Dr. Rakesh Kumar
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https://www.researchgate.net/profile/Rakesh_Kumar305
https://scholar.google.co.in/citations?user=ye5GbHiyip4C&hl=en



RESEARCH INTEREST

Plant developmental biology and pathogen interactions—focusing on seed dormancy, organ development, abiotic stress, and fruit senescence using multi-omics, genome editing, metabolite mapping, and translational pharmacology.

POSITIONS

2023-current: Assistant Professor (senior scale), Department of Life Science, School of Life Sciences, Central University of Karnataka
2021-2023: Coordinator, Department Life Science, School of Life Sciences, Central University of Karnataka
2021- till date: Nodal Officer, Covid lab, Central University of Karnataka
2021- present: Board of examination, Department of Botany, Gulbarga University, Karnataka
June 2021- Present: Coordinator, Department of Life sciences, central University of Karnataka
November 2019 – Present: Assistant Professor, Department of Life Science, School of Life Sciences, Central University of Karnataka

November 2019: Selected as Assistant Professor, College of Life Sciences, China Jiliang University, China (*declined, not-availed*)

April 2017 – Sep 2019: N-PDF and Post-doctoral fellow, Mentor Dr. Rajeev k Varshney, Center of Excellence in Genomics & Systems Biology, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru

June 2016 – Feb 2017: Research associate, Mentor- Prof R P Sharma, Repository of Tomato Genomics Resources (RTGR), Department of Plant Science, University of Hyderabad

EDUCATION

July 2009 – June 2016: PhD, supervisor Prof Y Shreelakshmi, Department of Plant Sciences, University of Hyderabad, Hyderabad, India

2007 – 2009: Masters in Plant Sciences from Department of Plant Science, University of Hyderabad, Hyderabad, India

2004 – 2007: Bachelors in Botany (Hons.) with Zoology and Chemistry from Banaras Hindu University, India
Number of PhD student: 2
Number of MSc student guided: 20

ACADEMIC ACHIEVEMENTS

1. Participated as a resource person: First National Workshop on plant metabolomics. From sample preparation to plant metabolomics.26th Feb to 2nd March 2024, Sponsored by DBT SAHAJ, Organized by RTGR, Department of Plant Sciences, University of Hyderabad.
2. An invited an invited on "Omics Omics Omics Approaches for Deeper understanding of Key Traits and Crop improvement" in ‘SB Centenary Talk Series: 4 - Omics and Crop Improvement, on 9 July 2021 in connection with the Centenary Celebrations of college.

3. Received "Frontiers and SPAST Research Recognition Award" for giving, 'Invited Talk' on "Omics Approaches for Crop Improvement" at the First International Conference on Technologies, Sustainable Development Goals and Academia 2022 (ICTSGA-1), July 1-2, 2022, 2022 | Online | Worldwide
4. Editor for Scientific Reports a Nature portfolio grp.
5. Guest editor and reviewer for Frontiers, MDPI, Plant Sciences, etc.
6. Outstanding research article award by International Crops Research Institute for the Semi-Arid Tropics, India. 2021.
7. Award for publishing high impact research article, Dept. of Plant Sciences, University of Hyderabad, (2019)
8. Co-PI of an international grant, National Natural Science Foundation, China (2019)
9. Workshop & Co-PI project review meet at Shandong Academy of Agricultural Sciences, China (2018)
10. First Grant as a principle investigator" award by ICRISAT (2017)
11. DST-SERB NPDF fellowship & research grant, India (2017)
12. Indo-Israel International Fellowship, Agricultural Research Organization, Israel, not availed (2016)
13. DBT-CTEP International Travel Grant, to attend an international scientist conference in China (2013)
14. Agricultural Scientists Recruitment Board-NET, Indian Council of Agricultural Research (ICAR), India (2010)
15. GATE, IIT-Roorkee, India (2010)
16. CSIR-JRF Fellowship, India (2009)

PROJECT GRANTS (3)

1. Project title: A functional genomics approach to decipher strategic modification and regulatory mechanisms involved in drought stress avoidance in groundnut

Role: PI

Project duration: 2 years (2017-2019)

Project Budget: INR 19.2 lakhs (including scholarship)

Funding Agency: DST-SERB, N-PDF, New Delhi, India

2. Project title: Genes/QTLs identification for late leaf spot resistance from wild *Arachis* species and development of marker-assisted selection techniques..

Role: Co-PI

Project duration: 5 years (2019-2023).

Project Budget: 169.0 lakhs

Funding Agency: National Natural Science Foundation of China

3. Project title: Metabolomics study of leaf to capture the molecular signatures, and their association with fruit metabolic footprint in tomato novel *NOR* mutants

Role: PI

Project duration: 3 years (2021-2023)

Project Budget: INR 8 lakh.

Funding Agency: UGC Start-up Grant (No.F.30-546/2021 (BSR), New Delhi, India

4. Project title: Identification and characterization of novel compounds and alkaloid(s) molecules from *Calotropis* sp. as cure for breast cancer

Role: Co-PI

Project duration: 5 years (2025-2029)

Project Budget: INR 67 lakh

Funding Agency: ANRF. New Delhi, India

POSTERS AND ORAL PRESENTATIONS

1. *NAC-NOR* mutations in tomato Penjar accessions attenuate multiple metabolic processes and prolong the fruit shelf life. *Oral presentaion* **Plant Sciences colloquium-2019**, Dept. of Plant Sciences, University of Hyderabad, India
2. A functional genomics approach to decipher strategic modification and regulatory mechanisms for drought stress avoidance in groundnut. **VI NGGIBCI Conference-2017**, ICRISAT
3. Metabolic Characterization of Penjar accessions during ripening and postharvest storage. **SOL-2016,** 13th Solanaceae Conference, Davis, California, USA.
4. Metabolic analysis of tomato Delayed Fruit Deterioration (DFD) cultivars. **Plant Sciences colloquium-2014**, Dept. of Plant Sciences, University of Hyderabad, India
5. Chromoplast-specific carotenoid-associated protein appears to be important for enhanced accumulation of carotenoids in *hp1* tomato fruits. **SOL-2013,** 10th Solanaceae Conference, Beijing, China
6. Identification of natural allelic variants for *non-ripening* (*NOR*) gene in tomato using EcoTILLING. **SOL-2013,** 10th Solanaceae Conference, Beijing, China
7. Proteomic analysis reveals modulation of multiple metabolic pathways by *high pigment1* locus of tomato during fruit ripening, **Indo-German Symposium-2011,** Indian National Science Academy, New Delhi, India
8. Influence of DNA binding protein on tomato fruit proteome. **SOL-2009**
9. K.Priscilla ,Dr.Rakesh Kumar,Rinku dagar,Dr.Vimal Kishore.,Identifying antioxidant and anticancerous bioactive compounds present in Calotropis sp.,International conference on bridging knowledge from diverse disciplines for global change,6-7 March 2024,Khaja Bandanawaz University, Kalaburagi.
10. Rinku Dagar, Kagolla Priscilla, Vimal kumar, Rakesh Kumar,
Comparative study of anti-oxidant phytochemical in the leaf and fruit pod of cryptostegia grandiflora. International conference on Bridging Knowledge From Diverse Disciplines for Global Change, March 6-7,2024. Oganised by Faculties of Art, Humanities, Social science, Language, Science, Law, Commerce, and Education, Khaja Bandanawaz University, Gulbarga
11. 25-27 Feb. 2026 Poster presentation on topic Metabolic characterization of the pharmacological importance plant Cryptostegia grandiflora: A potential key source for treatment of Alzheimer's disease in National conference on Advance in plant and Environmental interactions (APEI 2026) Hyderabad
12.

SPECIAL ATTAINMENTS/ TECHNOLOGY DEVELOPED

1. Discovery of a novel allele of *NAC-NOR* and new source of shelf life in fleshy fruit: ***Available in public domain.*** Please refer Kumar et al. 2018. doi: 10.1016/j.foodchem.2018.03.135.

2. Discovery of novel markers and regulator gene for fresh seed dormancy in groundnut: ***Available in public domain.*** Please refer Kumar et al. 2020. doi: 10.1111/pbi.13266.

3. Development of Single Seed Based high throughput (SSB-HT) low cost genotyping method for groundnut for accelerated breeding in growundnut: ***Available in public domain.*** Please refer Parmar et al. 2021. doi: 10.3390/agronomy11061226..

RESEARCH ARTICLE PUBLISHED (28)

1. Mansoori A, Madan M, Das S, **Kumar R***, and Kumar A* (2026) Integrated Metabolomics and Bioactivity Analysis of *Cynoglossum lanceolatum* Root Extract as a Natural Inducer of Resistance to Rice Bacterial Blight. *Frontiers in genetics*. Accepted. 17:1775858 **(IF- 3.0)**

2. Charakana C, Gupta SK, Sunkum A, Valluri S, Bagri J, Tyagi K, **Kumar R**, et al., (2026) Loss-of-Function RUP-Variants Influence Ubiquitin-Proteasome System and Enhance Carotenoid and Folate Levels in Tomato. *Horticultural Plant Journal.* UNDER REVIEW **(IF- 7.6)**

3. Gautam A, Sharma V, Chauhan C, Thakur A, Pandey MK, Priscilla K, Dagar R, Jin X, Sukla P, Kumar A, **Kumar R*** (2025) Fortifying Crops with Micronutrients for Sustainable Global Nutritional Security. *Agronomy Journal* 117(3). e70086 **(IF- 2.5)**
4. Bomireddy D, Sharma V, Gangurde S, Mohinuddin D K, **Kumar** R et al. (2024) Multi-Locus Genome Wide Association Study Uncovers Genetics of Fresh Seed Dormancy in Groundnut, *BMC Genomics*. 24(1), 1258 **(IF- 3.9)**
5. Shukla P, Kumar A, **Kumar R.** (2023). Climate change and stress mitigation strategy in plants. *Frontiers in Plant Science*, *14*, 1291905. **(IF- 5.9)**
6. Lokya V, Parmar S, Pandey AK, Sudini HK Huai D, Ozias-Akins P, Foyer CH, Nwosu CV, Karpinska B, Baker A, Xu P, **Kumar R**, et al. 2023. Prospects for developing allergen-depleted food crops. *The Plant Genome*, p. e20375. **(IF- 4.3)**
7. Mishra N, Rana K, Seelam SD, **Kumar R**, Pandey V, Salimath BP, Agsar D (2021) Characterization and cytotoxicity of *Pseudomonas* mediated Rhamnolipids against breast cancer MDA-MB-231 cell line. *Frontiers in Bioengineering and Biotechnology Industrial Biotechnology*. 9, 761266, **(IF- 5.8)**
8. Singh N, Mansoori A, Jiwani G, Solanke A U, Thakur TK, **Kumar R**, ... & Kumar A. (2021). Antioxidant and Antimicrobial Study of *Schefflera vinosa* Leaves Crude Extracts Against Rice Pathogens. *Arabian Journal of Chemistry*, 103243. **(IF- 5.3)**
9. Parmar S, Deshmukh DB, **Kumar R**, et al. (2021). Single Seed-Based High-Throughput Genotyping and Rapid Generation Advancement for Accelerated Groundnut Genetics and Breeding Research. *Agronomy*, *11*(6), 1226. **(IF- 4.1)**
10. Bhogireddy S, Mangrauthia SK, **Kumar R**, et al., (2021) Regulatory non-coding RNAs: A new frontier in regulation of plant biology. Functional & Integrative Genomics 21(3-4): 313-330 **(IF- 4.0)**
11. Singh N, Mansoori A, Jiwani G, Solanke AU, **Kumar R**, Kumar A. (2021) Evaluation of antioxidant and antimicrobial potential of *Thespesia lampas* root extracts. *Journal of Experimental Biology and Agricultural Sciences.* 9(1), 87 – 99.
12. Thomas S, **Kumar R**, Sharma K, Barpanda A, Sreelakshmi Y, Sharma R, Srivastava S. (2021) iTRAQ-based proteome profiling revealed the role of PhyA in regulating primary metabolism in tomato seedling. *Scientific Reports* 11:7540 (**IF- 4.9**)
13. **Kumar R***, Sharma V, Suryavanshi SS, Ramrao DP, et al, (2021) Understanding Omics Driven Plant Improvement and De-Novo Crop Domestication: Some Examples. *Frontiers in Genetics* 12:637141. **(IF- 3.0)**
14. Sharma V, Gupta P, Kagolla P, SharanKumar, BhagyaShree, Veershetty A, Ramrao DP, Suryavanshi SS,…… **Kumar R*** (2021) Metabolomics Intervention Towards Better Trait Understanding in Plants. Cells *10*(2), 346 **(IF- 6.0)**
15. Soni P, Nayak SN, **Kumar R**, et. al., (2020) Transcriptome Analysis Identified Coordinated Control of Key Pathways Regulating Cellular Physiology and Metabolism upon Aspergillus flavus Infection Resulting in Reduced Aflatoxin Production in Groundnut. *Journal of Fungi*. 2020; 6(4):370. **(IF- 4.3)**
16. Kumar A, **Kumar R**, Sengupta D, et al. (2020) Deployment of genetic and genomic tools towards gaining a better understanding of Rice-Xanthomonas oryzae pv. oryzae interactions for development of durable bacterial blight resistant rice. *Frontiers in Plant Sciences* https://doi.org/10.3389/fpls.*2020*.01152 **(IF- 5.9)**
17. **Kumar R**, Kumar R, Janila P, Vishwakarma MK, Khan AW, Manohar SS, Gangurde SS,et al. (2020) QTL-seq identified candidate genes and molecular markers for fresh seed dormancy in groundnut. *Plant Biotechnology Journal* 18, 992–1003 **(IF- 12.8)**
18. MK, Pandey AK, **Kumar R**, e al. 2020. Translational genomics for achieving higher genetic gains in groundnut. *Theoretical and Applied Genetics*. 133, 1679–1702 **(IF- 4.1)**

19. Soni P, Gamgurde S, Ortega-Beltran A, **Kumar R**, et al. (2020) Functional biology and molecular mechanisms of host-pathogen interaction for aflatoxin contamination in groundnut (*Arachis hypogaea L.)* and maize (*Zea mays L.*). *Frontiers in Microbiology* doi: 10.3389/fmicb.2020.00227 (**IF- 6.06**)

20. Sharma V, Bhattacharyya S, **Kumar R**, et al. (2020) Molecular basis of root nodule symbiosis between *Bradyrhizobium* and 'Crack-Entry' legume groundnut (*Arachis hypogaea* L.). *Plants*. 9, 276 (**IF- 4.6**)

21. **Kumar R**, et al. (2019**)** Peg Biology: deciphering the molecular regulations involved during peg development. *Frontiers in Plant Science.* 10, 1289 (**IF- 5.9**)

22. Pandey MK, **Kumar R**, et al. (2019) Mitigating Aflatoxin Contamination in Groundnut through A Combination of Genetic Resistance and Post-Harvest Management Practices *Toxin* 11, 315 **(IF- 4.6)**

23. Progress in understanding drought tolerance: from alleles to cropping systems. (2018) Journal of experimental Botany 69(13), 3175–3179 **Acknowledged by editor for assisting help in editing of a special issue**. **(IF- 5.91)**

24. Sehgal A, Sita K, Siddique KH, **Kumar R** *et al.* (2018) Drought or/and Heat-Stress Effects on seed filling in food crops: impacts on functional biochemistry, seed yields, and nutritional quality. *Frontiers in Plant Sciences* 9,1705 **(IF- 5.9)**

25. **Kumar R,** Tamboli V, Sharma R, Sreelakshmi Y (2018) *NAC-NOR* mutations in tomato Penjar accessions attenuate multiple metabolic processes and prolong the fruit shelf life. *Food Chemistry* 259, 234–244 **(IF- 9.23).**

26. **Kumar R,** Bohra A, Pandey A, Pandey M, Kumar A (2017) Metabolomics for plant improvement: Status and prospects. *Frontiers in Plant Science* 8, 1302 (**IF- 5.9**).

27. Mohan V, Gupta S, Thomas S, Mickey H, Charakana C, Chauhan V, Sharma K, Kumar R, et al. (2015) Tomato fruits show wide phenomic diversity but fruit developmental genes show low genomic diversity. *PLoS ONE* 11(4), e0152907 (**IF- 3.66**) 10.1371/journal.pone.0152907

28. Kilambi HV, **Kumar R**, Sharma R, Sreelakshmi Y (2013) Chromoplast-specific carotenoid-associated protein appears to be important for enhanced accumulation of carotenoids in hp1 tomato fruits. *Plant Physiology* 161(4), 2085-101 (**IF- 8.4**) doi: 10.1104/pp.112.212191

RESEARCH BOOK CHAPTER PUBLISHED (17)

1. Gautam A, Thakur A, Chauhan C, Sharma V, Sivakumar KB, Kumar R, Chetia SK. (2024) Rice Submergence Tolerance: Emerging Molecular Breeding Strategies in the Post-genomic Era. (proff submitted). In, Plant Speed Breeding and High-throughput Technogies. CRC Press, Taylor & Francis. (proof read submitted)
2. Gautam A, Thakur A, Chauhan C, Sharma V, Kumar R. (2024) Epigenetics for combating multi-stressors in plants under global climate change: Updated methods and current achievements. *In*, Epigenetics for Climate-Smart and Sustainable Agricuture. CABI. (proff submitted)
3. Naik Y.D **Kumar R**., et al. (2024). Bioinformatics for Plant Genetics and Breeding Research. In: Pandey, M.K., Bentley, A., Desmae, H., Roorkiwal, M., Varshney, R.K. (eds) Frontier Technologies for Crop Improvement. Sustainability Sciences in Asia and Africa. Springer, Singapore. ISBN: 978-981-99-4672-3
4. Sharma V, **Kumar R** (2024) Advances in Microbial Study for Crop Improvement. In, Genome Editing in Bacteria, Publisher: Bentham and Science Publishers. 10.2174/9789815223798124010003 ISBN: 978-981-5223-80-4
5. Priscilla K ..... **Kumar R**. et al. (2024). Carotenoid Extraction from Plant Tissues. In: Maghuly, F. (eds) Plant Functional Genomics. Methods in Molecular Biology, vol 2788. Humana, New York, NY. https://doi.org/10.1007/978-1-0716-3782-1_1
6. Dagar R, Gautam A, Priscilla K, Sharma V, Gupta P, **Kumar R**. (2024). Sample Preparation from Plant Tissue for Gas Chromatography–Mass Spectrometry (GC-MS)we. In: Maghuly, F. (eds) Plant

Functional Genomics. Methods in Molecular Biology, vol 2788. Humana, New York, NY. https://doi.org/10.1007/978-1-0716-3782-1_2

7. Kumar A, **Kumar R**, Shukla P, Singh S, Alam M, Singh DP. (2022) Update on cloning and molecular characterization of bacterial blight resistance genes in rice. *In, Molecular Response and Genomic Engineering for Abiotic Stress in Plants, Volume 2.* ISBN: 9780750349246
8. Mansoori A, Dubey SK, Mohan M, **Kumar R**, Singh DK, Kumar A (2022) The role of antioxidant system vis-à-vis reactive oxygen species with respect to plant–pathogen interaction. *In, Molecular Response and Genomic Engineering for Abiotic Stress in Plants*, Volume 2. ISBN: 9780750349246
9. Chauhan C, Sharma V, Thakur A, Verma SK, Tewari SK, Panwar RK, **Kumar R**, Gautam A. (2022) Understanding environmental associated biotic stress response in plants. *In, Molecular Response and Genomic Engineering for Abiotic Stress in Plants, Volume 2.* ISBN: 9780750349246
10. Sharma V, Jambaladinni K, Singh N, Mishra N, Kumar A, **Kumar R**. (2022) Understanding environmental associated abiotic stress response in plants under changing climate. *In, Molecular Response and Genetic Engineering for Stress in Plants, Volume 1.* ISBN: 9780750349192
11. Vishwakarma A, Suresh S, Kagolla P, Ramrao DP, Singh NK, Shukla P, **Kumar R**, Kumar G. (2022) Oxidative stress responses in plants to abiotic stress tolerance. *In, Molecular Response and Genetic Engineering for Stress in Plants, Volume 1.* ISBN: 9780750349192
12. **Kumar R**, et al., Genome Editing Technologies for Plant Improvement: Advances, Applications and Challenges. In *Omics technologies for sustainable agriculture and global food security (Vol-1).* 10.1007/978-981-16 0831-5 **Springer Nature,** eBook ISBN: 978-981-16-0831-5
13. Singh, N; Mansoori, A; **Kumar R**; Kumar, A. (2021) Potential of Metabolomics in Plant Abiotic Stress Management. In, Omics Technologies for Sustainable Agriculture and Global Food Security (Vol II). Springer International Publishing.
14. Narasanna R, Mansoori A, Mishra N, Sharma V, Thomas S, Vishwakarma A, Agsar D, Kumar A, Pandey MK, **Kumar R** (2021) Plant Metabolomics for Crop Improvement. D. Kumar Srivastava et al. (eds.), Agricultural Biotechnology: Latest Research and trends. eBook ISBN: 978-981-16-2339-4. 10.1007/978-981-16-2339-4
15. Nayak S, Hebbal V, Soni P, **Kumar R**, et al. (2021**)** Groundnut Kernel Transcriptome. In: Cifuentes, A. (Ed.), Comprehensive Foodomics, vol. 1. Elsevier, pp. 528–543. https://linkinghub.elsevier.com/retrieve/pii/B9780081005965227467
16. Kumar A, **Kumar R**, Singh N, Mansoori A. (2020) Regulatory Framework and Policy Decisions for Genome-Edited Crops. In: Bhattacharya A, Parkhi V, Char B. (eds) CRISPR/Cas Genome Editing. Concepts and Strategies in Plant Sciences. Springer, Cham. https://doi.org/10.1007/978-3-030-42022-2_9
17. Gangurde SS, **Kumar R**, et al. (2019) Climate-smart groundnuts for achieving high productivity and improved quality: current status, challenges, and opportunities. In, genomic designing of climate-smart oilseed crops. Springer International Publishing. Pages 133-172 DOI:10.1007/978-3-319-93536-2_3

International Books Published (4)

1. Anirudh Kumar, **Rakesh Kumar**, Pawan Shukla**,** Manish K Pandey- **2021** *Editors, Omics technologies for sustainable agriculture and global food security (Vol-1).* 10.1007/978-981-16-0831-5 **Springer Nature,** eBook ISBN: 978-981-16-0831-5

2. Anirudh Kumar, **Rakesh Kumar**, Pawan Shukla**,** Hitendra K Patel- **2021** *Editors, Omics technologies for sustainable agriculture and global food security (Vol-II).* **Springer Nature**, eBook ISBN: 9811629552

3. Pawan Shukla, Anirudh Kumar, **Rakesh Kumar**, Manish K Pandey **2022** *Editors,* Molecular Response and Genetic Engineering for Abiotic Stress in Plants *(Vol- 1).* **IOP science Publications** Online ISBN: 978-0-7503-4921-5

4. Pawan Shukla, Anirudh Kumar, **Rakesh Kumar**, Manish K Pandey **2022** *Editors, Molecular Response and Genetic Engineering for Abiotic Stress in Plants (Vol- I1).* **IOP science Publications** Online ISBN: 978-0-7503-4926-0

1.4 Publications ***(List of papers published in SCI Journals, in year wise descending order).***

S.No.	Author(s)	Title	Name of Journal	Year	Volume	Page	Link (DOI)	ISSN	Scopus	Impact factor
1	Kilambi HV, Kumar R, Sharma R, Sreelakshmi Y	Chromoplast-specific carotenoid-associated protein appears to be important for enhanced accumulation of carotenoids in hp1 tomato fruits.	Plant Physiology	2013	161(4)	2085-101	10.1104/pp.112.212191	1532-2548	Yes	8.8
2	Mohan V, Gupta S, Thomas S, Mickey H, Charakana C, Chauhan V, Sharma K, Kumar R, et al.	Tomato fruits show wide phenomic diversity but fruit developmental genes show low genomic diversity.	*PLoS ONE*	2015	11(4)	e0152907	10.1371/journal.pone.0152907	1932-6203	Yes	2.8
3	**Kumar R,** Bohra A, Pandey A, Pandey M, Kumar A	Metabolomics for plant improvement: Status and prospects.	*Frontiers in Plant Science*	2017	8	1302	10.3389/fpls.2017.01302	1664-462X	Yes	5.9
4	**Kumar R,** Tamboli V, Sharma R, Sreelakshmi Y	*NAC-NOR* mutations in tomato Penjar accessions attenuate multiple metabolic processes and prolong the fruit shelf life.	*Food Chemistry*	2018	259	234–244	doi.org/10.1016/j.foodchem.2018.03.135	1873-7072	Yes	10.4
5	Sehgal A, Sita K, Siddique KH, **Kumar R** *et al.*	Drought or/and Heat-Stress Effects on seed filling in food crops: impacts on functional biochemistry, seed yields, and nutritional quality.	*Frontiers in Plant Sciences*	2018	9	1705	doi.org/10.3389/fpls.2018.01705	1664-462X	Yes	5.9
6	Pandey MK, **Kumar R,** et al.	Mitigating Aflatoxin Contamination in Groundnut through A Combination of Genetic Resistance and Post-	*Toxin*	2019	11	315	https://doi.org/10.3390/toxins11060315	2072-6651	Yes	4

		Harvest Management Practices								
7	**Kumar R**, et al.	Peg Biology: deciphering the molecular regulations involved during peg development.	*Frontiers in Plant Science.*	2019	10	1289	https://doi.org/10.3389/fpls.2019.01289	1664-462X	Yes	5.9
8	Sharma V, Bhattacharyya S, **Kumar R**, et al.	Molecular basis of root nodule symbiosis between *Bradyrhizobium* and 'Crack-Entry' legume groundnut (*Arachis hypogaea* L.).	*Plants.*	2020	9	276	10.3390/plants9020276	2223-7747	Yes	4.7
9	**Kumar R**, et al. (2019**)**	Peg Biology: deciphering the molecular regulations involved during peg development.	*Frontiers in Plant Science.*	2019	10	1289	10.3389/fpls.2019.01289	1664-462X	Yes	5.9
10	Soni P, Gamgurde S, Ortega-Beltran A, **Kumar R**, et al.	Functional biology and molecular mechanisms of host-pathogen interaction for aflatoxin contamination in groundnut (*Arachis hypogaea L.)* and maize (*Zea mays L.*).	*Frontiers in Microbiology*	2020	11	227	10.3389/fmicb.2020.00693	1664-302X	Yes	5.8
11	MK, Pandey AK, Kumar R, e al.	Translational genomics for achieving higher genetic gains in groundnut.	*Theoretical and Applied Genetics*.	2020	133	1679–1702	10.1007/s00122-020-03592-2	0040-5752	Yes	4.1
12	**Kumar R**, Janila P, Vishwakarma MK, Khan AW, Manohar SS, Gangurde SS, Variath MT, Shasidhar	QTL-seq identified candidate genes and molecular markers for fresh seed	*Plant Biotechnology Journal*	2020	18	992–1003	10.1111/pbi.13266	1467-7652	Yes	12.8

	Y, Pandey MK, Varshney RK.	dormancy in groundnut.								
13	Kumar A, **Kumar R**, Sengupta D, et al.	better understanding of Rice-Xanthomonas oryzae pv. oryzae interactions for development of durable bacterial blight resistant rice.	*Frontiers in Plant Sciences*	2020	11	1152	10.3389/fpls.2020.01152	1664-462X	Yes	5.9
14	Soni P, Nayak SN, **Kumar R**, et. al.,	Transcriptome Analysis Identified Coordinated Control of Key Pathways Regulating Cellular Physiology and Metabolism upon Aspergillus flavus Infection Resulting in Reduced Aflatoxin Production in Groundnut.	*Journal of Fungi*.	2020	6(4)	370	10.3390/jof6040370	2309-608X	Yes	4.3
15	Sharma V, Gupta P, Kagolla P, SharanKumar, BhagyaShree, Veershetty A, Ramrao DP, Suryavanshi SS,…… **Kumar R***	Metabolomics Intervention Towards Better Trait Understanding in Plants.	Cells	2021	*10*(2),	346	10.3390/cells10020345	2073-4409	Yes	6
16	**Kumar R***, Sharma V, Suryavanshi SS, Ramrao DP, et al,	Understanding Omics Driven Plant Improvement and De-Novo Crop Domestication: Some	*Frontiers in Genetics*	2021	12	637141.	10.3389/fgene.2021.637141	1664-8021	Yes	3

		Examples.								
17	Thomas S, **Kumar R**, et al.,	iTRAQ-based proteome profiling revealed the role of PhyA in regulating primary metabolism in tomato seedling.	*Scientific Reports*	2021	11	7540	10.1038/s41598-021-99528-7	2045-2322	Yes	4.9
18	Singh N, Mansoori A, Jiwani G, Solanke AU, **Kumar R**, Kumar A.	Evaluation of antioxidant and antimicrobial potential of *Thespesia lampas* root extracts.	*Journal of Experimental Biology and Agricultural Sciences.*	2021	9(1),	87 – 99	10.18006/2018.6(5).835.845	2320-8694	Yes	Scopus index, impact yet to be released
19	Bhogireddy S, Mangrauthia SK; **Kumar R**, et al.,	Regulatory non-coding RNAs: A new frontier in regulation of plant biology.	Functional & Integrative Genomics		21(3-4)	313-330	10.1007/s10142-021-00810-7	1438-793X	Yes	4
20	Parmar, S., Deshmukh, D. B., **Kumar, R.**, et al.	Single Seed-Based High-Throughput Genotyping and Rapid Generation Advancement for Accelerated Groundnut Genetics and Breeding Research.	*Agronomy*	2021	*11*(6),	1226	10.3390/agronomy11122557	2073-4395	Yes	4.5
21	Singh, N., Mansoori, A., Jiwani, G., Solanke, A. U., Thakur, T. K., **Kumar R**., ... & Kumar, A.	Antioxidant and Antimicrobial Study of *Schefflera vinosa* Leaves Crude Extracts Against Rice Pathogens.	*Arabian Journal of Chemistry*	2021	1	103243.	10.1016/j.arabjc.2023.104753	1878-5352	Yes	5.3

22	Mishra N, Rana K, Seelam SD, **Kumar R**, Pandey V, Salimath BP, Agsar D	Characterization and cytotoxicity of *Pseudomonas* mediated Rhamnolipids against breast cancer MDA-MB-231 cell line.	Frontiers in Bioengineering and Biotechnology Industrial Biotechnology	2021	9	761266	10.3389/fbioe.2021.724623	2296-4185	Yes	5.8
23	Lokya V, Parmar S, Pandey AK, Sudini HK Huai D, Ozias-Akins P, Foyer CH, Nwosu CV, Karpinska B, Baker A, Xu P, **Kumar R**, et al.	Prospects for developing allergen-depleted food crops.	The Plant Genome	2023	16(4)	p.e20375.	10.1002/tpg2.20335	1940-3372	Yes	4.3
24	Shukla P, Kumar A, **Kumar, R**.	Climate change and stress mitigation strategy in plants.	*Frontiers in Plant Science*	2023	*14*	1291905.	10.3389/fpls.2022.955743	1664-462X	Yes	5.9
25	Bomireddy D, Sharma V, Gangurde SS, Mohinuddin DK, **Kumar R,** Senthil R, Singh K, Reddisekhar M, Bera SK, Pandey MK.	Multi-locus genome wide association study uncovers genetics of fresh seed dormancy in groundnut.	BMC Plant Biology	2024	24(1)	1258.	10.1186/s12870-022-03893-6	1471-2229	Yes	5.6
26	Gautam A, Sharma V, Chauhan C, Thakur A, Pandey MK, Priscilla K, Dagar R, Jin X, Sukla P, Kumar A, **Kumar R.**	Fortifying crops with micronutrients for sustainable global nutritional security	Agronomy Journal	2025	117 (3)	e70086	10.1002/agj2.21200	1435-0645	Yes	2.5
27	A Mansoori, M Mohan, SN Das, **R Kumar**, A Kumar	Integrated metabolomics and bioactivity analysis of Cynoglossum lanceolatum root extract as a natural inducer of resistance to rice bacterial blight	Frontiers in Genetics	2026	17	1775858	10.3389/fgene.2022.1005886	1664-8021	Yes	3.0

28	Charakana C, Gupta SK, Sunkum A, Valluri S, Bagri J, Tyagi K, Kumar R, Salava H, Kilambi HV, Sivapuram V, Sharma R.	Loss-of-Function RUP-Variants Influence Ubiquitin-Proteasome System and Enhance Carotenoid and Folate Levels in Tomato	bioRxiv (Cold Spring Harbor Laboratory)	2025	22	2025-04.	10.1101/2024.03.20.585890	2692-8205	Yes	NA

1. Books/Reports/Chapters/General articles etc.

S.No	Title	Author's Name	Publisher	Year of Publication
1	*Editors, Omics technologies for sustainable agriculture and global food security (Vol-1).*	Anirudh Kumar, **Rakesh Kumar**, Pawan Shukla**,** Manish K Pandey-	**Springer Nature,** eBook ISBN: 978-981-16-0831-5	**2021**
2	*Omics technologies for sustainable agriculture and global food security (Vol-II).*	Anirudh Kumar, **Rakesh Kumar**, Pawan Shukla**,** Hitendra K Patel- *Editors,*	**Springer Nature**, eBook ISBN: 9811629552	**2021**
3	*Editors,* Molecular Response and Genetic Engineering for Abiotic Stress in Plants *(Vol- 1).*	Pawan Shukla, Anirudh Kumar, **Rakesh Kumar**, Manish K Pandey	**IOP science Publications** Online ISBN: 978-0-7503-4921-5	**2022**
4	*Editors, Molecular Response and Genetic Engineering for Abiotic Stress in Plants (Vol-I1).*	Pawan Shukla, Anirudh Kumar, **Rakesh Kumar**, Manish K Pandey	**IOP science Publications** Online ISBN: 978-0-7503-4926-0	**2022**
5	Rice Submergence Tolerance: Emerging Molecular Breeding Strategies in the Post-genomic Era. (proff submitted). In, Plant Speed Breeding and High-throughput	Gautam A, Thakur A, Chauhan C, Sharma V, Sivakumar KB, Kumar R, Chetia SK. (2024)	Technogies. CRC Press, Taylor & Francis. ISBN 9781003434733	**2024**
6	Epigenetics for combating multi-stressors in plants under global climate change: Updated methods and current achievements. *In,* Epigenetics for Climate-Smart and Sustainable	Gautam A, Thakur A, Chauhan C, Sharma V, **Kumar R.**	CABI https://doi.org/10.1079/9781800626102.0007	**2025**

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7	Bioinformatics for Plant Genetics and Breeding Research. In: Pandey, M.K., Bentley, A., Desmae, H., Roorkiwal, M., Varshney, R.K. (eds) Frontier Technologies for Crop Improvement. Sustainability Sciences in Asia and Africa.	Naik Y.D et al. (2024). **Kumar R**.,	Springer, Singapore. ISBN: 978- 981-99-4672-3	**2024**

8	Advances in Microbial Study for Crop Improvement. In, Genome Editing in Bacteria, Publisher:	Sharma V, **Kumar R**	Bentham and Science Publishers. 10.2174/9789815223798124010003 ISBN: 978-981-5223-80-4	**2024**
9	Carotenoid Extraction from Plant Tissues. In: Maghuly, F. (eds) Plant Functional Genomics. Methods in Molecular Biology, vol 2788.	Priscilla K, ..**Kumar R**. et al.	Humana, New York, NY. https://doi.org/10.1007/978-1-0716-3782-1_1	**2024**
10	Sample Preparation from Plant Tissue for Gas Chromatography–Mass Spectrometry (GC-MS)we. In: Maghuly, F. (eds) Plant Functional Genomics. Methods in Molecular Biology, vol 2788.	Dagar R, Gautam A, Priscilla K, Sharma V, Gupta P, **Kumar R**.	Humana, New York, NY. https://doi.org/10.1007/978-1-0716-3782-1_2	**2024**
11	Update on cloning and molecular characterization of bacterial blight	Kumar A**, Kumar R**, Shukla P, Singh S, Alam M, Singh DP.	IOP PUBLICATION ISBN: 9780750349246	**2022**

	resistance genes in rice. In, Molecular Response and Genomic Engineering for Abiotic Stress in Plants, Volume 2.			
12	The role of antioxidant system vis-à-vis reactive oxygen species with respect to plant–pathogen interaction. In, Molecular Response and Genomic Engineering for Abiotic Stress in Plants, Volume 2.	Mansoori A, Dubey SK, Mohan M, **Kumar R**, Singh DK, Kumar A (2022)	IOP PUBLICATION ISBN: 9780750349246	**2022**

13	Understanding environmental associated biotic stress response in plants. In, Molecular Response and Genomic Engineering for Abiotic Stress in Plants, Volume 2.	Chauhan C, Sharma V, Thakur A, Verma SK, Tewari SK, Panwar RK, **Kumar R**, Gautam A.	IOP PUBLICATION ISBN: 9780750349246	**2022**
14	Understanding environmental associated abiotic stress response in plants under changing climate. In, Molecular Response and Genetic Engineering for Stress in Plants, Volume 1.	Sharma V, Jambaladinni K, Singh N, Mishra N, Kumar A, **Kumar R**. (2022)	IOP PUBLICATION ISBN: 9780750349192	**2022**
15	Oxidative stress responses in plants to abiotic stress tolerance. In, Molecular Response and Genetic Engineering for Stress in Plants, Volume 1.	Vishwakarma A, Suresh S, Kagolla P, Ramrao DP, Singh NK, Shukla P, Kumar R, Kumar G.	IOP PUBLICATION ISBN: 9780750349192	**2022**

16	Genome Editing Technologies for Plant Improvement: Advances, Applications and Challenges. In *Omics technologies for sustainable agriculture and global food security (Vol-1).*	**Kumar R**, et al.,	Springer Nature, eBook ISBN: 978-981-16-0831-5	2021
17	Potential of Metabolomics in Plant Abiotic Stress Management. In, Omics Technologies for Sustainable Agriculture and Global Food Security (Vol II)..	Singh, N; Mansoori, A; Kumar R; Kumar, A. (2021)	Springer International Publishing	**2021**
18	Plant Metabolomics for Crop Improvement. D.	Narasanna R, Mansoori A, Mishra N, Sharma V, Thomas S, Vishwakarma	ISBN: 978-981-16-2339-4. 10.1007/978-981-	**2021**

	Kumar Srivastava et al. (eds.), Agricultural Biotechnology: Latest Research and trends. eBook	A, Agsar D, Kumar A, Pandey MK, **Kumar R** (2021)	16-2339-4	
19	Groundnut Kernel Transcriptome. In: Cifuentes, A. (Ed.), Comprehensive Foodomics, vol. 1.	Nayak S, Hebbal V, Soni P, **Kumar R**, et al. (2021)	Elsevier, pp. 528–543. https://linkinghub.elsevier.com/retrieve/pii/B9780081005965227467	2021
20	Regulatory Framework and Policy Decisions for Genome-Edited Crops. In: Bhattacharya A, Parkhi V, Char B. (eds) CRISPR/Cas Genome Editing. Concepts and Strategies in Plant Sciences.	Kumar A, **Kumar R**, Singh N, Mansoori A. (2020)	Springer, Cham. https://doi.org/10.1007/978-3-030-42022- 2_9	2020

	Climate-smart groundnuts for achieving high productivity and improved quality: current status, challenges, and opportunities. In, genomic designing of climate-smart oilseed crops.	Gangurde SS, **Kumar R**, et al. (2019)	Springer International Publishing. Pages 133-172 DOI:10.1007/978-3-319-93536-2_3	2019