

2023

Research Papers

1. Gogde G, Paul S, Pujari AK, Yadav A, Bhaumik J (2023) Synthesis of metallochromone porphyrin nano-starch sensitizers as photodynamic therapeutics for the eradication of enterococci dental pathogens. *Journal of Medicinal Chemistry*. DOI:10.1021/acs.jmedchem.3c01087
2. Devi B, Arumugam SM, Mahala S, Kunchala RK, Elumalai S (2023) Galactose isomerization to tagatose over MgBr₂ follows a temperature-dependent reaction rate kinetics as predicted by first principles-based theories. *Molecular Catalysis*. 549, 113478.
3. Bhatia S, Purohit A, Yadav SK (2023) Kinetic characterization of a lytic polysaccharide monooxygenase reveals a unique specificity for depolymerization at β -O-4 of lignin compounds. *ACS Sustainable Chem. Eng.* 11, 11, 4398–4408
4. Purohit A, Pawar L, Yadav SK (2023) Structural and functional insights of a cold-adaptive β -glucosidase with very high glucose tolerance from *Microbacterium* sp. CIAB417, *Enzyme and Microbial Technology* 169, 110284
5. Sidana A, Guleria P, Sundeep K, Yadav SK (2023) Exploration of hemicellulosic hydrolysates derived from *Arundo donax* and *Cynodon dactylon* as potential substrates for microbial protein production by *Candida tropicalis*. *BioEnergy Research* DOI: 10.1007/s12155-023-10654-y
6. Kaur G, Krishania M, Taggar MS, Kalia A (2023) Adsorptive removal of inhibitors from paddy straw hydrolysate using surfactant-modified bentonite clay for fermentative xylitol production. *Biomass Conversion and Biorefinery* <https://doi.org/10.1007/s13399-023-04618-7>
7. Kaur G, Taggar MS, Kalia A, Krishania M, Singh A (2023) Fungal secretomes of *Aspergillus terreus* repertoires cultivated on native and acid/alkali treated paddy straw for cellulase and xylanase production. *BioEnergy Research* <https://doi.org/10.1007/s12155-023-10637-z>
8. Sharma A, Yadav M, Tiwari A, Ali U, Krishania M, Bala M, Mridula D, Sharma P, Goudar G, Roy JK, Navik U, Garg M (2023) A comparative study of colored wheat lines across laboratories for validation of their phytochemicals and antioxidant activity. *Journal of Cereal Science* 112 (2023) 103719.
9. Arumugam, Murugan S, Mahala S, Devi B, Kumar S, Kunchala RK, Elumalai S (2023) Molybdenum sulfide-2D nanosheets offering multiple metallic sites enable different sugar epimerization reactions to rare sugars in water. *Reaction Chemistry & Engineering* <https://doi.org/10.1039/D3RE00321C>
10. Thakur M, Rai AK, Singh SP (2023) Structural characteristics, physicochemical properties and digestibility analysis of resistant starch Type-V prepared from debranched corn starch and fatty acid complexation. *ACS Omega* 8, 25799–25807
11. Moravkar KK, Laddha UD, Patil MD, Kale SS, Girase N, Bhairav BA, Bhaumik J, Chalikwa SS (2023) Extraction of rutin from *Tagetes erecta* (marigold) and preparation

- of peroral nano-suspension for effective antitussive/expectorant therapy. *Carbohydrate Polymer Technologies and Applications* 5, 2023, 100320
12. Devi B, Arumugam S, Mahala S, Kumar S, Kunchala RK, Elumalai S (2023) Fructose epimerization to L-sorbose in water over molybdenum oxide: reaction kinetics and mechanism insights. *Industrial & Engineering Chemistry Research* <https://doi.org/10.1021/acs.iecr.3c01352>
 13. Negi P, Pandey N, Jyoti, Mishra T, Ahluwalia V, Singh U, Mishra BB (2023). Isolation of food grade dye from flower petals of *Butea monosperma* and determination of marker compounds for its quantitative analysis. *ACS Omega* 8, 20, 17740–17747.
 14. Singh A, Singh S, Kansal SK, Garg M, Krishania M (2023) Production and characterization of anthocyanin-rich beer from black wheat by an efficient isolate *Saccharomyces cerevisiae* CMS12. *Scientific Reports* 13, 5863 <https://doi.org/10.1038/s41598-023-32687-1>
 15. Agarwal N, Jyoti, Thakur M, Mishra MM, Singh SP (2023) Preparation and characterization of biodegradable films based on levan polysaccharide blended with gellan gum. *Environmental Technology & Innovation* 31, 103231
 16. Kumari R, Sharma N, Sharma S, Samurailatpam S, Padhi S, Singh SP, Rai AK (2023) Production and characterization of bioactive peptides in fermented soybean meal produced using proteolytic *Bacillus* species isolated from kinema. *Food Chemistry* 421, 136130
 17. Mahala S, Arumugam SM, Kumar S, Devi B, Elumalai E (2023) Tuning of MgO's base characteristics by blending with amphoteric ZnO facilitates the selective glucose isomerization to fructose for bioenergy development. *Nanoscale Advances*, <https://doi.org/10.1039/D3NA00097D>
 18. Reddy YN, De A, Paul S, Pujari A, Bhaumik J (2023) In-situ Nanoarchitectonics of MOF Hydrogel: A Self-Adhesive and pH-Responsive Smart Platform for Phototherapeutic Delivery. *Biomacromolecules* <https://doi.org/10.1021/acs.biomac.2c01489>
 19. Saini K, Kumar S, Kaur R, Babu SA, Saravanamurugan S (2023) Accelerated H₂ activation over Pt/M-ZrO₂ for the reductive amination of levulinic acid esters under benign conditions. *Catalysis Science & Technology*. DOI: 10.1039/D2CY01550A
 20. Devi B, Arumugam SM, Kumar S, Mahala S, Elumalai S. (2023) Thermodynamic Insights into MgBr₂-Mediated Glucose Interconversion to Fructose Undertaking Multiple Reaction Pathways by Applying the Macro-and Micro-Kinetic Principles. *ACS Sustainable Chemistry & Engineering*. DOI: 10.1021/acssuschemeng.2c06027
 21. Kumar J, Sharma N, Singh SP (2023) Genome-resolved metagenomics inferred novel insights into the microbial community, metabolic pathways, and biomining potential of Malanjkhanda acidic copper mine tailings. *Environmental Science and Pollution Research*. DOI: 10.1007/s11356-023-25893-x
 22. Reddy YN, Kirar S, Thakur NS, Patil MD, Bhaumik J (2023) Sunlight assisted photocatalytic degradation of lignin using recyclable light harvesters. *ACS Sustainable Chemistry & Engineering*. DOI: 10.1021/acssuschemeng.2c05917

23. Singh A, Yadav SK (2023) Immobilization of L-ribose isomerase on the surface of activated mesoporous MCM41 and SBA15 for the synthesis of L-ribose. *Journal of Biotechnology* 362, 45-53.
24. Rai SK, Singh A, Kauldhar BS, Yadav SK (2023) Robust nano-enzyme conjugates for the sustainable synthesis of a rare sugar D-tagatose, *International Journal of Biological Macromolecules*, 231, 123406.
25. Anjana, Rawat AS, Goswami S (2023) In-silico analysis of a halophilic bacterial isolate-*Bacillus pseudomycooides* SAS-B1 and its polyhydroxybutyrate production through fed-batch approach under differential salt conditions. *International Journal of Biological Macromolecules* 229, 372-387
26. Ali H, Vandevyvere T, Lauwaert J, Kansal SK, Saravanamurugan S, Thybaut JW (2023) Enhancing the anisole hydrodeoxygenation activity over Ni/Nb2O5-x by increasing the number of oxygen vacancy sites. *Catalysis Science & Technology* DOI: 10.1039/D2CY01745H
27. Gautam R, Pal P, Saravanamurugan S. (2023) Enhanced Catalytic Activity of Modified ZSM-5 Towards Glucose Isomerization to Fructose. *ChemPlusChem* 88 e202200299.
28. Rana H, Garga R, Singh N, Goswami S (2023) Guar gum/nanocellulose based novel crosslinked antimicrobial film with enhanced barrier and mechanical properties for food packaging. *Journal of Environmental Chemical Engineering*. DOI: 10.1016/j.jece.2022.109254

Review articles:

- 1) Abedin MM, Chourasia R, Phukon LC, Sarkar C, Ray RC, Singh SP, Rai AK (2023) Lactic acid bacteria in the functional food industry: Biotechnological properties, potential and application *Critical Reviews in Food Science and Nutrition* DOI: <https://doi.org/10.1080/10408398.2023.2227896>
- 2) Bhatia S, Pooja, Yadav SK (2023) CRISPR-Cas for genome editing: Classification, mechanism, designing and applications. *International Journal of Biological Macromolecules* 238, 124054

Books:

- 1) *Plants as Bioreactors for Industrial Molecules*. 2023. Wiley ISBN 978-1-119-87508-6. Editors: Upadhyay SK, Singh SP

2022

Research Papers

1. Singh A, Rai SK, Yadav SK (2022) Metal-based micro-composite of L-arabinose isomerase and L-ribose isomerase for the sustainable synthesis of L-ribose and D-talose. *Colloids and Surfaces B: Biointerfaces* 217, 112637
2. Singh U, Kaur D, Mishra V, Krishania M (2022) Combinatorial approach to prepare antioxidative protein hydrolysate from corn gluten meal with dairy whey: Preparation, kinetics, nutritional study and cost analysis. *LWT* 112437.

3. Chandna, S., Paul, S., Kaur, R., Gogde, K., Bhaumik, J. (2022) Photodynamic Lignin Hydrogels: A Versatile Self-Healing Platform for Sustained Release of Photosensitizer Nanoconjugates. *ACS Applied Polymer Materials*, 2022 DOI: 10.1021/acsapm.2c01319.
4. Kumar S, Arumugam SM, Sharma S, Mahala S, Devi B, Elumalai S (2022) Insights into the kinetics and mechanism of spermine (base)-catalyzed D-fructose interconversion to low-calorie D-allulose. *Molecular Catalysis* 533, 112757.
5. Kumar S, Saini K, Saravanamurugan S, Zhang X, Kansal SK (2022) Nanostructured Functionalised Niobium Oxide as Chemoselective Catalyst for Acetalation of Glucose,' *Topics in Catalysis* DOI: 10.1007/s11244-022-01738-8
6. Singh A, Rai SK, Yadav SK (2022) Metal-based micro-composite of L-arabinose isomerase and L-ribose isomerase for the sustainable synthesis of L-ribose and D-talose. *Colloids Surf Biointerf* 217, 112637
7. Jatav S, Pandey N, Dwivedi P, Akhtar A, Jyoti, Singh R, Bansal R, Mishra BB (2022) Synthesis of deoxy-Andrographolide Triazolyl Glycoconjugates for the Treatment of Alzheimer's Disease. *ACS Chemical Neuroscience* 13, 23, 3271–3280
8. Kumari A, Kaur S, Sharma N, Kaur J, Krishania M, Tiwari V, Garg M (2022), Effect of processing on the phytochemicals and quality attributes of vermicelli developed from colored wheat. *Journal of Cereal Science*, 103560
9. Pandey N, Dwivedi P, Jyoti, Singh M, Kumar D, Tiwari VK, Mishra BB (2022) Click Chemistry Inspired Synthesis of Hydroxyanthracene Triazolyl Glycoconjugates. *ACS Omega* 7, 37112.
10. Kirar S, Reddy YN, Banerjee UC, Bhaumik J (2022) Development of Heterocyclic BODIPY-based Polymeric Nanoparticles for Pathogen Inhibition using Photodynamic Therapy. *ChemPhotoChem* DOI:10.1002/cptc.202200172.
11. Mehta D, Shivhare US, Yadav SK (2022) A statistical and neural network-assisted sustainable integrated process-based on 'zero solid waste' for the extraction of polyphenols, dietary fiber and xylooligosaccharide from de-oiled rice and corn bran. *J Food Measure Character* 16,4208–4224
12. Rana H, Sharma A, Dutta S, Goswami S (2022) Recent approaches on the application of Agro waste derived Biocomposites as a Green support matrix for Enzyme Immobilization. *Journal of Polymers and the Environment*. DOI: 10.1007/s10924-022-02574-3
13. Sharma R, Selim A, Devi B, Arumugam SM, Sartaliya S, Elumalai S, Jayamurugan G (2022) Realizing direct conversion of glucose to furfurals with tunable selectivity utilizing a carbon dot catalyst with dual acids controlled by a biphasic medium. *Biomass Conversion and Biorefinery*. DOI: 10.1007/s13399-022-03182-w
14. Guleria P, Kaur S, Sidana A, Yadav SK (2022) Xylitol production from rice straw hemicellulosic hydrolysate by *Candida tropicalis* GS18 immobilized on bacterial cellulose-sodium alginate matrix. *Biomass Conversion and Biorefinery* DOI: 10.1007/s13399-022-02986-0
15. Singh AK, Kumari M, Sharma N, Rai AK, Singh SP (2022) Metagenomic views on taxonomic and functional profiles of the Himalayan Tsomgo cold lake and unveiling its detertzome potential. *Current Genetics* 68(5-6), 565-579

16. Kaushal G, Thakur M, Rai AK, Singh SP (2022) A comprehensive metagenomic analysis framework revealing microbiome profile and potential for hydrocarbon degradation and carbohydrate metabolism in a Himalayan artificial lake. *Sustainability* 14, 11455.
17. Phukon LC, Chourasia R, Padhi S, Abedin MM, Godan TK, Parameswaran P, Singh SP, Rai AK (2022) Cold-adaptive traits identified by comparative genomic analysis of a lipase producing *Pseudomonas* sp. HS6 isolated from snow-covered soil of Sikkim Himalaya and molecular simulation of lipase for wide substrate specificity. *Current Genetics* 68, 375-391
18. Pal P, Li H, Saravanamurugan S (2022) Removal of Lignin and Silica from Rice Straw for Enhanced Accessibility of Holocellulose for the Production of High-Value Chemicals. *Bioresour. Technol.* 361, 127661.
19. Pal P, Saravanamurugan S (2022) Enhanced Basicity of MnOx Supported Ru for the Selective Oxidation of HMF to FDCA. *ChemSusChem*, 15, e202200902.
20. Thakur M, Rai AK, Singh SP (2022) An acid-tolerant and cold-active β -galactosidase potentially suitable to process milk and whey samples. *Applied Microbiology and Biotechnology* 106(9-10):3599-3610
21. Kaur S, Guleria P, Sidana A, Yadav SK (2022) Efficient process for xylitol production from nitric acid pretreated rice straw derived pentosans by *Candida tropicalis* GS18. *Biomass and Bioenergy* 166,10661
22. Purohit A, Yadav SK (2022) Genome sequencing of a novel *Microbacterium camelliasinensis* CIAB417 identified potential mannan hydrolysing enzymes. *Int J Biol Macromol* 208, 219-229
23. Mehta D, Yadav K, Chaturvedi K, Shivhare US, Yadav SK (2022) Impact of cold plasma on extraction of polyphenol from de-oiled rice and corn bran: improvement in extraction efficiency, in vitro digestibility, antioxidant activity, cytotoxicity and anti-inflammatory responses. *Food Bioprocess Technol* 15, 1142–1156
24. Mehta D, Purohit A, Bajarh P, Yadav K, Shivhare US, Yadav SK (2022) Cold plasma processing improved the extraction of xylooligosaccharides from dietary fibers of rice and corn bran with enhanced in-vitro digestibility and anti-inflammatory responses. *Innov Food Sci Emerg Technol* 78, 103027
25. Mehta D, Chaturvedi K, Sidana A, Shivhare US, Yadav SK (2022) Processing treatment of atmospheric- and vacuum-cold plasma improved physical properties, glucose diffusion and fermentability of dietary fibers extracted from de-oiled rice and corn bran. *Bioact Carbohydr Diet Fibre* 28, 100326
26. Sharma N, Pooja, Yadav SK (2022) Conventional and emerging novel techniques for the extraction of pectin and applications of pectin. *Austin J Biotechnol Bioeng* 9(1), 1115
27. Ali H, Vandevyvere T, Lauwaert J, Kansal SK, S. Saravanamurugan, Thybaut J. W. (2022) Impact of Oxygen Vacancies in Ni Supported Mixed Oxide Catalysts on Anisole Hydrodeoxygenation. *Catal. Commun.* 164, 106436.
28. Sharma N, Sahoo D, Rai AK, Singh SP (2022) A highly alkaline pectate lyase from the Himalayan hot spring metagenome and its bioscouring applications. *Process Biochemistry* 115, 100-109
29. Pandey N, Jyoti, Singh M, Dwivedi P, Sahoo SC, Mishra BB. Click chemistry inspired synthesis of andrographolide triazolyl conjugates for effective fluorescent sensing of ferric ions. *Natural Product Research.* 2021 Dec 3:1-1.
30. Arumugam SM, Singh D, Mahala S, Devi B, Kumar S, Jakhu S, Elumalai S (2022). MgO/CaO Nanocomposite facilitates economical production of D-Fructose and D-

- Allulose using glucose and its response prediction using a DNN model. *ACS Industrial & Engineering Chemistry Research*. DOI: 10.1021/acs.iecr.1c04631.
31. Paul S, Thakur NS, Chandna S, Sagar V, Bhaumik J (2022) Lignin-Based CdS Dots as multifunctional platform for sensing and wearable photodynamic coatings. *ACS Applied Nano Materials*. DOI: 10.1021/acsanm.1c04427
 32. Sidana A, Kaur S, Yadav, SK (2022) Assessment of the ability of *Meyerozyma guilliermondii* P14 to produce second-generation bioethanol from giant reed (*Arundo donax*) biomass. *Biomass Conversion and Biorefinery*. DOI: 10.1007/s13399-021-02211-4
 33. Sharma N, Kumari N, Thakur M, Rai AK, Singh SP (2022) Molecular dissemination of emerging antibiotic, biocide, and metal co-resistomes in the Himalayan hot springs. *Journal of Environmental Management* 307, 114569
 34. Sidana A, Yadav SK (2022) Recent developments in lignocellulosic biomass pretreatment with a focus on eco-friendly, non-conventional methods. *Journal of Cleaner Production* 335:130286
 35. Abedin MM, Chourasia R, Phukon LC, Singh SP, Rai AK (2022) Characterization of ACE inhibitory and antioxidant peptides in yak and cow milk hard chhurpi cheese of the Sikkim Himalayan region. *Food Chemistry X* 100231.
 36. Singh M, Pandey N, Negi P, Larroche C, Mishra BB (2022) Solvothermal conversion of spent aromatic waste to ethyl glucosides. *Chemosphere* 292, 133428.
 37. Padhi S, Chourasia R, Kumari M, Singh SP, Rai AK (2022) Production and characterization of bioactive peptides from rice beans using *Bacillus subtilis*. *Bioresource Technology* 351, 126932
 38. Chourasia R, Kumari R, Singh SP, Sahoo D, Rai AK (2022) Characterization of native lactic acid bacteria from traditionally fermented chhurpi of Sikkim Himalayan region for the production of chhurpi cheese with enhanced antioxidant effect. *LWT - Food Science and Technology* 154, 112801
 39. Kaur G, Kaur D, Kansal SK, Garg M, Krishania M (2022) Potential cocoa butter substitute derived from mango seed kernel. *Food Chemistry* 372, 131244
 40. Pathak AK, Singh SP, Sharma R, Nath V, Tuli R (2022) Transcriptome analysis at mid-stage seed development in litchi with contrasting seed size. *3 Biotech* 12, 17

Review articles:

- 3) Mehta D, Yadav SK (2022) Recent Advances in Cold Plasma Technology for Food Processing. *Food Engineering Reviews* 14,555–578
- 4) Sari TP, Sirohi R, Krishania M, Bhoj S, Samtiya M, Duggal M, Kumar D, Badgujar PC (2022) Critical overview of biorefinery approaches for valorization of protein rich tree nut oil industry by-product, *Bioresource Technology*, 127775.
- 5) De A, Paul S, Reddy YN, Sharma V, Bhaumik, J, Tippavajhala VK (2022) Lung-on-chip: Its current and future perspective on pharmaceutical and biomedical applications, *Journal of Drug Delivery Science and Technology*, 2022, 103930
- 6) Garg M, Kaur S, Sharma A, Kumari A, Tiwari V, Sharma S, Kapoor P, Sheoran B, Goyal A, Krishania M (2022), Rising Demand for Healthy Foods-Anthocyanin Biofortified Rich Colored Wheat Is a New Research Trend. *Frontiers in Nutrition*, 913
- 7) Jadaun JS, Bansal S, Sonthalia A, Rai AK, Singh SP (2022) Biodegradation of plastics for sustainable environment. *Bioresource Technology* 347, 126697
- 8) Chourasia R, Padhi S, Phukon LC, Abedin MM, Sirohi S, Singh SP, Rai AK (2022) Peptide candidates for the development of therapeutics and vaccines against β -coronavirus infection. *Bioengineered* 13(4), 9435-9454

- 9) Chourasia R, Phukon LC, Abedin MM, Padhi S, Singh SP, Rai AK (2022) Bioactive peptides in fermented foods and their application: A critical review. *Systems Microbiology and Biomanufacturing* DOI: 10.1007/s43393-022-00125-4
- 10) Chourasia R, Phukon LC, Abedin MM, Padhi S, Singh SP, Rai AK (2022) Whey valorization by microbial and enzymatic bioprocesses for the production of nutraceuticals and value-added products. *Bioresource Technology Reports* 19, 101144
- 11) Saini K, Kumar S, Li H, Babu SA, Saravanamurugan S (2022) Advances in the Catalytic Reductive Amination of Furfural to Furfural Amine: The Momentous Role of Active Metal Sites. *ChemSusChem* 15, e202200107.

Books:

- 2) Biomass, Biofuel, Biochemiclas: Biochemicals and Materials Production from Sustainable Biomass Resources. Elsevier. 2022. ISBN: 9780128244197. Editors: Li H, Saravanamurugan S, Pandey A, Elumalai S.
- 3) Current Developments in Biotechnology and Bioengineering; Technologies for Production of Nutraceuticals and Functional Food Products. Elsevier. 2022. ISBN: 9780128235065. Editors: Rai AK, Singh SP, Pandey A, Larroche C, Soccol C
- 4) Bioprospecting of Microorganism Based Industrial Molecules. Wiley. 2022. ISBN 978-1-119-71724-9. Editors: Singh SP, Upadhyay SK

2021

Research papers:

1. Pooja, Purohit A., Kaur S. Yadav S.K. (2021). Identification of a yeast *Meyerozyma caribbica* M72 from mahua flower for efficient transformation of rice straw into ethanol. *Biomass Conversion and Biorefinery* DOI: 10.1007/s13399-021-02067-8
2. Sharma S, Kumar S, Arumugam S M, Palanisami M, Shanmugam V, Elumalai S (2021) Heterojunction of Nb2O5/g-C3N4 facilitates 2, 5- diformylfuran production via photocatalytic oxidation of 5-hydroxymethylfurfural under direct sunlight irradiation. *ChemPhotoChem* DOI: 10.1002/cptc.202100199
3. Rai SK, Kaur H, Singh A, Kamboj M, Jain G, Yadav SK (2021) Production of d-tagatose in packed bed reactor containing an immobilized l-arabinose isomerase on alginate support. *Biocatalysis and Agricultural Biotechnology* 38:102227
4. Agarwal N, Singh SP (2021) A novel trehalose synthase for the production of trehalose and trehalulose. *Microbiology Spectrum* 9: e01333-21
5. Barsøe LR, Saravanamurugan S, Taarning E, Espin JSM, Meier S, (2021) Heterogeneous base-catalyzed conversion of glycolaldehyde to aldotetroses: Mechanistic and Kinetic Insight. *ChemCatChem* 13, 5141.
6. Cao Y, Chen D, Meng Y, Saravanamurugan S, Li H (2021) Visible-light-driven prompt and quantitative production of lactic acid from biomass sugars over a 3D N-TiO2 photocatalyst. *Green Chemistry* 23, 10039.
7. Agarwal N, Pal P, Shama N, Saravanamurugan S (2021) Consecutive Organosolv and Alkaline Pretreatment: An Efficient Approach towards the Production of Cellulose from Rice Straw. *ACS Omega* 6, 27247.

8. Zhu P, Meier S, Saravanamurugan S, Riisager A (2021) Modification of commercial Y zeolites by alkaline-treatment for improved performance in the isomerization of glucose to fructose. *Molecular Catalysis* 510, 111686.
9. Mahala, Sangeeta, Arumugam SM, Kumar S, Singh D, Sharma S, Devi B, Yadav SK, Elumalai S (2021) Sn doping on Ta₂O₅ facilitates glucose isomerization for enriched 5-hydroxymethylfurfural production and its true response prediction using a neural network model. *ChemCatChem*. DOI: 10.1002/cctc.202101046
10. Kaur R, Thakur NS, Chandna S, Bhaumik J (2021) Sustainable lignin-based coatings doped with titanium dioxide nanocomposites exhibit synergistic microbicidal and UV blocking performance towards personal protective equipment. *ACS Sustainable Chemistry and Engineering* 9, 11223–11237.
11. Singla G, Panesar PS, Sangwan RS, Krishania M (2021) Effect of packaging materials on the shelf-life of vermicelli supplemented with enzyme processed kinnow pulp residue. *Journal of Food Process Engineering*, 13862.
12. Singh U, Kaur D, Mishra V, Krishania M (2021) Combinatorial approach to prepare antioxidative protein hydrolysate from corn gluten meal with dairy whey: Preparation, kinetics, nutritional study and cost analysis. *LWT- Food Science and Technology*, 112437.
13. Singh A, Rai SK, Manisha, Yadav SK (2021) Immobilized L-ribose isomerase for the sustained synthesis of a rare sugar D-talose. *Molecular Catalysis* 511:111723
14. Bhatia S, Yadav SK (2021) Novel catalytic potential of a hyperthermostable mono-copper oxidase (LPMO -AOAA17) for the oxidation of lignin monomers and depolymerisation of lignin dimer in aqueous media. *International Journal of Biological Macromolecules* 186:563-573.
15. Thakur M, Rai AK, Mishra BB, Singh SP (2021) Novel insight into valorization of potato peel biomass into type III resistant starch and maltooligosaccharide molecules. *Environmental Technology & Innovation* 24, 101827
16. Pandey N, Singh M, Dwivedi P, Ahluwalia V, Sangwan RS, Mishra BB (2021) Synthesis of food-grade 6-O-ascorbyl fatty esters and their semi-synthesis from low-value oils as resources. *Biomass Conversion and Biorefinery*. 1-8. DOI: 10.1007/s13399-021-01682-9
17. Agarwal N, Rai AK, Singh SP (2021) Biotransformation of hydroquinone into α -arbutin by transglucosylation activity of a metagenomic amylosucrase. *3 Biotech*. 11(8), 362
18. Rai S K, Kumar V, Yadav SK (2021). Development of recyclable magnetic cross-linked enzyme aggregates for the synthesis of high value rare sugar d-tagatose in aqueous phase catalysis. *Catalysis Science & Technology* 11, 2186 – 2194.
19. Purohit A, Singh G, Yadav SK (2021). Chimeric bi-functional enzyme possessing xylanase and deacetylase activity for hydrolysis of agro-biomass rich in acetylated xylan. *Colloids Surf B Biointerfaces*. Doi: 10.1016/j.colsurfb.2021.111832.
20. Kirar S, Chaudhari D, Thakur NS, Jain S, Bhaumik J, Laha JK, Banerjee UC (2021) Light-assisted anticancer photodynamic therapy using porphyrin-doped nanoencapsulates. *Journal of Photochemistry and Photobiology B: Biology* 220, 112209.
21. Padhi S, Samurailatpam S, Chourasia R, Labala R, Singh SP, Rai AP (2021) A multifunctional peptide from *Bacillus* fermented soybean for effective inhibition of SARS-CoV-2 S1 receptor binding domain and modulation of Toll like receptor 4: A molecular docking study. *Frontiers in Molecular Biosciences* 8, 636647
22. Samurailatpam S, Padhi S, Sarkar P, Singh SP, Sahoo D, Rai AK (2021) Production, characterization and molecular docking of antioxidant peptides from peptidome of

- kinema fermented with proteolytic *Bacillus* spp. *Food Research International* 141, 110161.
23. Ali H, Kansal SK, Saravanamurugan S (2021), Alumina-supported alkali and alkaline earth metal-based catalyst for selective decarboxylation of itaconic acid to methacrylic acid. *ChemistrySelect* 6, 3352-3359
 24. Thakur NS, Mandal N, Patel G, Kirar S, Reddy YN, Kushwah V, Jain S, Kalia YN, Bhaumik J, Banerjee UC (2021) Co-administration of zinc phthalocyanine and quercetin via hybrid nanoparticles for augmented photodynamic therapy. *Nanomedicine: Nanotechnology, Biology and Medicine* 33, 102368.
 25. Patel SN, Kaushal G, Singh SP (2021) D-allulose 3-epimerase of *Bacillus* sp. origin manifests profuse heat-stability and noteworthy potential of D-fructose epimerization. *Microbial Cell Factories* 20(60), 1-16
 26. Kaushal G, Rai AK, Singh SP (2021) A novel β -glucosidase from a hot-spring metagenome shows elevated thermal stability and tolerance to glucose and ethanol. *Enzyme and Microbial Technology* 145, 109764
 27. Kumar V, Sharma DK, Sandhu PP, Jaduan J, Sangwan RS, Yadav SK (2021), Sustainable process for the production of cellulose by an *Acetobacter pasteurianus* RSV-4 (MTCC 25117) on whey medium. *Cellulose* 28, 103–116.
 28. Paul S, Thakur NS, Chandna S, Reddy YN, Bhaumik J (2021) Development of a light activatable lignin nanosphere based spray coating for bioimaging and antimicrobial photodynamic therapy. *Journal of Materials Chemistry B*, 9, 1592-1603
 29. Joshi N, Kaushal G, Singh SP (2021) Biochemical characterization of a novel thermo-halo-tolerant GH5 endoglucanase from a thermal spring metagenome. *Biotechnology and Bioengineering* 118:1531–1544
 30. Singh S, Kaur D, Kumar S, Krishania M (2021), Process scale-up of an efficient acid-catalyzed steam pretreatment of rice straw for xylitol production by *C. tropicalis* MTCC 6192. *Bioresource Technology* 124422
 31. Singla G, Singh U, Sangwan RS, Panesar PS, Krishania M (2021) Comparative study of various processes used for removal of bitterness from kinnow pomace and kinnow pulp residue. *Food Chemistry* 335 (127643), 1-9.
 32. Thakur M, Sharma N, Rai AK, Singh SP (2021) A novel cold-active type I pullulanase from a hot-spring metagenome for effective debranching and production of resistant starch. *Bioresource Technology* 320, 124288
 33. Khubber S., Chaturvedi K., Thakur N., Sharma N., Yadav S.K. (2021). Low-methoxyl pectin stabilizes low-fat set yoghurt and improves their physicochemical properties, rheology, microstructure and sensory liking. *Food Hydrocolloids* 111, 106240
 34. Sharma M, Sangwan RS, Khatkar BS, Singh SP (2021) Development of a prebiotic oligosaccharide rich functional beverage from sweet sorghum stalk biomass. *Waste and Biomass Valorization* 12, 2001–2012
 35. Kauldhar BS, Sooch BS, Rai SK, Kumar V, Yadav SK (2021) Recovery of nanosized silica and lignin from sugarcane bagasse waste and their engineering in fabrication of composite membrane for water purification. *Environmental Science and Pollution Research* 28, 7491–7502
 36. Singla G, Panesar PS, Sangwan RS, Krishania M (2021), Enzymatic debittering of *Citrus reticulata* (Kinnow) pulp residue and its utilization for the preparation of vermicelli. *Journal of Food Processing and Preservation* 45: e15135

37. Kundu P, Kansal SK, Elumalai S (2021) Synergistic action of alkalis improve the quality hemicellulose extraction from sugarcane bagasse for the production of xylooligosaccharides. *Waste and Biomass Valorization* 12, 3147–3159

Review articles:

1. Saravanamurugan S (2021) On The Rise: Heterogeneous Catalysis for Biomass Valorisation. *Current Catalysis* 10, 101 [Editorial]
2. Saumya Singh, Prithwish Kola, Dalveer Kaur, Gisha Singla, Vibhu Mishra, Parmjit S Panesar, Kumar Mallikarjunan, Meena Krishania (2021) Therapeutic potential of nutraceuticals and dietary supplements in prevention of Viral Diseases: A review. *Frontiers in Nutrition* 640
3. Kaur R, Bhardwaj SK, Chandna S, Kim KH, Bhaumik J (2021) Lignin-based metal oxide nanocomposites for UV protection applications: a review. *Journal of Cleaner Production* 317: 128300.
4. Singh S, Kola P, Kaur D, Singla G, Mishra V, Panesar PS, Mallikarjunan K, Krishania M (2021). Therapeutic potential of nutraceuticals and dietary supplements in prevention of Viral Diseases: A review. *Frontiers in Nutrition* 640
5. Bhardwaj SK, Singh H, Deep A, Khatri M, Bhaumik J, Kim KH, Bhardwaj N (2021) UVC-based photoinactivation as an efficient tool to control the transmission of coronaviruses. *Science of the Total Environment* 792: 148548.
6. Kumari M, Padhi S, Sharma S, Pukon LC, Singh SP, Rai AK (2021) Biotechnological potential of psychrophilic microorganisms as the source of cold-active enzymes in food processing applications. *3 Biotech* 11, 479.
7. Raturi G, Shree S, Sharma A, Panesar PS, Goswami S. (2021) Recent approaches for enhanced production of microbial polyhydroxybutyrate: Preparation of biocomposites and applications. *International Journal of Biological Macromolecules* 182, 1650-1669
8. Sharma A, Rana H, Goswami S (2021) A Comprehensive Review on the Heavy Metal Removal for Water Remediation by the Application of Lignocellulosic Biomass-Derived Nanocellulose. *Journal of Polymers and the Environment*, 1-18.
9. Kirar S, Thakur NS, Reddy YN, Banerjee UC, Bhaumik J. (2021) Insights on the polypyrrole based nanoformulations for photodynamic therapy. *Journal of Porphyrins and Phthalocyanines* Doi: 10.1142/S1088424621300032.
10. Garg M, Sharma A, Vats S, Tiwari V, Kumari A, Mishra V, Krishania M (2021) Vitamins in cereals: Critical review of content, health effects, processing losses, bioaccessibility, fortification and biofortification strategies for their improvement. *Frontiers in Nutrition* 8, 254.
11. Hunjan MK, Panday S, Gupta A, Bhaumik J, Das P, Laha JK (2021) Recent advances in functionalization of pyrroles and their translational potential. *The Chemical Record* DOI: 10.1002/tcr.202100010
12. Bhardwaj SK, Bhardwaj N, Kumar V, Bhatt D, Azzouz A, Bhaumik J, Kim K-H, Deep A (2021) Recent progress in nanomaterial-based sensing of airborne viral and bacterial pathogens. *Environment International*, 146, 106183
13. Chourasia R, Abedin MM, Phukon LC, Sahoo D, Singh SP, Rai AK (2021) Biotechnological approaches for the production of designer cheese with improved functionality. *Comprehensive Reviews in Food Science and Food Safety* 20, 960-979.

Books:

- 1) Bioprospecting of Plant Biodiversity for Industrial Molecules. Wiley. 2021. ISBN 978-

2020

Research papers:

1. Kumar S, Sharma S, Arumugam SM, Miglani C, Elumalai S (2020) Biphasic separation approach in the DES biomass fractionation facilitates lignin recovery for subsequent valorization to phenolics. *ACS Sustainable Chemistry & Engineering* 8, 51, 19140-19154
2. Singh M, Pandey N, Mishra BB (2020) A divergent approach for the synthesis of (hydroxymethyl)furfural (HMF) from spent aromatic biomass-derived (chloromethyl)furfural (CMF) as a renewable feedstock. *RSC Advances* 10, 45081
3. Chourasia R, Padhi S, Phukon LC, Abedin MM, Singh SP, Rai AK (2020) A potential peptide from soy cheese produced using *Lactobacillus delbrueckii* WS4 for effective inhibition of SARS-CoV-2 main protease and S1 glycoprotein. *Frontiers in Molecular Biosciences* 7: 601753
4. G Singla, PS Panesar, RS Sangwan, M Krishania (2020) Enzymatic processing of *Citrus reticulata* (Kinnow) pomace using naringinase and its valorization through preparation of nutritionally enriched pasta. *Journal of Food Science and Technology*, 2020, 1-8
5. D Kaur, G Singla, U Singh, M Krishania (2020) Efficient process engineering for extraction of hemicellulose from corn fiber and its characterization. *Carbohydrate Polymer Technologies and Applications*, 100011
6. Kumar S, Manolata M. D, Kansal S. K and Saravanamurugan S (2020) Untangling the active sites in exposed crystal facet of zirconium oxide for selective hydrogenation of bioaldehydes. *Catalysis Science & Technology* 10, 7016-7026
7. Wu H, Dai W, Saravanamurugan S, Yu Z, Li H, Yang S (2020) Endogenous X-C=O species enable catalyst-free formylation prerequisite for CO₂ reductive upgrading. *Green Chem.* 22, 5822-5832
8. Purohit A, Yadav S.K. (2020) Characterization of a thermotolerant and acidophilic mannanase producing *Microbacterium* sp. CIAB417 for mannoooligosachharide production from agro-residues and dye decolorization. *International Journal of Biological Macromolecules* 163, 1154-1161
9. Rai S., Kaur H., Kauldhar B.S., Yadav S.K. (2020) A dual enzyme metal hybrid crystal for the direct transformation of whey lactose into a high value rare sugar D-tagatose: synthesis, characterization and a sustainable process. *ACS Biomaterials Science & Engineering* 6, (12), 6661–6670
10. Sharma N, Kumar J, Abedin MM, Sahoo D, Pandey A, Rai AK, Singh SP (2020) Metagenomics revealing molecular profiling of community structure and metabolic pathways in natural hot springs of the Sikkim Himalaya. *BMC Microbiology* 20, 246
11. Kaushal G, Singh SP (2020) Comparative genome analysis provides shreds of molecular evidence for reclassification of *Leuconostoc mesenteroides* MTCC10508 as a strain of *Leu. suionicum*. *Genomics* 112(6), 4023-4031
12. Sharma, S., Kumar, S., Arumugam, S. M., & Elumalai, S. (2020). Promising photocatalytic degradation of lignin over carbon quantum dots decorated TiO₂ nanocomposite in aqueous condition. *Applied Catalysis A: General* 602, 117730

13. Chandna S, Thakur, N S, Kaur R, Bhaumik J. (2020) Lignin-bimetallic nanoconjugate doped pH-responsive hydrogels for laser-assisted antimicrobial photodynamic therapy. *Biomacromolecules* 8, 3216–3230
14. Thakur K, Kumar V, Kumar V, Yadav SK. 2020. Genomic characterization provides genetic evidence for bacterial cellulose synthesis by *Acetobacter pasteurianus* RSV-4 strain. *International Journal of Biological Macromolecules* 156: 598-607
15. Thakur K, Chownk M, Kumar V, Purohit A, Vashisht A, Kumar V, Yadav SK. 2020. Bioprospecting potential of microbial communities in solid waste landfills for novel enzymes through metagenomic approach. *World Journal of Microbiology and Biotechnology* 36:34
16. Rana S, Mehtaa D, Bansal V, Shivhare US, Yadav SK. 2020. Atmospheric cold plasma (ACP) treatment improved in-package shelf-life of strawberry fruit. *Journal of Food Science and Technology* 57: 102–112
17. Joshi N, Sharma M, Singh SP (2020) Characterization of a novel xylanase from an extreme temperature hot spring metagenome for xylooligosaccharide production. *Applied Microbiology and Biotechnology* 104:4889–4901
18. Barsain BL, Purohit A, Kumar A, Joshi R, Hallan V, Yadav SK. 2020. PkGPPS.SSU interacts with two PkGGPPS to form heteromeric GPPS in *Picrorhiza kurroa*: Molecular insights into the picroside biosynthetic pathway. *Plant Physiology and Biochemistry* 154, 115-128
19. Pal P, Kumar S, Devi M M, Saravanamurugan S. 2020. Oxidation of 5-Hydroxymethylfurfural to 5-Formyl Furan-2-Carboxylic Acid by Non-Precious Transition Metal Oxide-Based Catalyst. *The Journal of Supercritical Fluids* 160, 104812
20. Sandeep Kumar, Shelja Sharma, Sushil Kumar Kansal, and Sasikumar Elumalai. 2020. Efficient conversion of glucose into fructose via extraction-assisted isomerization catalyzed by endogenous polyamine spermine in the aqueous phase. *ACS Omega* 5, 2406–2418
21. Pal P, Saravanamurugan S. 2020. Heterostructured manganese catalysts for the selective oxidation of 5-hydroxymethylfurfural to 2, 5-diformylfuran. *ChemCatChem*. 12, 2324-2332
22. Reddy Y N, Thakur, N S, Bhaumik J 2020. Harnessing the photocatalytic potential of polypyrroles in water through nanointervention: synthesis and photophysical evaluation of biodegradable polypyrrolic nanoencapsulates”, *ChemNanoMat* 6, 239-247
23. Li H, Wang C, Xu Y, Yu Z, Saravanamurugan S, Wu Z, Yang S, Luque R. 2020. Heterogeneous (de)chlorination-enabled control of reactivity in liquid-phase synthesis of furanic biofuel from cellulosic feedstock. *Green chemistry* 22, 637-645
24. Sucheta, Misra N N, Yadav SK. 2020. Extraction of pectin from black carrot pomace using intermittent microwave, ultrasound and conventional heating: Kinetics, characterization and process economics. *Food Hydrocolloids* 102: 105592
25. Kaur R, Thakur N S, Chandna S, Bhaumik J. 2020. Development of agri-biomass based lignin derived zinc oxide nanocomposites as promising UV protectant-cum-antimicrobial agents. *Journal of Materials Chemistry B* 8, 260-269.
26. Mehta D, Yadav SK. 2020. Impact of atmospheric non-thermal plasma and hydrothermal treatment on bioactive compounds and microbial inactivation of strawberry juice: A hurdle technology approach. *Food Science and Technology International* 26(1):3-10

27. Patel S, Kaushal G, Singh SP. 2020. A novel D-allulose 3-epimerase gene from the metagenome of a thermal aquatic habitat and D-allulose production by *Bacillus subtilis* whole-cell catalysis. *Applied and Environmental Microbiology* 86 (5), e02605-19.
28. Thakur M, Sharma A, Ahlawat V, Bhattacharya M, Goswami S. 2020. Process optimization for the production of cellulose nanocrystals from rice straw derived α -cellulose. *Material Science for Energy Technologies* 3, 328-334

Review articles:

1. Devi M M, Aggarwal N, Sarvanamurugan S. 2020. Rice Straw: A major renewable lignocellulosic biomass for value-added carbonaceous materials. *Current Green Chemistry* DOI : 10.2174/2213346106666191127120259
2. Pooja, Munjal R, Bhaumik J, Kaur R (2020), Role of zinc oxide nanoparticles in mitigation of drought and salinity. *International Journal of Current Microbiology and Applied Sciences* 9(11): 467-481
3. Yadav SK, Kauldhar BS, Sandhu PP, Thakur K, Sucheta, Sharma TR. 2020. Retrospect and prospects of secondary agriculture and bioprocessing. *Journal of Plant Biochemistry and Biotechnology* 29:1-14.

Book

- Biomass, Biofuels, Biochemicals: Advances in Enzyme Catalysis and Technologies. Elsevier. 2020. ISBN 9780128198209. Editors: Singh SP, Pandey A, Singhania RR, Larroche C, Li Z.

2019

Research papers:

1. Kumari A, Yadav SK. 2019. Poly lactic acid-quercetin nanoformulation synthesised using *Syzygium cumini* leaf extract improves the shelf life of tomato at room temperature. *International Journal of Postharvest Technology and Innovation* 6:1-15
2. Singh M, Pandey N, Dwivedi P, Kumar V, Mishra BB. 2019. Production of xylose, levulinic acid, and lignin from spent aromatic biomass with a recyclable Brønsted acid synthesized from d-limonene as renewable feedstock from citrus waste. *Bioresource Technology* 293, 122105.
3. Jatav S, Pandey N, Dwivedi P, Bansal R, Ahluwalia V, Tiwari VK, Mishra BB. 2019. Isolation of a new flavonoid and waste to wealth recovery of 6-O-ascorbyl esters from seeds of *Aegle marmelos* (family- Rutaceae). *Natural Product Research* 33, 2236-2242.
4. Singh M, Devi S, Rana VS, Mishra BB, Kumar J, Ahluwalia V. 2019. Delivery of phytochemicals by liposome cargos: recent progress, challenges and opportunities, *Journal of Microencapsulation* 36, 215-235.
5. Melián-Rodríguez M, Sarvanamurugan S, Meier S, Kegnæs S, Riisager A. 2019. Ru-catalyzed oxidative cleavage of guaiacyl glycerol- β -guaiacyl ether - a representative β -O-4 lignin model compound. *Catalysts* 9, 832.
6. Sharma N, Sucheta, Dangi S, Yadav SK 2019. Long-term storability of potato tubers in aspect of biochemical changes and overall quality index affected by different packaging materials in refrigerated and non-refrigerated storage. *Potato Research* 63, 303–321
7. Sucheta, Chaturvedi K, Yadav SK 2019. Ultrasonication assisted salt-spices impregnation in black carrots to attain anthocyanins stability, quality retention and

- antimicrobial efficacy on hot-air convective drying. *Ultrasonics Sonochemistry* 58: 104661
8. Kumar V, Sandhu PP, Ahluwalia V, Mishra BB, Yadav SK. 2019. Improved upstream processing for detoxification and recovery of xylitol produced from corncob. *Bioresource Technology* 291: 121931.
 9. Vashisht A, Thakur K, Kauldhar BS, Kumar V, Yadav SK. 2019. Waste valorization: Identification of an ethanol tolerant bacterium *Acetobacter pasteurianus* SKYAA25 for acetic acid production from apple pomace. *Science of the Total Environment* 690:956-964.
 10. Purohit A, Kumar V, Chownk M, Yadav SK. 2019. Processing-Independent Extracellular Production of High Purity C-Phycocyanin from *Spirulina platensis*. *ACS Biomaterials Science & Engineering* 7: 3237-3245
 11. Pal P, Saravanamurugan S (2019) Recent advances on development of 5-hydroxymethylfurfural oxidation with base (non-precious) metal-containing catalysts. *ChemSusChem* 12, 145-163.
 12. He J, Li H, Saravanamurugan S, S. Yang (2019) Catalytic upgrading of biomass-derived sugars with acidic nanoporous materials: Structural role in carbon-chain length variation. *ChemSusChem* 12, 347-378.
 13. Garcia-Suarez E. J, Paolicchia D, Li H, He J, Yang S, Riisager A, Saravanamurugan S (2019) Pd-catalysed formation of ester products from cascade reaction of 5-hydroxymethylfurfural with 1-hexene. *Applied Catalysis A* 569, 170-174.
 14. Agarwal N, Narnoliya LK, Singh SP. 2019. Characterization of a novel amylosucrase gene from the metagenome of a thermal aquatic habitat, and its use in turanose production from sucrose biomass. *Enzyme and Microbial Technology* 131, 109372
 15. Kumar J, Sharma N, Kaushal G, Samurailatpam S, Sahoo D, Rai AK, Singh SP (2019) Metagenomic insights into the taxonomic and functional features of *Kinema*, a traditional fermented soybean product of Sikkim Himalaya. *Frontiers in Microbiology* 10, 1744.
 16. Narnoliya LK, Agarwal N, Patel SN, Singh SP (2019) Kinetic characterization of laccase from *Bacillus atrophaeus*, and its potential in juice clarification in free and immobilized forms. *Journal of Microbiology* 57(10):900-909
 17. Sharma M, Sangwan RS, Khatkar BS, Singh SP (2019) Alginate-pectin co-encapsulation of dextransucrase and dextranase for oligosaccharide production from sucrose feedstocks. *Bioprocess and Biosystems Engineering*. 42(10):1681-1693
 18. Sharma A, Thakur M, Bhattacharya M, Mandal T, Goswami S (2019) Commercial Application of Cellulose Nano-composites-A review. *Biotechnology Reports* e00316.
 19. Chandna S, Thakur NS, Reddy YN, Kaur R, Bhaumik J (2019) Engineering lignin stabilized bimetallic nanocomplexes: structure, mechanistic elucidation, antioxidant and antimicrobial potential. *ACS Biomaterial Science and Engineering* 5, 3212-3227
 20. Yattoo MA, and Saravanamurugan S (2019) Tin grafted on modified alumina-catalysed isomerisation of glucose to fructose. *Applied Catalysis A: General*. 582, 117094.
 21. Narnoliya LK, Kaushal G, Singh SP (2019) Long non-coding RNAs and miRNAs regulating terpene and tartaric acid biosynthesis in rose-scented geranium. *FEBS Letters*. 593, 2235–2249.
 22. Sucheta, Rai SK, Chaturvedi K, Yadav SK (2019) Evaluation of structural integrity and functionality of commercial pectin based edible films incorporated with corn flour, beetroot, orange peel, muesli and rice flour. *Food Hydrocolloids*. 91,127-135.
 23. Jadaun JS, Narnoliya LK, Agarwal N, Singh SP (2019) Catalytic biosynthesis of levan and short-chain fructooligosaccharides from sucrose-containing feedstocks by

- employing the levansucrase from *Leuconostoc mesenteroides* MTCC10508. *International Journal of Biological Macromolecules*. 127, 486-495.
24. Sucheta, Chaturvedi K, Sharma N, Yadav SK (2019) Composite edible coatings from commercial pectin, corn flour and beetroot powder minimize post-harvest decay, reduces ripening and improves sensory liking of tomatoes. *International Journal of Biological Macromolecules*. 133, 284-293.
 25. Maurya S, Chandra M, Yadav RK, Narnoliya LK, Sangwan RS, Sandhu P, Singh U, Kumar D, Sangwan NS (2019) Interspecies comparative features of trichomes in *Ocimum* reveal insights for biosynthesis of specialized essential oil metabolites. *Journal of Protoplasma*, xyz
 26. Kumar V, Sharma KD, Bansal V, Mehta D, Sangwan RS, Yadav SK (2019) Efficient and economic process for the production of bacterial cellulose from isolated strain of *Acetobacter pasteurianus* of RSV-4 bacterium. *Bioresource Technology*. 275, 430-433.
 27. Mehta D, Sharma N, Bansal V, Sangwan RS, Yadav SK (2019) Impact of ultrasonication, ultraviolet and atmospheric cold plasma processing on quality parameters of tomato-based beverage in comparison with thermal processing. *Innovative Food Science & Emerging Technologies*. 52, 343-349.
 28. Chownk M, Sangwan RS, Yadav SK (2019) A novel approach to produce glucose from the supernatant obtained upon the dilute acid pre-treatment of rice straw and synergistic action of hydrolytic enzymes producing microbes. *Brazilian Journal of Microbiology*. 50, 395-404.
 29. Chownk M, Thakur K, Yadav SK (2019) Retrospect and prospects of plant metabolic engineering. *Journal of Plant Biochemistry and Biotechnology*. 28, 1-13.
 30. Tiwari ON, Bhunia B, Chakraborty S, Goswami S, Devi I (2019) Strategies for improved production of phycobiliproteins (PBPs) by *Oscillatoria* sp. BTA170 and evaluation of its thermodynamic and kinetic stability. *Biochemical Engineering Journal*. 145, 153-161.
 31. Lalhal BB, Yadav SK, Hallan V (2019) "Promoter and methylation status analysis revealed the importance of PkGES gene in picroside biosynthesis in *Picrorhiza kurrooa*." *Journal of Plant Biochemistry and Biotechnology*. 1-13.
 32. Jeet R, Singh SP, Tiwari S, Pathak P (2019) Wheat TaVIT2D restores phenotype and mediates iron homeostasis during growth of *Arabidopsis thaliana* in iron-deficient conditions. *Indian Journal of Plant Physiology*. 24, 24-34.
 33. Bansal V, Jabeen K, Rao PS, Prasad P, Yadav SK (2019) Effect of high pressure processing (HPP) on microbial safety, physicochemical properties, and bioactive compounds of whey-based sweet lime (whey-lime) beverage. *Journal of Food Measurement and Characterization*. 13, 454-465.
 34. Singla G, Krishania M, Sandhu P, Sangwan RS, Panesar PS (2019) Value addition of kinnow industry byproducts for the preparation of fiber enriched extruded products, *Journal of Food Science and Technology*. 56, 1575-1582.

Books:

- Biomass, Biofuels, Biochemicals: Recent Advances in Development of Platform Chemicals. Elsevier 2019, ISBN: 978-0-444-64307-0. Editors: Saravanamurugan S, Pandey A, Li H, Riisager A.
- Current Developments in Biotechnology and Bioengineering: Synthetic Biology, Cell Engineering and Bioprocessing Technologies. Elsevier. 2019, ISBN: 9780444640857. Editors: Singh SP, Pandey A, Du G, Yadav SK.
- Molecular Approaches in Plant Biology and Environmental Challenges. Springer

Nature. 2019. ISBN 978-981-15-0689-5. Editors: Singh SP, Upadhyay SK, Pandey A, Kumar S.

2018

Research papers:

1. Li H, Zhao W, Dai W, Long J, Watanabe M, Meier S, Saravanamurugan S, Yang S, Riisager A (2018) Noble metal-free upgrading of multi-unsaturated biomass derivatives at room temperature: Silyl species enable reactivity. *Green Chemistry* 20, 5327-5335.
2. Govind K. S, He J, Schill L. Yang S, Riisager A, Saravanamurugan S (2018) Selective hydrodeoxygenation of alkyl lactates to alkyl propionates with Fe-based bimetallic supported catalysts. *Chem Sus Chem* 11 681-687.
3. Li H, Riisager A, S. Saravanamurugan, Pandey A, Sangwan R. S, Yang S, Luque R (2018) Carbon-increasing catalytic strategies for upgrading biomass into energy-intensive fuels and chemicals. *ACS Catalysis* 8, 148-187.
4. Li H, Gui Z, Yang S, Qi Z, Saravanamurugan S, Riisager A (2018) Catalytic tandem reaction for the production of jet/diesel fuel range alkanes by alkylation of 2-methyl furan and hydrodeoxygenation. *Energy Technology* 6, 1060-1066.
5. Kumar, S., Nepak, D., Kansal, S. K., & Elumalai, S. (2018). Expeditious isomerization of glucose to fructose in aqueous media over sodium titanate nanotubes. *RSC Advances* 8, 30106-30114.
6. Kumar, S., Ahluwalia, V., Kundu, P., Sangwan, R. S., Kansal, S. K., Runge, T. M., & Elumalai, S. (2018). Improved levulinic acid production from agri-residue biomass in biphasic solvent system through synergistic catalytic effect of acid and products. *Bioresource Technology* 251, 143-150.
7. Kundu, P., Kumar, S., Ahluwalia, V., Kansal, S. K., & Elumalai, S. (2018). Extraction of arabinoxylan from corn cob through modified alkaline protocol to improve xylooligosaccharides synthesis. *Bioresource Technology Reports* 3, 51-58.
8. Ahluwalia, V., Elumalai, S., Kumar, V., Kumar, S., & Sangwan, R. S. (2018). Nano silver particle synthesis using *Swertia paniculata* herbal extract and its antimicrobial activity. *Microbial pathogenesis* 114, 402-408.
9. Rai SK, Narnoliya LK, Sangwan RS, Yadav SK (2018) Self-assembled hybrid nanoflowers of manganese phosphate and L-arabinose isomerase, A stable and recyclable nanobiocatalyst for equilibrium level conversion of D-galactose to D-tagatose. *ACS Sustainable Chemistry and Engineering* 6, 6296-6304.
10. Jatav S, Pandey N, Dwivedi P, Bansal R, Ahluwalia V, Tiwari VK, Mishra BB (2018) Isolation of a new flavonoid and waste to wealth recovery of 6-O-ascorbyl esters from seeds of *Aegle marmelos* (family- Rutaceae). *Natural Product Research*. 1-7.
11. Kaushal G, Kumar J, Sangwan RS, Singh SP (2018) Metagenomic analysis of geothermal water reservoir sites exploring carbohydrate-related thermozymes. *International Journal of Biological Macromolecules* 119, 882-895.
12. Mehta D, Prasad P, Sangwan RS, Yadav SK (2018) Tomato processing byproduct valorization in bread and muffin, improvement in physicochemical properties and shelf-life stability. *Journal of Food Science and Technology* 55, 2560-2568.
13. Kauldhar BS, Yadav SK (2018) Turning waste to wealth, A direct process for recovery of nano-silica and lignin from paddy straw agro-waste. *Journal of Cleaner Production* 194, 158-166.
14. Kumar V, Krishania M, Sandhu PS, Ahluwalia V, Gnansouno E, Sangwan RS (2018) Efficient detoxification of corn cob hydrolysate with ion-exchange resins for enhanced

- xylitol production by *Candida tropicalis* MTCC 6192. *Bioresource Technology* 251, 416-419.
15. Singh V, Kaul S, Singh P, Kumar V, Sandhir R, Chung HJ, Garag P, Singhal NK (2018) Xylanase immobilization on magnetite and magnetite core/shell nanocomposites using two different flexible alkyl length organophosphonates, Linker length and shell effect on enzyme catalytic activity. *International Journal of Biological Macromolecules* 115, 590-599.
 16. Sharma A, Mandal T, and Goswami S (2018) Cellulose nanofibers from rice straw, Process development for improved delignification and better crystallinity index. *Trends In Carbohydrate Research* 9, 4
 17. Uday USP, Goswami S, Gopikrishna K, Bandyopadhyay TK, and Bhunia B (2018) Identification of markers at various stages of batch fermentation and improved production of xylanase using *Aspergillus niger* (KP874102. 1). *3 Biotech.* 8, 8-337.
 18. Lata K, Sharma M, Patel SN, Sangwan RS, Singh SP (2018) An integrated bio-process for production of functional biomolecules utilizing raw and by-products from dairy and sugarcane industries. *Bioprocess and Biosystems Engineering* 41, 1121-1131.
 19. Narnoliya LK, Sangwan RS, Singh SP (2018) Transcriptome mining and in silico structural and functional analysis of ascorbic acid and tartaric acid biosynthesis pathway enzymes in rose-scented geranium. *Molecular Biology Reports* 45, 315-326.
 20. Patel SN, Singh V, Sharma M, Sangwan RS, Singhal NK, Singh SP (2018) Development of a thermo-stable and recyclable magnetic nano-biocatalyst for bioprocessing of fruit processing residues and D-allulose synthesis. *Bioresource Technology* 247, 633-639.
 21. P Dwivedi, M Singh, U Singh, S Jatav, RS Sangwan, BB Mishra (2018) Iodosylbenzene (PhIO) mediated synthesis of rose oxide from β -citronellol and its application for in situ rose oxide enrichment led valorization of citronella essential oil. *Journal of Cleaner Production* 172, 1765-1771.
 22. Kumar J, Gunapati S, Kianian SF, Singh SP (2018) Comparative analysis of transcriptome in two wheat genotypes with contrasting levels of drought tolerance. *Protoplasma* 255, 1487-1504.
 23. Dwivedi P, Singh M, Sehra N, Pandey N, Sangwan RS, Mishra BB (2018) Processing of wet Kinnow mandarin (*Citrus reticulata*) fruit waste into novel Brønsted acidic ionic liquids and their application in hydrolysis of sucrose. *Bioresource Technology* 250, 621-624.
 24. Kirar S, Thakur NS, Laha JK, Bhaumik J, Banerjee UC (2018) Development of gelatin nanoparticle-based biodegradable phototheranostic agents: advanced system to treat infectious diseases. *ACS Biomaterial Science and Engineering* 4, 473-482.
 25. Dwivedee BP, Sharma M, Soni S, Bhaumik J, Laha JK, Banerjee UC (2018) Promiscuity of lipase-catalyzed reactions for organic synthesis: a recent update. *ChemistrySelect* 3, 2441-2466.
 26. Krishania M, Kumar V, Sangwan RS (2018) Integrated approach for extraction of xylose, cellulose, lignin and silica from rice straw. *Bioresource Technology Reports* 1, 89-93.

Review Article:

- Agarwal, B., Kailasam, K., Sangwan, R. S., & Elumalai, S. (2018). Traversing the history of solid catalysts for heterogeneous synthesis of 5-hydroxymethylfurfural from carbohydrate sugars: a review. *Renewable and Sustainable Energy Reviews.* 82, 2408-2425

Book:

- Recent Trends and Techniques in Plant Metabolic Engineering. Springer Nature. 2018, eBook ISBN 978-981-13-2251-8, Hardcover ISBN 978-981-13-2250-1, DOI 10.1007/978-981-13-2251-8. Editors: Yadav SK, Kumar V, Singh SP

2017

Research papers:

1. Saravanamurugan S, Tosi I, Rassmussen K. H, Jensen R. E, Taarning E, Meier S Riisager A (2017) Facile and benign conversion of sucrose to fructose using zeolites with balanced Brønsted and Lewis Acidity. *Catalysis Science & Technology* 7, 2782-2788.
2. Li H, Zhao W, Riisager A, Saravanamurugan S, Wang Z, Fang Z, Yang S (2017) A Pd-Catalyzed in situ domino process for mild and quantitative production of 2,5-dimethylfuran directly from carbohydrates. *Green Chemistry* 19, 2101-2106.
3. Li H, Yang S, Saravanamurugan S, Riisager A (2017) Glucose isomerization by enzymes and Chemo-catalysts: Status and current advances. *ACS Catalysis* 7, 3010-3029.
4. Li H, Yang T, Riisager A, Saravanamurugan S, Yang S (2017) Chemoselective synthesis of dithioacetals from bio-aldehydes with zeolites under ambient and solvent-free conditions. *ChemCatChem* 9, 1097-1104.
5. Singh U, Dwivedi P, Sangwan RS, Mishra BB (2017) In situ Rose oxide Enrichment led Valorization of Citronella (*Cymbopogon winterianus*) Essential oil. *Industrial Crops and Products* 97, 567-573.
6. Purohit A, Rai SK, Chownk M, Sangwan RS, Yadav SK (2017) Xylanase from *Acinetobacter pittii* MASK 25 (MTCC 25132) and developed magnetic-xylanase CLEA produce predominantly xylopentose and xylohexose from agro biomass. *Bioresource Technology* 244,793-799.
7. Manish and Yadav SK (2017) Technological advances and applications of hydrolytic enzymes for valorization of lignocellulosic biomass. *Bioresource Technology* 8524, 30720-30724.
8. Prasad U, Shankar U, Bandyopadhyay TK, Goswami S, and Bhunia B (2017) Optimization of physical and morphological regime for improved cellulase free xylanase production by fed batch fermentation using *Aspergillus niger* (KP874102. 1) and its application in bio-bleaching. *Bioengineered* 8, 137-146.
9. Sharma M, Patel SN, Sangwan RS, Singh SP (2017) Biotransformation of banana pseudo-stem extract into a functional juice containing value-added biomolecules of potential health benefits. *Indian Journal of Experimental Biology* 55, 453-462.
10. Narnoliya LK, Kaushal G, Singh SP, Sangwan RS (2017) De novo transcriptome analysis of rose-scented geranium provides insights into the metabolic specificity of terpene and tartaric acid biosynthesis. *BMC Genomics* 18, 74.
11. Salwan R, Sharma V, Pal M, Kasana RC, Yadav SK, Gulati A (2017) Heterologous expression and structure-function relationship of low-temperature and alkaline active protease from *Acinetobacter* sp. IHB B 5011(MN12). *International Journal of Biological Macromolecules* 107,567-574.
12. Singla R, Soni S, Patial V, Kulurkar PM, Kumari A, Mahesh S., Padwad YS, Yadav SK (2017) Cytocompatible Anti-microbial Dressings of *Syzygium cumini* cellulose

- nanocrystals decorated with silver nanoparticles accelerate acute and diabetic wound healing. *Scientific Reports* 7,10457.
13. Singla R, Soni S, Patial V, Kulurkar PM, Kumari A, Mahesh S, Padwad YS, Yadav SK (2017) In vivo diabetic wound healing potential of nanobiocomposites containing bamboo cellulose nanocrystals impregnated with silver nanoparticles. *International Journal of Biological Macromolecules* 105,45-55.
 14. Singla R, Soni S, Padwad YS, Acharya A, Yadav SK (2017) Sustained delivery of BSA/HSA from biocompatible plant cellulose nanocrystals for in vitro cholesterol release from endothelial cells. *International Journal of Biological Macromolecules* 104, 748-757.
 15. Shanmugam V, Sharma V, Bharti P, Jyoti P, Yadav SK, Aggarwal A, Jain S (2017) RNAi induced silencing of pathogenicity genes of *Fusarium* spp. for vascular wilt management in tomato. *Annals of Microbiology*. 67,359-369.
 16. Joshi R, Rana A, Kumar V, Kumar D, Padwad YS, Yadav SK, Gulati A (2017) Anthocyanins enriched purple tea exhibits antioxidant, immunostimulatory and anticancer activities. *Journal of Food Science Technology* 54,1953-1963.
 17. Kumar V, Yadav SK (2017) Pyramiding of tea dihydroflavonol reductase and anthocyanidin reductase increases flavan-3-ols and improves protective ability under stress conditions in tobacco. *3 Biotech*. 7,177.
 18. Bharti P, Jyoti P, Kapoor P, Sharma V, Shanmugam V, Yadav SK (2017) Host-induced Silencing of Pathogenicity Genes Enhances Resistance to *Fusarium oxysporum* Wilt in Tomato. *Molecular Biotechnology* 59, 343-352.
 19. Singla R, Soni S, Kulurkar PM, Kumari A, Mahesh S, Patial V, Padwad YS, Yadav SK (2017) In situ functionalized nanobiocomposites dressings of bamboo cellulose nanocrystals and silver nanoparticles for accelerated wound healing. *Carbohydrate Polymer* 155,152-162.
 20. Singh U, Dwivedi P, Sangwan RS, Mishra BB (2017) In situ rose oxide enrichment led valorization of citronella (*Cymbopogon winterianus*) essential oil. *Industrial Crops and Products*. 97, 567-573.
 21. Dwivedi P, Mishra KB, Mishra BB, VK Tiwari (2017) Click inspired synthesis of triazole-linked vanillin glycoconjugates. *Glycoconjugate Journal* 34, 61-70.
 22. Mantouvalou I, Lachmann T, Singh SP, Vogel-Mikus K, Kanngiesser B (2017) Advanced absorption correction for 3D elemental images applied to the analysis of pearl millet seeds obtained with a laboratory confocal micro X-ray fluorescence spectrometer. *Analytical Chemistry* 89, 5453-5460.
 23. Jadaun JS, Sangwan NS, Narnoliya LK, Tripathi S, Sangwan RS (2017) *Withania coagulans* tryptophan decarboxylase gene cloning, heterologous expression, and catalytic characteristics of the recombinant enzyme. *Protoplasma* 254(1), pp.181-192.
 24. Jadaun JS, Sangwan NS, Narnoliya LK, Singh N, Bansal S, Mishra B, Sangwan RS (2017) Over-expression of DXS gene enhances terpenoidal secondary metabolite accumulation in rose-scented geranium and *Withania somnifera*: active involvement of plastid isoprenogenic pathway in their biosynthesis. *Physiologia plantarum* 159, 381-400.
 25. Thakur NS, Bhaumik J, Kirar S, Banerjee UC (2017) Development of gold-based phototheranostic nanoagents through bioinspired route and their applications in photodynamic therapy. *ACS Sustainable Chemistry and Engineering* 5, 7950-7960.
 26. Dwivedee BP, Bhaumik J, Rai SK, Laha JK, Banerjee UC (2017) Development of nanobiocatalysts employing statistical design as an optimization tool for efficient immobilization of biocatalysts. *Bioresource Technology* 239, 464-471.

2016

Research papers:

1. Li H, Yang S, Riisager A, Pandey A, Sangwan R. S, Saravanamurugan S, Luque R (2016) Zeolite and zeotype-catalysed transformation of biofuranic compounds. *Green Chemistry* 18, 5701-5735.
2. Li H, He J, Riisager A, Saravanamurugan S, Song B, Yang S (2016) Acid-base bifunctional N-alkylphosphate nanohybrid for efficient hydrogen transfer of biomass-derived carboxides. *ACS Catalysis* 6, 7722-7727.
3. Saravanamurugan S, Meier S, Taarning E, Riisager A (2016) Mechanism and stereoselectivity of zeolite-catalysed sugar isomerisation in alcohols. *Chemical Communications* 52, 12773-12779.
4. Saravanamurugan S, Meier S, Taarning E, Riisager A (2016) Combined function of Brønsted and Lewis acidity in the zeolite-catalysed isomerisation of glucose to fructose in alcohols. *Chem. Cat. Chem.* 8, 3107-3111.
5. Elumalai, S., Agarwal, B., Runge, T. M., & Sangwan, R. S. (2016). Integrated two-stage chemically processing of rice straw cellulose to butyl levulinate. *Carbohydrate polymers* 150, 286-298.
6. Elumalai, S., Agarwal, B., & Sangwan, R. S. (2016). Thermo-chemical pretreatment of rice straw for further processing for levulinic acid production. *Bioresource technology* 218, 232-246.
7. Mishra BB, Kishore N, Tiwari VK (2016) A new antifungal Eudesmanolide Glycoside Isolated from *Sphaeranthus indicus* Linn. (Family-Compositae). *Natural Product Research.* 30, 2770-2776.
8. Patel SN, Sharma M, Lata K, Singh U, Kumar V, Sangwan RS, Singh SP (2016) Improved operational stability of D-psicose 3-epimerase by a novel protein engineering strategy, and D-psicose production from fruit and vegetable residues. *Bioresource Technology* 216, 121-127.
9. Kumar A, Chawla V, Sharma E, Mahajan P, Shankar R, Yadav SK (2016) Comparative transcriptome analysis of chinary, assamica and cambod tea (*Camellia sinensis*) types during development and seasonal variation using RNA-seq technology. *Scientific Reports* 17, 37244.
10. Bhardwaj J, Gangwar I, Panzade G, Shankar R, Yadav SK (2016) Global de novo protein-protein interactome elucidates interactions of drought-responsive proteins in Horsegram (*Macrotyloma uniflorum*). *Journal of Proteome Research* 15,1794-1809.
11. Pathak AK, Singh SP, Gupta Y, Gurjar AK, Mantri SS, Tuli R (2016) Transcriptional changes during ovule development in two genotypes of litchi (*Litchi chinensis* Sonn.) with contrast in seed size. *Scientific Reports* 8, 36304.
12. Patel SN, Sharma M, Lata K, Singh U, Kumar V, Sangwan RS, Singh SP (2016) Improved operational stability of D-psicose 3-epimerase by a novel protein engineering strategy, and D-psicose production from fruit and vegetable residues. *Bioresource Technology* 216,121-27.
13. Sharma M, Patel SN, Lata K, Singh U, Krishania M , Sangwan RS, Singh SP (2016) A novel approach of integrated bioprocessing of cane molasses for production of prebiotic and functional bioproducts. *Bioresource Technology* 219, 311-318.
14. Mishra S, Bansal S, Mishra B, Sangwan RS, Jadaun JS, Sangwan NS (2016) RNAi and homologous over-expression based functional approaches reveal triterpenoid synthase

gene-cycloartenol synthase is involved in downstream withanolide biosynthesis in *Withania somnifera*. *PLoS One* 11, p.e0149691.

Review Article:

- VK Tiwari, BB Mishra, KB Mishra, N Mishra, AS Singh, X Chen, (2016) Cu-catalyzed click reaction in carbohydrate chemistry. *Chemical reviews* 116, 3086-3240

2015

Research papers:

- Srivastava S, Sangwan RS, Tripathi S, Mishra B, Narnoliya LK, Misra LN, Sangwan NS (2015) Light and auxin responsive cytochrome P450s from *Withania somnifera* Dunal: cloning, expression and molecular modelling of two pairs of homologue genes with differential regulation. *Protoplasma* 252, 1421-1437.
- Kumari A, Kaur B, Srivastava R, Sangwan RS (2015) Isolation and immobilization of alkaline protease on mesoporous silica and mesoporous ZSM-5 zeolite materials for improved catalytic properties. *Biochemistry and Biophysics Reports* 2, 108-114.