. Verma A, Sharma A, Singh A, Malviya R, Fuloria NK. Digital Assistant in Pharmaceutical Field Advancing Healthcare System. In: Malviya R, Sundram S, Fuloria S, Meenakshi DU. *Pharmaceutical Industry 4.0: Future, Challenges & Application*. River Publishers, Denmark, 2023, 213-246
170. Fuloria S, Subramaniyan V, Sekar M, Wu YS, Chakravarthi S, Nordin RB, Sharma PK, Meenakshi DU, Mendiratta A, Fuloria NK. Introduction to microbiome. In *Microbiome in Inflammatory Lung Diseases 2022 Mar 26* (pp. 13-28). Singapore: Springer Nature Singapore.
171. Varshney S, Bharti M, Sundram S, Malviya R, Fuloria NK. The role of bioinformatics tools and technologies in clinical trials. In *Bioinformatics Tools and Big Data Analytics for Patient Care 2022 Aug 31* (pp. 1-16). Chapman and Hall/CRC
172. Mishra S, Sharma D, Srivastava SP, Raj K, Malviya R, Fuloria NK. Telemedicine: the immediate and long-term functionality contributing to treatment and patient guidance. In *Telemedicine: The Computer Transformation of Healthcare 2022 Aug 25* (pp. 267-

- 281). Cham: Springer International Publishing.
173. Meenakshi DU, Nandakumar S, Francis AP, Sweety P, Fuloria S, Fuloria NK, Subramaniyan V, Khan SA. Deep Learning and Site-Specific Drug Delivery: The Future and Intelligent Decision Support for Pharmaceutical Manufacturing Science. Deep Learning for Targeted Treatments: Transformation in Healthcare. 2022 Sep 16:1-38.
 174. Subramaniyan V, Fuloria NK, Fuloria S, Hazarika I. Drug Treatment of Diarrhea. In: Textbook of Pharmacology, P 493- 496, Thieme Publications, India, 2021.
 175. Supramanian K, Sekar M, Afendi NSHN. Chronic Kidney Disease: Etiology, Pathophysiology, and Management Strategies to Increase Quality of Life. IntechOpen, London, United Kingdom. In: Palleschi G, Rossi V. Exploring the Causes and Treatments of Chronic Kidney Disease. 2024: pp 1-22.
 176. Sekar M, Zuraini NZA, Rani NNIM, Lum PT, Gan SH. Antimicrobial Properties of Honey. In: Khalil MI, Gan SH, Goh BH. Honey: Composition and Health Benefits. (1st ed.). John Wiley & Sons Ltd. 2023; pp 186-196.
 177. Sekar M, Lum PT, Bonam SR, Gan SH. Use of Honey in Liver Disease. In: Khalil MI, Gan SH, Goh BH. Honey: Composition and Health Benefits. (1st ed.). John Wiley & Sons Ltd. 2023; pp 224-234.
 178. Sekar M, Lum PT, Bonam SR, Gan SH. Medicinal Benefits of Bee Venom. In: Khalil MI, Gan SH, Goh BH. Honey: Composition and Health Benefits. (1st ed.). John Wiley & Sons Ltd. 2023; pp 302-313.
 179. Sekar M, Azlan AYHN, Rani NNIM, Gan SH. Medicinal Properties of Stingless Bee Honey. In: Khalil MI, Gan SH, Goh BH. Honey: Composition and Health Benefits. (1st ed.). John Wiley & Sons Ltd. 2023; pp 314-329.
 180. Nandakumar S, Khan SA, Ganesan P, Sweety P, Francis AP, Sekar M, Rajagopalan R, Meenakshi DU. Deep Learning and Precision Medicine: Lessons to Learn for the Preeminent Treatment for Malignant Tumors. In: Malviya R, Ghinea G, Dhanaraj RK, Balusamy B, Sundram S. Deep Learning for Targeted Treatments: Transformation in Healthcare (1st ed.). 2022; pp 127-169.
 181. Singh S, Sundram S, Malviya R, Sekar M. In: Malviya R, Sharma PK, Sundram S, Dhanaraj RK, Balusamy B. Drug Development Using Cloud Application. In: Bioinformatics Tools and Big Data Analytics for Patient Care (1st ed.). Chapman and Hall/CRC. 2022; pp 159-180.
 182. Sekar M. Natural Products in Aging Skin. In: Victor Preedy & Vinood Patel. Aging: Oxidative Stress and Dietary Antioxidants (2nd ed.). Elsevier Publication, Academic Press. 2020; pp 267-273.
 183. Sekar M. Rambutan Fruits Extract in Aging Skin. In: Victor Preedy & Vinood Patel. Aging: Oxidative Stress and Dietary Antioxidants (2nd ed.). Elsevier Publication, Academic Press. 2020; pp 303-307.
 184. Subramaniyan V, Jegasothy R. Update on ethanol induced oxidative stress in liver toxicity and the effects of pregnancy. Indian Journal of Public Health. 2019 Aug 1;10(8):1800-4.
 185. Essa RZ, Wu YS, Batumalaie K, Sekar M, Poh C. Antiviral peptides against SARS-CoV-2: therapeutic targets, mechanistic antiviral activity, and efficient delivery. Pharmacological Reports 2022;74:1166-1181.
 186. Balaji K, Ni LH, Rajindran B, Sikarwar MS, Fuloria NK, Fuloria S. Determination of Total Phenolic, Flavonoid Content and Antioxidant Activity of Terminalia Chebula (Fruit). Research Journal of Pharmaceutical Biological And Chemical Sciences. 2015;6(2):413-7.
 187. Shivkanya F, Ganesheni S, Suah YT, Narmadevi V, Kumar FN, Mukesh SS, Balaji K, Karupiah S, Shantini V. Discerning the antioxidant and microkinetic potential of

- eucalyptus viminalis labill extracts. *Rapports De Pharmacie*. 2017; 2(4):304.
188. Balasubramaniam G, Sekar M, Badami S. *In-vitro* Antioxidant and Cytotoxic Properties of *Strobilanthes kunthianus*. *Research Journal of Pharmacy and Technology* 2021;14(5):2522-2528.
 189. Sekar M, Nur Fatin Z, Nuraina A, Nur Afiqah AA, Abdin Shakirin MN, Hafizati Izuan M, Nurul Syuhada S, Mohd Syafiq A. Comparative Antioxidant Properties of Methanolic Extract of Red and White Dragon Fruits. *International Journal of Current Pharmaceutical Research* 2016;8:56-58.
 190. Sekar M, Fathin Azara MB, Afikaah Shaan A, Suryani Hayati MS, Rumaisak A, Nur Iryani AR, Mohd Syafiq A. Comparative Evaluation of Antioxidant Properties of Methanolic Extract of Red and Green Custard Apple Fruits. *British Biotechnology Journal* 2015;9:1-6.
 191. Santoshkumar HD, Badami S, Ashok G, Mahendran S, Vijayan P, Suresh B. Cytotoxic and Antioxidant Properties of Four Plants Belonging to the genus *Solanum*. *Oriental Pharmacy and Experimental Medicine* 2008;8:86-92.
 192. Mahendran S, Badami S, Ravi S, Thippeswamy BS, Veerapur VP. Antioxidant, Analgesic and Anti-Inflammatory Studies of Novel Ninhydrin Adduct of Embelin. *Pharmaceutical Chemistry Journal* 2011;45:547-51.
 193. Velu V, Banerjee S, Radhakrishnan V, Gupta G, Chellappan DK, Fuloria NK, Fuloria S, Mehta M, Dua K, Malipeddi H. Identification of phytoconstituents of *Tragia involucrata* leaf extracts and evaluate their correlation with anti-inflammatory & antioxidant properties. *Anti-Inflammatory & Anti-Allergy Agents in Medicinal Chemistry (Formerly Current Medicinal Chemistry-Anti-Inflammatory and Anti-Allergy Agents)*. 2021;20(3):308-15.
 194. Mahendran S, Badami S, Ravi S, Thippeswamy BS, Veerapur VP. Synthesis and Evaluation of Analgesic and Anti-Inflammatory Activities of Most Active Antioxidant Derivatives of Embelin – A Structure Activity Relationship. *Chemical & Pharmaceutical Bulletin* 2011;59:913-9.
 195. Sekar M, Badami S, Ravi S, Thippeswamy BS, Veerapur VP. Synthesis and Evaluation of Analgesic and Anti-Inflammatory Activities of Most Active Antioxidant Derivatives of Embelin. *British Journal of Pharmaceutical Research* 2014;4:2182-2199.
 196. Subramaniyan V. Therapeutic importance of castor seed oil. In *Nuts and Seeds in Health and Disease Prevention* 2020 Jan 1 (pp. 485-495). Academic Press.
 197. Huq MZ, Abdullah JY, Wong LS, Jamayet NB, Alam MK, Rashid QF, Husein A, Ahmad WM, Eusufzai SZ, Prasad S, Subramaniyan V. Clinical applications of artificial intelligence and machine learning in children with cleft lip and palate—a systematic review. *International Journal of Environmental Research and Public Health*. 2022;19(17):10860.
 198. Sharma V, Singh A, Chauhan S, Sharma PK, Chaudhary S, Sharma A, Porwal O, Fuloria NK. Role of Artificial Intelligence in Drug Discovery and Target Identification in Cancer. *Current Drug Delivery*. 2024;21(6):870-86.
 199. Sharma V, Singh A, Chauhan S, Sharma PK, Chaudhary S, Sharma A, Porwal O, Fuloria NK. Role of Artificial Intelligence in Drug Discovery and Target Identification in Cancer. *Current Drug Delivery*. 2024;21(6):870-86.
 200. Teja TB, Sekar M, Pallavi T, Mettu S, Murthy TEG, Rani NNIM, Bramhachari PV, Bonam SR. Role of Artificial Neural Networks in Pharmaceutical Sciences. *Journal of Young Pharmacists* 2022;14(1):6-14.
 201. Aditi S, Ashish V, Akanksha S, Rishabha M, Sekar M. Use of Artificial Intelligence and Robotics: Making Drug Development Process Easier. In: Malviya R. *Pharmaceutical Industry 4.0: Future, Challenges & Application*. (1st ed.). River Publishers. 2023; pp.145-

- 186.
202. Sharma B, Verma A, Malviya R, Sekar M. Artificial-Intelligence-Based Cloud Computing Techniques for Patient Data Management. In: Malviya R, Chilamkurti N, Sundram S, Dhanaraj RK, Balusamy B. Artificial Intelligence for Health 4.0: Challenges and Applications (1st ed.). River Publishers. 2023; pp 1-25.
 203. Gangwal A, Ansari A, Ahmad I, Azad AK, Kumarasamy V, Subramaniyan V, Wong LS. Generative artificial intelligence in drug discovery: basic framework, recent advances, challenges, and opportunities. *Frontiers in Pharmacology*. 2024 Feb 7;15:1331062.
 204. Singh AK, Malviya R, Sundram S, Subramaniyan V. Big Data in Oncology: Extracting Knowledge from Machine Learning. In *Big Data in Oncology: Impact, Challenges, and Risk Assessment 2023* (pp. 77-104). River Publishers.
 205. Morais SR, K C, Jeyabalan S, Wong LS, Sekar M, Chidambaram K, Gan SH, Begum MY, Izzati Mat Rani NN, Subramaniyan V, Fuloria S. Anticancer potential of *Spirastrella pachyspira* (marine sponge) against SK-BR-3 human breast cancer cell line and in silico analysis of its bioactive molecule sphingosine. *Frontiers in Marine Science*. 2022;9:950880.
 206. Pandey A, Malviya R, Sundram S, Subramaniyan V. Issues and challenges in bioinformatics tools for clinical trials. *Pharmaceutical Industry 4.0: Future, Challenges & Application*. 2023:329-65.
 207. Debnath S, Elgorban AM, Bahkali AH, Eswaramoorthy R, Verma M, Syed A, Subramaniyan V, Kamaraj C, Wong LS, Kumarasamy V. Enhancing drought tolerance in cauliflower (*Brassica oleracea* var. botrytis) by targeting LFY transcription factor modulation via the ethylene precursor, ACCA: an innovative computational approach. *Frontiers in Plant Science*. 2024 Feb 28;15:1255979.
 208. Akash S, Baeza J, Mahmood S, Mukerjee N, Subramaniyan V, Islam MR, Gupta G, Rajakumari V, Chinni SV, Ramachawolran G, Saleh FM. Development of a new drug candidate for the inhibition of Lassa virus glycoprotein and nucleoprotein by modification of evodiamine as promising therapeutic agents. *Frontiers in microbiology*. 2023 Jul 11;14:1206872.
 209. Mehta J, Utkarsh K, Fuloria S, Singh T, Sekar M, Salaria D, Rolta R, Begum MY, Gan SH, Rani NN, Chidambaram K. Antibacterial Potential of *Bacopa monnieri* (L.) Wettst. and its bioactive molecules against uropathogens—an in silico study to identify potential lead molecule (s) for the development of new drugs to treat urinary tract infections. *Molecules*. 2022;27(15):4971.
 210. Gnanaraj C, Sekar M, Fuloria S, Swain SS, Gan SH, Chidambaram K, Rani NN, Balan T, Stephenie S, Lum PT, Jeyabalan S. In silico molecular docking analysis of karanjin against alzheimer's and parkinson's diseases as a potential natural lead molecule for new drug design, development and therapy. *Molecules*. 2022;27(9):2834.
 211. Sahoo A, Fuloria S, Swain SS, Panda SK, Sekar M, Subramaniyan V, Panda M, Jena AK, Sathasivam KV, Fuloria NK. Potential of marine terpenoids against SARS-CoV-2: An in silico drug development approach. *Biomedicines*. 2021;9(11):1505.
 212. Dhanasekaran S, Selvadoss PP, Manoharan SS, Jeyabalan S, Yaraguppi DA, Choudhury AA, Rajeswari VD, Ramanathan G, Thamaraikani T, Sekar M, Subramaniyan V, Shing WL. Regulation of NS5B Polymerase Activity of Hepatitis C Virus by Target Specific Phytotherapeutics: An In-Silico Molecular Dynamics Approach. *Cell Biochemistry and Biophysics*. 2024; <https://doi.org/10.1007/s12013-024-01359-w>
 213. Saa'd MA, Ravichandran M, Fuloria S, Pattabhiraman L, Ravichandran V, Yusop FFM, Fuloria M. Molecular Docking Study and QSAR Analysis of Coumarin Derivatives Against Coronavirus. *Asian Journal of Chemistry*. 2024;36(7):1609.

214. Thapa R, Ali H, Afzal O, Bhat AA, Almalki WH, Alzarea SI, Kazmi I, Altamimi AS, Jain N, Pandey M, Fuloria NK. Unlocking the potential of mesoporous silica nanoparticles in breast cancer treatment. *Journal of Nanoparticle Research*. 2023;25(8):169.
215. Santhoshkumar T, Govindarajan RK, Kamaraj C, Alharbi NS, Manimaran K, Yanto DH, Subramaniyan V, Baek KH. Biological synthesis of nickel nanoparticles using extracellular metabolites of *Bacillus Sphaericus*: Characterization and vector-borne disease control applications. *South African Journal of Botany*. 2023 Nov;162:481-94.
216. Kamaraj, C., Naveenkumar, S., Prem, P., Ragavendran, C., Subramaniyan, V., Al-Ghanim, K.A., Malafaia, G., Nicoletti, M. and Govindarajan, M., Green Synthesis: An Eco-Friendly Route for the Synthesis of Silver and Palladium Nanoparticles Using *Laureliopsis Philippiana* and Their Toxicity in Mosquitoes and Zebrafish Larvae. Available at SSRN 4481291
217. Shahalaei M, Azad AK, Sulaiman WM, Derakhshani A, Mofakham EB, Mallandrich M, Kumarasamy V, Subramaniyan V. AA review of metallic nanoparticles: present issues and prospects focused on the preparation methods, characterization techniques, and their theranostic applications review on present issues and prospects of metallic nanoparticles focused on the preparation methods, characterization techniques and their theranostics applications. *Frontiers in Chemistry*.;12:1398979.
218. Ullah W, Nawaz A, Alam Shah MK, Latif MS, Kumarasamy V, Subramaniyan V, Khan AA, Alanazi A, Mallandrich M, Sulaiman WM, Azad AK. Fabrication and in-vitro-in-vivo characterization of 5-FU and methotrexate loaded folic acid-chitosan conjugated nanoparticles. *Frontiers in Chemistry*.;12:1398951.
219. Nag S, Mitra O, Maturi B, Kaur SP, Saini A, Nama M, Roy S, Samanta S, Chacko L, Dutta R, Sayana SB. Autophagy and mitophagy as potential therapeutic targets in diabetic heart condition: Harnessing the power of nanotheranostics. *Asian Journal of Pharmaceutical Sciences*. 2024 Jun 1;19(3):100927.
220. Prem P, Naveenkumar S, Kamaraj C, Ragavendran C, Priyadharsan A, Manimaran K, Alharbi NS, Rarokar N, Cherian T, Sugumar V, Thiruvengadam M. *Valeriana jatamansi* root extract a potent source for biosynthesis of silver nanoparticles and their biomedical applications, and photocatalytic decomposition. *Green Chemistry Letters and Reviews*. 2024 Dec 31;17(1):2305142.
221. Kamaraj, C., Naveenkumar, S., Prem, P., Ragavendran, C., Subramaniyan, V., Al-Ghanim, K.A., Malafaia, G., Nicoletti, M. and Govindarajan, M., 2023. Green synthesis and biophysical characterization of silver and palladium nanoparticles using *Laureliopsis philippiana*: A potent eco-friendly larvicide with negligible impact on zebrafish (*Danio rerio*). *Journal of Asia-Pacific Entomology*, 26(4), p.102164.
222. Surya Teja SP, Damodharan N, Tamilanban T, Subramaniyan V, Chitra V, Chinni SV, Wong LS, Fuloria NK, Sekar M, Fuloria S, Ramachawolran G. Impact of nanocarrier aggregation on EPR-mediated tumor targeting. *Frontiers in Bioengineering and Biotechnology*. 2023;11:1222693.
223. Manimaran V, Nivetha RP, Tamilanban T, Narayanan J, Vetriselvan S, Fuloria NK, Chinni SV, Sekar M, Fuloria S, Wong LS, Biswas A. Nanogels as novel drug nanocarriers for CNS drug delivery. *Frontiers in Molecular Biosciences*. 2023;10:1232109.
224. Singh S, Hema, Sharma N, Sachdeva M, Behl T, Zahoor I, Fuloria NK, Sekar M, Fuloria S, Subramaniyan V, Alsubayiel AM. Focusing the pivotal role of nanotechnology in Huntington's disease: an insight into the recent advancements. *Environmental Science and Pollution Research*. 2022;29(49):73809-27. Rarokar N, Yadav S, Saoji S, Bramhe P, Agade R, Gurav S, Khedekar P, Subramaniyan V, Wong LS, Kumarasamy V. Magnetic nanosystem a tool for targeted delivery and diagnostic application: Current challenges and recent advancement. *International Journal of Pharmaceutics: X*. 2024 Jan 23:100231.

225. Puri A, Mohite P, Maitra S, Subramaniyan V, Kumarasamy V, Uti DE, Sayed AA, El-Demerdash FM, Algahtani M, El-Kott AF, Shati AA. From nature to nanotechnology: The interplay of traditional medicine, green chemistry, and biogenic metallic phytonanoparticles in modern healthcare innovation and sustainability. *Biomedicine & Pharmacotherapy*. 2024;170:116083.
226. Thomas D, Latha M, Thomas KK. Alginate/Chitosan nanoparticles for improved oral delivery of rifampicin: Optimization, characterization and in vitro evaluation. *Asian J. Chem*. 2018;30:736-40.
227. Ting BY, Fuloria NK, Subrimanyan V, Bajaj S, Chinni SV, Reddy LV, Sathasivam KV, Karupiah S, Malviya R, Meenakshi DU, Paliwal N. Biosynthesis and response of zinc oxide nanoparticles against periimplantitis triggering pathogens. *Materials*. 2022;15(9):3170.
228. Malviya R, Fuloria S, Verma S, Subramaniyan V, Sathasivam KV, Kumarasamy V, Kumar DH, Vellasamy S, Meenakshi DU, Yadav S, Sharma A. Commercial utilities and future perspective of nanomedicines. *PeerJ*. 2021;9:e12392.
229. Sharma N, Zahoor I, Sachdeva M, Subramaniyan V, Fuloria S, Fuloria NK, Naved T, Bhatia S, Al-Harrasi A, Aleya L, Bungau S. Deciphering the role of nanoparticles for management of bacterial meningitis: an update on recent studies. *Environmental Science and Pollution Research*. 2021:1-8.
230. Jha R, Singh A, Sharma PK, Porwal O, Fuloria NK. Graphene-based nanomaterial system: A boon in the era of smart nanocarriers. *Journal of Pharmaceutical Investigation*. 2021;51:245-80.
231. Fuloria S, Fuloria NK, Hong OJ, Kim CB, Ting BY, Karupiah S, Paliwal N, Kumari U, Sathasivam KK. Synthesis of SNPs of corn silk agrowaste and their bioactivities. *Asian Journal of Chemistry*. 2020;32(6):1497-504.
232. Malviya R, Raj S, Fuloria S, Subramaniyan V, Sathasivam K, Kumari U, Unnikrishnan Meenakshi D, Porwal O, Hari Kumar D, Singh A, Chakravarthi S. Evaluation of antitumor efficacy of chitosan-tamarind gum polysaccharide polyelectrolyte complex stabilized nanoparticles of simvastatin. *International journal of nanomedicine*. 2021:2533-53.
233. Chinni SV, Gopinath SC, Anbu P, Fuloria NK, Fuloria S, Mariappan P, Krusnamurthy K, Veeranjaneya Reddy L, Ramachawolran G, Sreeramanan S, Samuggam S. Characterization and antibacterial response of silver nanoparticles biosynthesized using an ethanolic extract of *Coccinia indica* leaves. *Crystals*. 2021;11(2):97.
234. Tan EP, Djearmane S, Wong LS, Rajamani R, Tanislaus Antony AC, Subbaih SK, Janakiraman AK, Aminuzzaman M, Subramaniyan V, Sekar M, Selvaraj S. An In Vitro Study of the Antifungal Efficacy of Zinc Oxide Nanoparticles against *Saccharomyces cerevisiae*. *Coatings* 2022; 12(12):1988.
235. Gadhave D, Rasal N, Sonawane R, Sekar M, Kokare C. Nose-to-brain Delivery of Teriflunomide-loaded Lipid-based Carbopol-gellan Gum Nanogel for Glioma: Pharmacological and In vitro Cytotoxicity Studies. *International Journal of Biological Macromolecules* 2021;167:906-920.
236. Puteri Zarith Sofea Y, Nurin Fatini G, Nurul Azima M, Lum PT, Aina Akmal MN, Shankar M, Sekar M. Synthesis and Characterization of Mangiferin Loaded *N,O*-CMC Nanoparticles and its Cytotoxic Effect on Osteosarcoma MG-63 Cells. *International Journal of Research in Pharmaceutical Sciences* 2020;11(2):2136-2145.
237. Rani NNIM, Alzubaidi ZM, Butt AM, Mohammad Faizal NDF, Sekar M, Azhari H, Mohd Amin MCI. Outer membrane vesicles as biomimetic vaccine carriers against infections and cancers. *Wiley Interdisciplinary Review Nanomedicine and Nanobiotechnology*. 2022:e1784.

238. Yap KM, Sekar M, Fuloria S, Wu YS, Gan SH, Mat Rani NN, Subramaniyan V, Kokare C, Lum PT, Begum MY, Mani S. Drug delivery of natural products through nanocarriers for effective breast cancer therapy: A comprehensive review of literature. *International Journal of Nanomedicine*. 2021;7891-941.
239. Malviya R, Fuloria NK, Fuloria S, Subramaniyan V, Meenakshi DU, Vneteddu VG, Dahiya R, Dahiya S, Narra K, Ganesan P. Nanoparticle formulation and method for preparation thereof 2021; Australian patent, Patent No. 2021101624.
240. Malviya R, Sundram S, Awasthi R, Mishra S, Jindal S, Srivastava SP, Raj K, Kumar V, Singh B, Balusam B, Dhanaraj RK. Acacia Chundra Gum Stabilized Highly Faced Nanoparticles for Controlled Drug Delivery. Australia patent. 2021(2021103637).
241. Malviya R, Fuloria NK, Fuloria S, Subramaniyan V, Wu YS, Chakravarthi S. Glass separator for nanoparticles. Indian patent, Application. 2021(337830-001).
242. Nurin Fatini G, Puteri Zarith Sofea Y, Nurul Azima M, Lum PT, Aina Akmal MN, Shankar M, Sekar M. Synthesis, Characterization, Antioxidant and Cytotoxic Studies of Embelin Loaded *N,O*-CMC Nanoparticles. *International Journal of Research in Pharmaceutical Sciences* 2020;11(2):1738-1747.
243. Fuloria S, Subramaniyan V, Karupiah S, Kumari U, Sathasivam K, Meenakshi DU, Wu YS, Guad RM, Udupa K, Fuloria NK. A comprehensive review on source, types, effects, nanotechnology, detection, and therapeutic management of reactive carbonyl species associated with various chronic diseases. *Antioxidants*. 2020;9(11):1075.
244. Siti Nurul Najiha O, Sekar M. *In-vitro* Antioxidant and Cytotoxic Activities of Silver Nanoparticles of Mangiferin Isolated from *Mangifera indica*. *Journal of Global Pharma Technology* 2019;11:10-15.
245. Siti Nurul Najiha O, Sekar M. *In-vitro* Antioxidant and Cytotoxic Activities of Silver Nanoparticles of Embelin Isolated from *Embelia ribes*. *Research Journal of Pharmacy and Technology* 2019;12:4080-4084.
246. Sekar M, Pandian S, Badami S & Anil TM. Preparation and Application of Plant Mediated Nanoparticles. In: PD Gupta & N Udupa. *Nanotechnology in Health Care* (1st ed.). S.P. Publications, Jaipur, India. 2011; pp 135-146.
247. Porwal O, Singh A, Singh SK, Fuloria NK, Patel DK, Chitranshi N, Gupta S, Varshney P. Patent Landscape of Nanopesticides, Nanoherbicides, and Nanofertilizers. In *Nanopesticides, Nanoherbicides, and Nanofertilizers 2024* (pp. 137-162). CRC Press.
248. Bhat AA, Thapa R, Goyal A, Subramaniyan V, Kumar D, Gupta S, Singh SK, Dua K, Gupta G. Curcumin-based nanoformulations as an emerging therapeutic strategy for inflammatory lung diseases. *Future Medicinal Chemistry*. 2023 May 4.
249. Malik MK, Bhatt P, Kumar T, Singh J, Kumar V, Faruk A, Fuloria S, Fuloria NK, Subramaniyan V, Kumar S. Significance of chemically derivatized starch as drug carrier in developing novel drug delivery devices. *The Natural Products Journal*. 2023;13(6):40-53.
250. Nag S, Mohanto S, Ahmed MG, Subramaniyan V. "Smart" stimuli-responsive biomaterials revolutionizing the theranostic landscape of inflammatory arthritis. *Materials Today Chemistry*. 2024 Jul 1;39:102178.
251. Pal J, Sharma M, Tiwari A, Tiwari V, Kumar M, Sharma A, Hassan Almalki W, Alzarea SI, Kazmi I, Gupta G, Kumarasamy V. Oxidative Coupling and Self-Assembly of Polyphenols for the Development of Novel Biomaterials. *ACS omega*. 2024 Apr 26;9(18):19741-55.
252. Rani S, Sharma U, Deshmukh MP, Kumar V, Sharma KC, Malik MK, Subramaniyan V. Immunomodulatory and AntiOxidant Potential of Polyherbal Dhatryadi Rasayana in the Form of Churna and Granules. *ACS omega*. 2024 Mar 19;9(13):14781-90.
253. Janakiraman AK, Afroze S, Chew YL, Yee YJ, Zenli C, Subramaniyan V, Kayarohanam

- S. An Expedition Towards Formulating Natural Face Serum with *Garcinia mangostana* (Mangosteen). *Current Trends in Biotechnology and Pharmacy*. 2023 Dec 13;17(4A (Supplement)):61-9.
254. Rarokar, N.R., Saoji, S.D., Deole, N.V., Gaikwad, M., Pandey, A., Kamaraj, C., Chinni, S.V., Subramaniyan, V., Ramachawolran, G. and Dharashivkar, S., 2023. Preparation and formula optimization of cephalixin loaded transferosomal gel by QbD to enhance the transdermal delivery: in vitro, ex vivo and in vivo study. *Journal of Drug Delivery Science and Technology*, 89, p.104968.
255. Dahiya R, Dahiya S, Fuloria NK, Jankie S, Agarwal A, Davis V, Sahadeo V, Radhay V, Ramsubhag Y, Mullings W, Langford Z. Natural Thiazoline-based cyclodepsipeptides from marine cyanobacteria: Chemistry, bioefficiency and clinical aspects. *Current Medicinal Chemistry*. 2021;28(38):7887-909.
256. Malviya R, Fuloria NK, Fuloria S, Subramaniyan V, Meenakshi DU, Nandkumar S. Polyacrylamide Grafted Tamarind Seed Gum Formulation and Method for Preparation Thereof. Australian patent, Patent. 2021(2021100876).
257. Lai J, Azad AK, Sulaiman WM, Kumarasamy V, Subramaniyan V, Alshehade SA. Alginate-based encapsulation fabrication technique for drug delivery: an updated review of particle type, formulation technique, pharmaceutical ingredient, and targeted delivery system. *Pharmaceutics*. 2024 Mar 6;16(3):370.
258. Bhat AA, Gupta G, Afzal M, Thapa R, Ali H, Alqahtani SM, almalki WH, Kazmi I, Alzarea SI, Saleem S, Subramaniyan V. Polyphenol-loaded nano-carriers for breast cancer therapy: a comprehensive review. *BioNanoScience*. 2024 Jan 10:1-9.
259. Kumar V, Kumarasamy V, Bhatt P, Dixit R, Kumar M, Shukla CP, Subramaniyan V, Kumar S. Ultrasound assisted techniques for starch modification to develop novel drug delivery systems: A comprehensive study. *Journal of bioactive and compatible polymers*. 2024 May:08839115241249143.
260. Malviya R, Mishra PR, Mishra R, Fuloria NK, Sundaram S, Fuloria S, Subramaniyan V, Meenakshi DU, Bajaj S, Mendiratta A, Islam M. An air-cooling device with smart antimicrobial features. South Africa patent. 2021(2021/4650).
261. Azad AK, Srikumar C, Fuloria NK, Fuloria S, Poovi G, Malviya R, Meenakshi DU, Mendiratta A, Patel TD, Seng WY, Sharma PK. Composition of a transdermal film for protein and peptidebased therapeutic drug delivery in a non-invasive way. Germany patent number DE202021105304U1. Application number DE202021105304U1. 2021.
262. Malviya R, Sharma PK, Md AA, Sundra S, Kishore N, Vanteddu VG, Verma S, Fuloria NK, Fuloria S, Verma S, Singh PK. Chronotherapeutic dosage form for the effective treatment of disease. Australia patent. 2021(2021107459).
263. Malviya R, Fuloria NK, Fuloria S, Subramanian V, Meenakshi DU, Sundram S, Kishore N, Dipakbhai TP, Vanteddu VG, Khan SA, Kurra P. Neem (*Azadirachita indica*) Gum Based in Situ Gelling System for Targeted Delivery of Simvastatin into Stomach. Australia patent. 2021(2021103679).
264. Malviya R, Mishra PR, Mishra R, Fuloria NK, Sundaram S, Fuloria S, Subramaniyan V, Meenakshi DU, Bajaj S, Mendiratta A, Islam M. An air-cooling device with smart antimicrobial features. South Africa patent. 2021(2021/4650).
265. Malviya R, Sundram S, Fuloria NK, Fuloria S, MP S, Subramaniyan V, Tiwari N, Unnikrishnan MD, Srivastava SP, Chauhan V, Mishra S. Method and Process to Develop Herbal Shampoo against *Pediculus Humanus Capitis De Geer* (Head Louse). Australia patent. 2021(2021104305).
266. Alavala RR, Awasthi R, Azad AK, Babu RN, B RR DN, Fuloria NK, Fuloria S, Malviya R, Meenakshi DU, Mohammad J, Rao GS. Eine Vorrichtung zur Herstellung von modifiziertem Babul-Gummi aus *Acacia Nilotica*. Patent no. G11839DE. Germany.

- 2022.
267. Malviya R, Sundram S, Alam MA, Mishra PS, Mishra R, Fuloria NK, Fuloria S, Subramaniam V, Gupta SK, Chaudhary S, Sharma PK. A formulation and a method to develop transdermal film for the delivery model protein drug through non-invasive route.
 268. Fuloria S, Fuloria NK, Yi CJ, Khei TM, Joe TA, Wei LT, Karupiah S, Paliwal N, Sathasivam K. Green Synthesis of Silver Nanoparticles Blended with Citrus Hystrix Fruit Juice Extract and their Response to Periodontitis Triggering Microbiota. *Bulletin of Environment, Pharmacology and Life Sciences*. 2019;8(7):112-23.
 269. Fuloria S, Ying CY, Xuan KY, Jun CT, Karupiah S, Kumari U, Fuloria NK. Determination of total phenolic content and antimicrobial potential of different extracts of Citrus hystrix DC leaves. *Bulletin of Environment, Pharmacology and Life Sciences*. 2020;;9(8): 112-116.
 270. Sathasivam K, Fuloria NK, Fuloria S, Karupiah S. Removal of Methylene Blue from Aqueous Solution Using Artocarpus Integer Agrowaste: Equilibrium, Kinetic and Thermodynamic Studies. *Bulletin of Environment, Pharmacology and Life Sciences*. 2019;8(3).
 271. Fuloria S, Mehta J, Chandel A, Sekar M, Rani NN, Begum MY, Subramaniam V, Chidambaram K, Thangavelu L, Nordin R, Wu YS. A comprehensive review on the therapeutic potential of Curcuma longa Linn. in relation to its major active constituent curcumin. *Frontiers in Pharmacology*. 2022;13:820806.
 272. Gupta R, Fuloria NK, Fuloria S. Synthesis & antimicrobial profile of some new heterocycles bearing thiazole moiety. *Southern Brazilian Journal of Chemistry*. 2012;20:20-61.
 273. Chauhan V, Fuloria NK, Fuloria S. Synthesis, characterization and comparative screening of some newer 2-phenyl indole and 5-chloro-2-phenyl indole derivatives. *Southern Brazilian Journal of Chemistry*. 2012;20(20):69-76.
 274. Fuloria NK, Singh V, Shaharyar M, Ali M. Synthesis and antimicrobial studies of novel imines and oxadiazoles. *Southern Brazilian Journal of Chemistry*. 2008;16(16):11-22.
 275. Fuloria NK, Singh V, Shaharyar M, Ali M. Synthesis and antimicrobial evaluation of some new oxadiazoles derived from phenylpropionhydrazides. *Molecules*. 2009 May 20;14(5):1898-903.
 276. Thippeswamy BS, Mahendran S, Biradar MI, Pooja R, Kamy S, Badami S, Veerapur VP. Protective Effect of Embelin against Acetic Acid Induced Colitis in Rats. *European Journal of Pharmacology* 2011;654:100-5.
 277. Mahendran S, Thippeswamy BS, Veerapur VP, Badami S. Anticonvulsant Activity of Embelin Isolated from *Embelia ribes*. *Phytomedicine* 2011;18:186-8.
 278. Maithili V, Dhanabal SP, Mahendran S, Vadivelan R. Antidiabetic Activity of Ethanolic Extract of Tubers of Dioscorea Alata In Alloxan Induced Diabetic Rats. *Indian Journal of Pharmacology* 2011;43:455-9.
 279. Mahendran S, Badami S, Ravi S, Thippeswamy BS, Veerapur VP. Synthesis and evaluation of analgesic and anti-inflammatory activities of most active free radical scavenging derivatives of Embelin—A Structure–Activity relationship. *Chemical and Pharmaceutical Bulletin*. 2011 Aug 1;59(8):913-9.
 280. Velayutham NK, Thamaraiyani T, Wahab S, Khalid M, Ramachawolran G, Abullais SS, Wong LS, Sekar M, Gan SH, Ebenezer AJ, Ravikumar M. Corrigendum: Stylopine: a potential natural metabolite to block vascular endothelial growth factor receptor 2 (VEGFR2) in osteosarcoma therapy. *Frontiers in Pharmacology*. 2024 Jan 17;15:1343756.
 281. Naghavi M, Ong KL, Aali A, Ababneh HS, Abate YH, Abbafati C, Abbasgholizadeh R, Abbasian M, Abbasi-Kangevari M, Abbastabar H, Abd ElHafeez S. Global burden of 288

- causes of death and life expectancy decomposition in 204 countries and territories and 811 subnational locations, 1990–2021: a systematic analysis for the Global Burden of Disease Study 2021. *The Lancet*. 2024 May 18;403(10440):2100-32.
282. Schumacher AE, Aali A, Abate YH, Abbasgholizadeh R, Abbasian M, Abbasi-Kangevari M, Abbastabar H, Abd ElHafeez S, Abd-Elsalam S, Abdollahi M, Abdollahifar MA. Global fertility in 204 countries and territories, 1950–2021, with forecasts to 2100: a comprehensive demographic analysis for the Global Burden of Disease Study 2021. *The lancet*. 2024.
283. Brauer M, Roth GA, Aravkin AY, Zheng P, Abate KH, Abate YH, Abbafati C, Abbasgholizadeh R, Abbasi MA, Abbasian M, Abbasifard M. Global burden and strength of evidence for 88 risk factors in 204 countries and 811 subnational locations, 1990–2021: a systematic analysis for the Global Burden of Disease Study 2021. *The Lancet*. 2024 May 18;403(10440):2162-203
284. Ferrari AJ, Santomauro DF, Aali A, Abate YH, Abbafati C, Abbastabar H, Abd ElHafeez S, Abdelmasseh M, Abd-Elsalam S, Abdollahi A, Abdullahi A. Global incidence, prevalence, years lived with disability (YLDs), disability-adjusted life-years (DALYs), and healthy life expectancy (HALE) for 371 diseases and injuries in 204 countries and territories and 811 subnational locations, 1990–2021: a systematic analysis for the Global Burden of Disease Study 2021. *The Lancet*. 2024 May 18;403(10440):2133-61
285. Bhattacharjee NV, Schumacher AE, Aali A, Abate YH, Mubarik S, Postma M, Li M. Global fertility in 204 countries and territories, 1950–2021, with forecasts to 2100: a comprehensive demographic analysis for the Global Burden of Disease Study 2021. *The Lancet*. 2024 Mar 20.
286. Das A, Sonar S, Kalele K, Subramaniyan V. Milk exosomes: Harnessing nature's duality for cancer therapy. *Clinical and Translational Discovery*. 2024 Aug;4(4):e349.
287. Wei ES, Kavitha R, Sa'ad MA, Lalitha P, Fuloria NK, Ravichandran M, Fuloria S. Development of a Simple Protocol for Zymogram-Based Isolation and Characterization of Gingipains from *Porphyromonas gingivalis*: The Causative Agent of Periodontitis. *Applied Sciences*. 2023;13(7):4314.
288. Thapa R, Afzal O, Kumar G, Bhat AA, Almalki WH, Alzarea SI, Kazmi I, Altamimi AS, Subramaniyan V, Thangavelu L, Singh SK. Unveiling the connection: long-chain non-coding RNAs and critical signaling pathways in breast cancer. *Pathology-Research and Practice*. 2023.
289. Janakiraman AK, Yap J, Sundarapandian R, Liew KB, Subramaniyan V, Kayarohanam S. Fabrication and characterization of cocoa butter-based caffeine fast-melting tablets. *Therapeutic Delivery*. 2024 Jun 10:1-1.
290. Ramkanth S, Janakiraman AK, Kayarohanam S, Subramaniyan V, Djearamane S. Design and Development of Losartan Potassium Press Coated Tablets for Pulsatile Drug Delivery.
291. Lakshmi NDK, Kayarohanam S, Fuloria S, Fuloria NK, Janakiraman AK, Djearamane S, Wu YS, Chakravarthi S, Subramaniyan V. COVID-19 Vaccine Candidates Under Clinical Evaluation - A Review. *International Journal of Pharmaceutical Research*. 2021;13(1):4588-4598.
292. Fuloria S, Jain A, Singh S, Hazarika I, Salile S, Fuloria NK. Regenerative potential of stem cells derived from human exfoliated deciduous (SHED) teeth during engineering of human body tissues. *Current Stem Cell Research & Therapy*. 2021;16(5):507-17.
293. Fuloria S, Wei LT, Karupiah S, Subramaniyan V, Gellknight C, Wu YS, Kayarohanam S, Fuloria NK. Development and validation of UV-visible method to determine gallic acid in hydroalcoholic extract of *Erythrina fusca* leaves. *International Journal of Research in Pharmaceutical Sciences*. 2020 Oct 7;11(4):6319-26.

294. Makkar S, Jain A, Ugrappa S, Fuloria N, Fuloria S. Obstructive sleep apnea: Diagnose the dental way. *Annals of Tropical Medicine and Public Health*. 2017;10(4):821.
295. Mundhe AV. Cocrystalization: an alternative approach for solid modification. *Journal of Drug Delivery and Therapeutics*. 2013;3(4):166-72.
296. Fuloria NK, Fuloria S, Wakiloddin S. Phase zero trials: a novel approach in drug development process. *Renal Failure*. 2013;35(7):1044-53.
297. Mundhe A, Fuloria NK, Pande S, Biyani K. BCS based biowaivers and their current regulatory issues. *Indo American Journal of Pharmaceutical Research*. 2013;3(6):4617-29.
298. Fuloria NK, Thosare S, Fuloria S, Balaji K, Dhanaraj SA. Design and evaluation of gastric floating Matrix tablets of an anti-hypertensive drug Perindropil erbumine. *World Journal of Pharmacy and Pharmaceutical Sciences*. 2013 Aug 5;2(5):3532-7.
299. Dhole A, Neerajkumar F. An overview on cleaning validation of API manufacturing plants. *Journal of Current Pharma Research*. 2013;4(1):1097.
300. Anuj G, Fuloria NK. Short review on Quality by design: A new Era of Pharmaceutical drug development. *International Journal of Drug Development and Research*. 2012;4(3):19-26.
301. Pande R, Khan H, Fuloria NK. Expectations, Believes, And Perceptions Of Investors Towards Environmental, Social, Governance (ESG) Investment For Sustainability. *Educational Administration: Theory and Practice*. 2024;24;30(2):1188-97.
302. Fuloria NK, Fuloria S, Kumar S, Singh A. *Fundamentals of Pharmacoeconomics*. Nirali Prakashan, India. 2017.
303. Fuloria NK, Fuloria S, Dhanaraj SA. Principles and practices of industrial management.
304. Balasubramaniam G, Sekar M, Badami S. Pharmacognostical, Physicochemical and Phytochemical Evaluation of *Strobilanthes kunthianus* (Acanthaceae). *Pharmacognosy Journal* 2020;12(4):731-741.
305. Vetrivelvan S, Felix AE, Magendran R, Ponnaiyakannan S, Prabakaran T, Shankar Jothi SJ, Revathy Davan RD. The phytochemical screening and the anti-ulcer activity of methanolic extract of *Ixora coccinea* Linn leaf.
306. Wu YS, Lee MF, Guad RM, Ozeer FZ, Velaga AP, Subramaniyan VE. Insights on Anticancer Activities, associated phytochemicals and potential molecular mechanisms of *Quisqualis indica*: a Mini review. *Sains Malaysiana*. 2023;52(6):1749-58.
307. Dahiya R, Dahiya S, Shrivastava J, Fuloria NK, Gautam H, Mourya R, Fuloria S. Natural cyclic polypeptides as vital phytochemical constituents from seeds of selected medicinal plants. *Archiv der Pharmazie*. 2021;354(4):2000446.
308. Rajan N, Debnath S, Perveen K, Khan F, Pandey B, Srivastava A, Khanam MN, Subramaniyan V, Kumarasamy V, Paul PJ, Lal M. Optimizing hybrid vigor: a comprehensive analysis of genetic distance and heterosis in eggplant landraces. *Frontiers in Plant Science*. 2023 Aug 31;14:1238870.
309. Ee JW, Velaga A, Guad RM, Subramaniyan V, Fuloria NK, Choy KW, Fuloria S, Wu YS. Deciphering *Synsepalum dulcificum* as an Arising Phytotherapy Agent: Background, Phytochemical and Pharmacological Properties with Associated Molecular Mechanisms. *Sains Malaysiana*. 2022;51(1):199-208.
310. Ozeer FZ, Nagandran S, Wu YS, Wong LS, Stephen A, Lee MF, Kijssomporn J, Guad RM, Batumalaie K, Oyewusi HA, Verma A. A comprehensive review of phytochemicals of *Withania somnifera* (L.) Dunal (Solanaceae) as antiviral therapeutics. *Discover Applied Sciences*. 2024;6(4):187.
311. Ramli S, Wu YS, Batumalaie K, Guad RM, Choy KW, Kumar A, Gopinath SC, Rahman Sarker MM, Subramaniyan V, Sekar M, Fuloria NK. Phytochemicals of *withania somnifera* as a future promising drug against SARS-CoV-2: pharmacological role,

- molecular mechanism, molecular docking evaluation, and efficient delivery. *Microorganisms*. 2023;11(4):1000.
312. Jaju S, Pahwa S, Fuloria N. Phytochemical and antimicrobial activity of stem and leaves of *Desmodium gangeticum* linn. *Hamdard medicus*. 2009;52(4):131-5.
313. Suman R, Singh M, Priya S, Almalki WH, Haniffa SM, Subramaniyan V, Fuloria S, Fuloria NK, Sekar M, Singh SK, Jha NK. Exploring the mechanistic perspective of a new anti-tumor agent: Melatonin. *Journal of Environmental Pathology, Toxicology and Oncology*. 2023;42(1):1-16.
314. Anwer ET, Porwal O, Visht S, Singh SK, Fuloria NK, Patel NC. Formulation and Evaluation of Cefotaxime Sodium Loaded Emulgel for Topical Bacterial Infections. *Eurasian Journal of Science & Engineering*. 2022;8(3): 105-121.
315. Fuloria NK, Fuloria S, Kathiresan S, Sundram KM, Balaji K. Principles and Practices of traditional, complementary and alternative medicine. Nirali Prakashan, India. 2017.
316. Shankar M, Balasubramaniam A, Gowrishankar NL, Mahendran S. Synthesis and Biological Evaluation of New Bis-indolyl (3-o-benzyl-1,2-o-isopropylidene-xylopentadialdose- α -d-glucofuranose). *Pharmaceutical Chemistry Journal* 2012;46:381-5.
317. Subramanian A, Kumarasamy V, Sekar M, Subramaniyan V, Wong LS. Design, Synthesis and Invitro Pharmacological Evaluation of Novel Resveratrol Surrogate Molecules against Alzheimer's disease. *Chemistry & Biodiversity*.:e202401430.
318. Subasini U, Thenmozhi S, Sathyamurthy D, Vetriselvan S, Victor Rajamanickam G, Dubey GP. Pharmacognostic and phytochemical investigations of *Dioscorea bulbifera* L. *International Journal of Pharmacy & Life Sciences*. 2013;4(5).
319. Jiea CK, Fuloria S, Subrimanyan V, Sekar M, Sathasivam KV, Kayarohanam S, Wu YS, Velaga VS, Janakiraman AK, Maziz MN, Fuloria NK. Phytochemical screening and antioxidant activity of *Cananga odorata* extract. *Research Journal of Pharmacy and Technology*. 2022;15(3):1230-4.
320. Subasini U, Thenmozhi S, Sathyamurthy D, Vetriselvan S, Victor Rajamanickam G, Dubey GP. Pharmacognostic and phytochemical investigations of *Dioscorea bulbifera* L. *International Journal of Pharmacy & Life Sciences*. 2013;4(5).
321. Fuloria NK, Raheja RK, Shah KH, Oza MJ, Kulkarni YA, Subramaniyan V, Sekar M, Fuloria S. Biological activities of meroterpenoids isolated from different sources. *Frontiers in Pharmacology*. 2022;13:830103.
322. Jaju SB, Indurwade NH, Sakarkar DM, Fuloria NK, Ali M, Basu SP. Galangoisoflavonoid isolated from rhizomes of *Alpinia galanga*. *Pharmacognosy Magazine*. 2009;5(19):209.
323. Jaju SB, Indurwade NH, Sakarkar DM, Fuloria NK, Ali MD, Das S, Basu SP. Galangoflavonoid isolated from rhizome of *Alpinia galanga* (L) Sw (Zingiberaceae). *Tropical Journal of Pharmaceutical Research*. 2009;8(6):545.
324. Jaju SB, Indurwade NH, Sakarkar DM, Fuloria NK, Ali M. Linolein-2-Stearin Phosphate and Linolenic Acid β -D- Glucoside: The Newer Isolates of *Alpinia galanga* Rhizomes. *Asian Journal of Chemistry*, 2009;21: 3892.
325. Jaju SB, Indurwade NH, Sakarkar DM, Fuloria NK, Ali M. Linoleic acid isolated from *Alpinia galanga*. *Nigerian Journal of Natural Products and Medicine*, 2009;12:310.
326. Fuloria NK, Fuloria S. Isolation of β -sitosterol di-arabinoside from rhizomes of *Alpinia galanga*. *International Journal of Pharmacological and Pharmaceutical Sciences*. 2012;6(12):676-8.
327. Jaju SB, Indurwade NH, Sakarkar DM, Fuloria NK, Ali MD, Basu SP. Isolation of β -sitosterol diglucosyl caprate from *Alpinia galanga*. *Pharmacognosy research*. 2010;2(4):264.

328. Jaju S, Indurwade N, Sakarkar D, Fuloria N, Al M. Isolation of galangogalloside from rhizomes of *Alpinia galanga*. *International Journal of Green Pharmacy (IJGP)*. 2009;3(2):144.
329. Jaju SB, Indurwade NH, Sakarkar DM, Ali M, Fuloria NK, Duragkar NJ. Isolation of β -Sitosterodiglucoside and β -Sitosteryl Arabinoside from Rhizomes *Alpinia galanga*. *Asian Journal of chemistry*. 2009 Mar 15;21(3):2350.
330. Sharma PK, Fuloria S, Ali M, Singh A, Kushwaha SP, Sharma VK, Subramaniyan V, Fuloria NK. Isolation of new phytometabolites from *Alpinia galanga* wild rhizomes. *Pakistan Journal of Pharmaceutical Sciences*. 2021;34(4).
331. Fuloria NK, Fuloria S, Sharma VK, Ali M, Singh A, Sharma PK. Isolation of new diterpene from methanolic extract of *Capsicum annum* Linn. fruits. *Pharmacognosy Magazine*. 2020;16(72).
332. Sekar M, Tuan Aimi N, Zalira SN, Syifa'a N, Meru Pratistha S, Putri Imana W, Mohd Syafiq A. Isolation and Characterization of Mucilage from Durian and Rambutan Seeds. *Indo American Journal of Pharmaceutical Sciences* 2015;2:523-528.
333. Balasubramaniam G, Sekar M, Ravi S, Badami S. Isolation and Structural Characterization of Phytoconstituents from *Strobilanthes kunthianus*. *Pharmacognosy Journal* 2020;12(6s):1605-1611. Mahendran S, Ravi S, Badami S, Suresh B. Isolation of 3,3'-dihydroxy flavonol 7-rhamnoside from *Hypericum hookerianum*. *Indian Journal of Heterocyclic Chemistry* 2008;18:103-104.
334. Sekar M, Hazirah B. Formulation and Evaluation of Antibacterial Ointment Containing Embelin Isolated from *Embelia ribes*. *International Journal of Green Pharmacy* 2018;12:S570-S574.
335. Bajaj S, Wakode S, Kaur A, Fuloria S, Fuloria N. Anti-inflammatory and ulcerogenic activity of newer phytoisolates of *Swertia alata* CB Clarke. *Natural Product Research*. 2021;35(23):5055-65.
336. Sekar M, Nurashikin AR. Formulation, Evaluation and Antibacterial Properties of Herbal Ointment Containing Methanolic Extract of *Clinacanthus nutans* Leaves. *International Journal of Pharmaceutical and Clinical Research* 2016;8:1170-1174.
337. Sekar M, Noor Jasmin SA. Formulation, Evaluation and Antibacterial Properties of Novel Polyherbal Toothpaste for Oral Care. *International Journal of Pharmaceutical and Clinical Research* 2016;8:1155-1158.
338. Azad AK, Lai J, Sulaiman WM, Almoustafa H, Alshehade SA, Kumarasamy V, Subramaniyan V. The fabrication of polymer-based curcumin-loaded formulation as a drug delivery system: an updated review from 2017 to the present. *Pharmaceutics*. 2024 Jan 24;16(2):160.
339. Aimi Muneerah S, Sekar M, Ahmad Zawawi M. Formulation and Evaluation of Antiaging Cream Containing Mangiferin. *International Research Journal of Pharmacy* 2018;9(6):55-59
340. Sekar M, Fouzia Hanim AH. Formulation and Evaluation of Natural Anti-Acne Cream Containing *Syzygium samarangense* Fruits Extract. *Annual Research and Review in Biology* 2017;17(3):1-7.
341. Azad AK, Sulaiman WM, Almoustafa H, Dayoob M, Kumarasamy V, Subramaniyan V, Alshehri JM, Khan AA. A dataset of microstructure features of electro-hydrodynamic assisted 5-fluorouracil-grafted alginate microbeads and physicochemical properties for effective colon targeted carriers drug delivery. *Data in Brief*. 2024 Apr 1;53:110202.
342. Sekar M, Nur Fatin Z. Development of Natural Latent Fingerprint Powder from Durian Seeds – A Green and Effective Approach in Crime Scene. *Indo American Journal of Pharmaceutical Sciences* 2017;4:2362-2367.
343. Sekar M, Afikaah SA, Ganesh SS, Vengata SM, Isaac Jason J, Phan AY. Formulation and

- Evaluation of Natural Ultrasound Gel for Physiotherapy Treatment. *Indo American Journal of Pharmaceutical Sciences* 2017;4:2548-2554.
344. Sekar M, Pavitra S, Afzan M. Formulation and Evaluation of Novel Antiaging Cream Containing Rambutan Fruit Extract. *International Journal of Pharmaceutical Sciences and Research* 2017;8:1056-1065.
345. Khor PY, Sekar M, Mohammed Tahir A. Developing an outcome-based pharmaceutical curriculum: an evaluation based on triangulation method. *Indian Journal of Pharmaceutical Education and Research* 2016;50:534-541.
346. Sekar M, Haleeda Aqeela Merican NMN. Formulation and Evaluation of Herbal Shampoo Containing Rambutan Fruits Extract. *International Journal of Pharma and Bio Sciences* 2016;7:146-151.
347. Sekar M, Muhammad Zulhilmi A. Formulation, Evaluation and Antimicrobial Properties of Polyherbal Toothpaste. *International Journal of Current Pharmaceutical Research* 2016;8:105-107.
348. Sekar M. Molecules of Interest – Mangiferin - A Review. *Annual Research & Review in Biology* 2014;5:307-320.
349. Sekar M, Fatin Nabila AJ, Nur Hasyimah Z, Nur Izzati M, Nurul Ain Z, Ramizatul Annisa K, Mohd Syafiq A. Comparative Evaluation of Antimicrobial Properties of Red and Yellow Rambutan Fruit Peel Extracts. *Annual Research & Review in Biology* 2014;4:3869-3874.
350. Sekar M, Nandakogulnair S, Danial Amani M, Shaiful MH, Shazni M, Kang Wei M, Istiazzul M, Mohd Syafiq A. Comparative Evaluation of Antimicrobial Properties of Red and Yellow Watermelon Seeds. *International Journal of Current Pharmaceutical Research* 2014;6:35-37
351. Sekar M, Chong PT, Mohd Syafiq A, Nalina K. Comparative Evaluation of Antimicrobial Properties of Red and White Ginger. *Asian Journal of Pharmaceutical and Clinical Research* 2014;7:108-10
352. Sekar M, Nor Safwan Hadi NA, Puteri Nurul Fatimah DB, Zakiah Syahirah MH, Ezza Izzaty MN, Nalina K, Mohd Syafiq A. Comparative Evaluation of Antimicrobial Properties of Citrus Varieties Available in Malaysia Market. *International Journal of Current Pharmaceutical Research* 2013;5:32-5.
353. Fuloria NK, Fuloria S. Structural elucidation of small organic molecules by 1D, 2D and multi-dimensional-solution NMR spectroscopy. *J. Anal. Bioanal. Tech.* 2013;4:1-8.
354. Kumar N, Fuloria S. Spectroscopy: Fundamentals and Data Interpretation. Studium Press; 2013.
355. Fuloria S, Yadav G, Menon SV, Ali H, Pant K, Kaur M, Deorari M, Sekar M, Narain K, Kumar S, Fuloria NK. Targeting the Wnt/ β -Catenin Cascade in Osteosarcoma: The Potential of ncRNAs as Biomarkers and Therapeutics. *Pathology-Research and Practice.* 2024:155346.
356. Bhat AA, Gilhotra RM, Thapa R, Subramaniyan V, Singh SK, Yadav HK, Dave P, Singla N, Gupta G. Synergistic Welfare of Synbiotic Nutraceuticals on Neurological Function.
357. Hayat C, Subramaniyan V, Alamri MA, Wong LS, Khalid A, Abdalla AN, Afridi SG, Kumarasamy V, Wadood A. Identification of new potent NLRP3 inhibitors by multi-level in-silico approaches. *BMC chemistry.* 2024 Apr 18;18(1):76.
358. Bogadi S, Rao P, KU V, Kuppusamy G, Madhunapantula SV, Subramaniyan V, Satyanarayana Reddy Karri VV, Aswathanarayan JB. Management of biofilm-associated infections in diabetic wounds—from bench to bedside. *Pure and Applied Chemistry.* 2024 May 14(0).

359. Mir SA, Nayak B, Aljarba NH, Kumarasamy V, Subramaniyan V, Dhara B. Exploring KRas Protein Dynamics: An Integrated Molecular Dynamics Analysis of KRas Wild and Mutant Variants. *ACS omega*. 2024 Jul 1.
360. Rizwi FA, Abubakar M, Puppala ER, Goyal A, Bhadrawamy CV, Naidu VG, Roshan S, Tazneem B, Almalki WH, Subramaniyan V, Rawat S. Janus kinase-signal transducer and activator of transcription inhibitors for the treatment and management of cancer. *Journal of Environmental Pathology, Toxicology and Oncology*. 2023;42(4).
361. Hussain S, Gupta G, Shahwan M, Bansal P, Kaur H, Deorari M, Pant K, Ali H, Singh SK, Allam VS, Paudel KR. Non-coding RNA: A key regulator in the Glutathione-GPX4 pathway of ferroptosis. *Non-coding RNA Research*. 2024 Dec 1;9(4):1222-34.
362. Wan-Arfah N, Muzaimi M, Naing NN, Subramaniyan V, Wong LS, Selvaraj S. Prognostic factors of first-ever stroke patients in suburban Malaysia by comparing regression models. *Electronic Journal of General Medicine*. 2023 Nov 1;20(6):em545.
363. Mukhopadhyay M, Mukherjee A, Ganguli S, Chakraborti A, Roy S, Choudhury SS, Subramaniyan V, Kumarasamy V, Sayed AA, El-Demerdash FM, Almutairi MH. Marvels of Bacilli in soil amendment for plant-growth promotion toward sustainable development having futuristic socio-economic implications. *Frontiers in microbiology*. 2023 Dec 7;14:1293302.
364. Dhar J, Hazra A, Patra R, Kumar V, Subramaniyan V, Kumarasamy V, Mitra AK, Sayed AA, Aleya L, El-Demerdash FM, Almutairi MH. Unveiling *Curvularia tuberculata*-induced leaf anomalies in *Rhododendron ferrugineum*: implications in cultural-ecological conservation and harnessing microbial intervention in socio-economic advancement. *Frontiers in Microbiology*. 2024 Jan 11;14:1280120.
365. Gholap AD, Gupta J, Kamandar P, Bhowmik DD, Rojekar S, Faiyazuddin M, Hatvate NT, Mohanto S, Ahmed MG, Subramaniyan V, Kumarasamy V. Harnessing nanovaccines for effective immunization— a special concern on COVID-19: facts, fidelity, and future prospective. *ACS biomaterials science & engineering*. 2023 Dec 14;10(1):271-97.
366. Alharbi HM, Alqahtani T, Alamri AH, Kumarasamy V, Subramaniyan V, Babu KS. Nanotechnological synergy of mangiferin and curcumin in modulating PI3K/Akt/mTOR pathway: a novel front in ovarian cancer precision therapeutics. *Frontiers in Pharmacology*. 2024 Jan 4;14:1276209.
367. Kumarasamy V, Rajamanikam A, Anbazhagan D, Atroosh WM, Azzani M, Subramaniyan V, Abdullah SR. Systematic review and meta-analysis: Epidemiology of human *Blastocystis* spp. infection in Malaysia. *Tropical Medicine and Infectious Disease*. 2023 Aug 15;8(8):415.
368. Mukerjee N, Maitra S, Ghosh A, Sengupta T, Alexiou A, Subramaniyan V, Anand K. Synergizing proteolysis-targeting chimeras and nanoscale exosome-based delivery mechanisms for HIV and antiviral therapeutics. *ACS Applied Nano Materials*. 2024 Feb 8;7(4):3499-514.
369. Mohite P, Yadav V, Pandhare R, Maitra S, Saleh FM, Saleem RM, Al-Malky HS, Kumarasamy V, Subramaniyan V, Abdel-Daim MM, Uti DE. Revolutionizing Cancer Treatment: Unleashing the Power of Viral Vaccines, Monoclonal Antibodies, and Proteolysis-Targeting Chimeras in the New Era of Immunotherapy. *ACS omega*. 2024 Feb 5;9(7):7277-95.
370. Bhat AA, Gupta G, Dahiya R, Thapa R, Gahtori A, Shahwan M, Jakhmola V, Tiwari A, Kumar M, Dureja H, Singh SK. CircRNAs: Pivotal modulators of TGF- β signalling in cancer pathogenesis. *Non-coding RNA Research*. 2024 Jun;9(2):277-87.
371. Hang LJ, Subramaniyan V, Xiaojun K, bin Abu Bakar MH, Wei TZ, Alshtaiwi MJ, Ling LW, Ambihabathy K, Azzani M. Influence of medication error among medical and non-

- medical students in a Malaysian university. *Journal of Young Pharmacists*. 2019;11(4):399.
372. Mukerjee N, Maitra S, Ghosh A, Subramaniyan V, Sharma R. Exosome-mediated PROTACs delivery to target viral infections. *Drug development research*. 2023 Sep;84(6):1031-6.
373. Ujjwal P, Sanjita D, Kumar FN. A Comprehensive Review on Obsessive-Compulsive Disorder: An Update. *Pharmacophore*. 2024;15(2-2024):54-62.
374. Yusof B, Kamal I, Lee KM, Chai SK, Zuo XL, Ravichandran M, Ding KX, Fuloria NK, Tham SK. A case series on safety and tolerability of human umbilical cord-derived mesenchymal stem cells on patients in Malaysia. *SAGE Open Medical Case Reports*. 2024;12:2050313X241249622.
375. Kazmi I, Altamimi AS, Afzal M, Majami AA, Al Abbasi F, Almalki WH, Alzera SI, Kukreti N, Fuloria NK, Fuloria S, Sekar M. Non-coding RNAs: Emerging biomarkers and therapeutic targets in ulcerative colitis. *Pathology-Research and Practice*. 2023:155037.
376. Tune BX, Stephen A, Mac Guad R, Fuloria NK, Subramaniyan V, Sekar M, Wu YS. Pharmacological Management of Tuberculosis, Challenges, and Potential Strategies. *Progress in Drug Discovery & Biomedical Science*. 2024;7(1).
377. Kaur I, Behl T, Sundararajan G, Panneerselvam P, Vijayakumar AR, Senthilkumar GP, Venkatachalam T, Jaglan D, Yadav S, Anwer K, Fuloria NK. BIN1 in the Pursuit of Ousting the Alzheimer's Reign: Impact on Amyloid and Tau Neuropathology. *Neurotoxicity Research*. 2023;41(6):698-707.
378. Narayanan DK, Djearamane S, Fuloria S, Kayarohanam S, Subramaniyan V, Sekar M, Fuloria NK. A Review on DNA Vaccines in Pre-Clinical Trials Against SARS-CoV-2.
379. Reddy MA, Gaurav A, Ushasukhanya S, Rao VC, Bhattacharya S, Boopathi S. Bio-Medical Wastes Handling Strategies During the COVID-19 Pandemic. In *Multidisciplinary Approaches to Organizational Governance During Health Crises 2023* (pp. 90-111). IGI Global.
380. Tune BX, Sim MS, Poh CL, Guad RM, Woon CK, Hazarika I, Das A, Gopinath SC, Rajan M, Sekar M, Subramaniyan V. Matrix metalloproteinases in chemoresistance: regulatory roles, molecular interactions, and potential inhibitors. *Journal of oncology*. 2022;2022(1):3249766.
381. Fuloria S, Subramaniyan V, Meenakshi DU, Sekar M, Chakravarthi S, Kumar DH, Kumari U, Vanteddu VG, Patel TD, Narra K, Sharma PK. Etiopathophysiological role of the renin-angiotensin-aldosterone system in age-related muscular weakening: RAAS-independent beneficial role of ACE2 in muscle weakness. *Journal of Biochemical and Molecular Toxicology*. 2022;36(6):e23030.
382. Kumar S, Behl T, Sehgal A, Chigurupati S, Singh S, Mani V, Aldubayan M, Alhowail A, Kaur S, Bhatia S, Al-Harrasi A. Exploring the focal role of LRRK2 kinase in Parkinson's disease. *Environmental Science and Pollution Research*. 2022;29(22):32368-82.
383. Anwar ET, Gupta N, Porwal O, Sharma A, Malviya R, Singh A, Fuloria NK. Skin diseases and their treatment strategies in sub-saharan african regions. *Infectious Disorders-Drug Targets (Formerly Current Drug Targets-Infectious Disorders)*. 2022;22(2):41-54.
384. Subramaniyan V, Fuloria S, Darnal HK, Meenakshi DU, Sekar M, Nordin RB, Chakravarthi S, Sathasivam KV, Khan SA, Wu YS, Kumari U. COVID-19-associated mucormycosis and treatments. *Asian Pacific Journal of Tropical Medicine*. 2021;14(9):401-9.
385. Singh Y, Fuloria NK, Fuloria S, Subramaniyan V, Almalki WH, Gupta G, Shaikh MA, Singh M, Al-Abbasi FA, Kazmi I. Disruption of the biological activity of protease-

- activated receptors^{2/4} in adults rather than children in SARS CoV-2 virus-mediated mortality in COVID-19 infection. Drug development research. 2021;82(8):1075-8.
386. Singh Y, Fuloria NK, Fuloria S, Subramaniyan V, Meenakshi DU, Chakravarthi S, Kumari U, Joshi N, Gupta G. N-terminal domain of SARS CoV-2 spike protein mutation associated reduction in effectivity of neutralizing antibody with vaccinated individuals. Journal of Medical Virology. 2021;93(10):5726.
387. Alharbi KS, Fuloria NK, Fuloria S, Rahman SB, Al-Malki WH, Shaikh MA, Thangavelu L, Singh SK, Allam VS, Jha NK, Chellappan DK. Nuclear factor-kappa B and its role in inflammatory lung disease. Chemico-biological interactions. 2021;345:109568.
388. Subramaniyan V, Chakravarthi S, Jegasothy R, Seng WY, Fuloria NK, Fuloria S, Hazarika I, Das A. Alcohol-associated liver disease: A review on its pathophysiology, diagnosis and drug therapy. Toxicology Reports. 2021;8:376-385.
389. Sa'ad MA, Ramasamy K, Fuloria NK, Fuloria S, Ravichandran M, Lalitha P. Pathogenesis of Porphyromonas gingivalis: Genes, Mechanism and Potential Role of Gingipains Inhibitors. Malaysian Journal of Microbiology. 2021;17.
390. Ugrappa S, Jain A, Bhargava A, Fuloria NK, Fuloria S. A search in the surge of treatment for COVID-19 patients: A narrative literature review. International Journal of Research in Pharmaceutical Sciences. 2020;11(1):822-31.
391. Vetrivelvan S, Chun NK, Kumarasamy V, Shahrudin PN, Singh D, Sivanadam G, Qi LP, Ahamed MM, Priya RR, Zahir RM, Santhi VK. A Cross-sectional Study on Awareness of Dyslexia Disorder among University Students. Open Access Macedonian Journal of Medical Science. 2020;10(8).
392. Subramaniyan V, Chakravarthi S, Seng WY, Kayarohanam S, Fuloria NK, Fuloria S. Impact of COVID-19 in public health: Prevalence and preventive approaches. Pak J Pharm Sci. 2020;33(4):1739-45.
393. Pandey KP, Singh CL, Verma S, Singh A, Jha R, Porwal O, Fuloria N, Sharma PK. Development and Validation of Stability Indicating High Performance Liquid Chromatography Method for Related Substances of Imatinib Mesylate. Indian Journal of Pharmaceutical Sciences. 2022;84(2).
394. Dudwal R, Jakhar BL, Pathan AR, Kataria A, Dhaka SR, Jan I, Sayyed RZ, Khan A, Wong LS, Kumarasamy V, Gupta G. Impact of different decontamination methods on the reduction of spiromesifen residue in chilli fruits. Heliyon. 2024 May 15;10(9).
395. Ugrappa S, Jain A, Fuloria NK, Fuloria S. Acanthomatous ameloblastoma in anterior mandibular region of a young patient: A rare case report. Annals of African medicine. 2017;16(2):85-9.
396. Rajwinder K, Ankita S, Muskan K, Sandeep A, Vetrivelvan S, Saurabh B, Al-Harrasi A, Lotfi A, Tapan B. Pertinence of nutriments for a stalwart body. Environmental Science and Pollution Research. 2021 Oct 1;28(39):54531-50.
397. Subramaniyan V. Therapeutic importance of castor seed oil. In Nuts and Seeds in Health and Disease Prevention 2020 Jan 1 (pp. 485-495). Academic Press.
398. Jha S, Malviya R, Fuloria S, Sundram S, Subramaniyan V, Sekar M, Sharma PK, Chakravarthi S, Wu YS, Mishra N, Meenakshi DU. Characterization of microwave-controlled polyacrylamide graft copolymer of tamarind seed polysaccharide. Polymers. 2022;14(5):1037.
399. Malviya R, Tyagi A, Fuloria S, Subramaniyan V, Sathasivam K, Sundram S, Karupiah S, Chakravarthi S, Meenakshi DU, Gupta N, Sekar M. Fabrication and Characterization of Chitosan—Tamarind Seed Polysaccharide Composite Film for Transdermal Delivery of Protein/Peptide. Polymers. 2021;13(9):1531.