ALLAH BAKHSH, PhD

Associate Professor, Head Seed Biotech Lab, Centre of Excellence in Molecular Biology
University of the Punjab, Lahore, Pakistan

CONTACT DETAILS

- Office: +92 42 352 93127 Mob: +92 300 041 8187
- Email: allahbakhsh@cemb.edu.pk ; abthebest@gmail.com
- https://www.researchgate.net/profile/Allah_Bakhsh5 (Research Gate)
- https://scholar.google.com/citations?user=IrO9DLgAAAAJ&hl=en (Google Scholar)

Citations 3478 H Index 30 (Google Scholar) i10-index 74 (Google Scholar)

ACADEMICS

- BS (Hons) Agriculture (Plant Breeding and Genetics) 2004. University of Agriculture, Faisalabad, Pakistan, Thesis Title "Assessment of Kabuli and Desi Chickpea Cultivars based on Physio-morphological Paramters" **Thesis Supervisor, Prof. Dr. Tanvir A Malik**
- PhD. 2010 (Molecular Biology) Major in Agricultural Biotechnology. Thesis Title "Expression of two insecticidal genes in Cotton" Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore, Pakistan. **Thesis Supervisor, Prof. Dr. Tayyab Husnain**

EMPLOYMENT HISTORY

- **June 2021 to onward:** Associate Professor, CEMB, University of the Punjab, Lahore, Pakistan **(Continued)**
- **January 2014 to June 2021:** Assistant Professor, Nigde Omer Halisdemir University, Turkey
- **Jan 2013-Dec 2013**: Postdoctoral research associate, University of Bologna, Italy.
- **Jan 2011-Jan 2013**: Postdoctoral research associate, University of Ankara, Turkey.

AS VISITING FACULTY/PROFESSOR

- **August-September 2023:** Department of Horticulture, Plant Protection and Quarantine, Kazakh National Agrarian University, Almaty, **Kazakhstan**.
- **September 2024:** Central Department of Biotechnology, Tribhuvan University, Kirtipur, **Nepal**.

CURRENT RESPONSIBILITIES

My current responsibilities at in-charge SBL are to;

- To execute research projects funded by national (HEC, PSF) as well as international agencies (M.Y. Genetik, Antalya, Türkiye) as Principal Investigator.
- Deliver lectures to MS and PhD students on biotechnology and plant protection and related subjects.

- Supervise MS and PhD thesis students in their research projects.
- Plan, manage, and monitor day-to-day activities of the Seed Biotech Labs.
- Ensure smooth functioning of laboratory operations, equipment, and facilities.
- Design and oversee experimental protocols and research workflows.
- Maintain lab safety standards and ensure compliance with institutional guidelines.
- Coordinate procurement and inventory of lab consumables and reagents.
- Collaborate with faculty and researchers for ongoing and future research initiatives.
- Prepare reports, maintain research records, and support grant documentation as required.
- Serve as coordinate external linkages of the institute
- Manage commercialization and regulatory activities of cotton in Lahore and Multan Farm as Farm Manager

PUBLICATIONS

1. Cardi T, Murovec J, **Bakhsh A**, Boniecka J, Bruegmann T et al. (2023). "CRISPR/Cas-mediated plant genome editing outstanding challenges a decade after implementation". Trends in Plant Sciences 28:1114-1165. DOI: 10.1016/j.tplants.2023.05.012
2. Zeng Q, Peng F, Wang J, Wang S, Lu X, **Bakhsh A**, Li Yan, Qaraevna BZ, Yin Z (2025). Identification of the MAP4K gene family reveals GhMAP4K13 regulates drought and salt stress tolerance in cotton. Physiologia Plantarum 177(1), p.e70031. DOI: 10.1111/ppl.70031
3. Özkat GY, Aasim M, Bakhsh A, Amjad AS, Özcan S (2025). Machine learning models for optimization, validation, and prediction of light emitting diodes with kinetin based basal medium for in vitro regeneration of upland cotton (*Gossypium hirsutum L.*). J Cotton Res 8: 1-14. https://doi.org/10.1186/s42397-025-00222-4
4. Yavuz C, Dönmez BA, Tekinsoy M, **Bakhsh A**, Caliskan ME (2025). Development of an efficient in vitro protocol to increase callus induction and regeneration rate in soybeans (Glycine max L. Merrill). Vegetos, https://doi.org/10.1007/s42535-025-01211-3
5. Dangol SS, Çalişkan ME, **Bakhsh A** (2024). CRISPR-Cas9-mediated reduced expression of potato apoplastic invertase inhibitor gene and analysis of transformation efficiency parameters. Potato Res. DOI:10.1007/s11540-024-09818-w
6. Hashmi MH, Tariq H, Saeed F, Demirel U, Gökçe A, Merzendorfer H, Aksoy E, **Bakhsh A** (2024). Harnessing Plant-Mediated RNAi for Effective Management of *Phthorimaea absoluta* by Targeting *AChE1* and *SEC23* Genes. Plant Stress, https://doi.org/10.1016/j.stress.2024.100569
7. Sattar MN, Naqqash MN, Rezk AA, Mehmood K, **Bakhsh A**, Elshafie H, Al-Khayri JM. Sprayable RNAi for silencing of important genes to manage red palm weevil, *Rhynchophorus ferrugineus* (Coleoptera: Curculionidae). PloS one. 2024 Oct 24;19(10):e0308613
8. Gul A, Rao AQ, Ahmed M, Latif A, **Bakhsh A,** Iftikhar S (2024). The increased aspartate levels in transgenic cotton (*Gossypium hirsutum* L.) lead to improved

tolerance against whitefly (*Bemisia tabaci*, Gennadius). Physiologia Plantarum, 176: e14491. DOI: 10.1111/ppl.14491

9. Bajwa KS, Ali MU, Rao AQ, Kiani S, Ahmad F, **Bakhsh A**, Noor S, Abbas Z, Ali S, Ali GM (2024). From genes to fields: Environmental compatibility of herbicide tolerant transgenic cotton. Industrial Crops and Products, 209, p.117903. DOI: 10.1002/fes3.494
10. Salim M, **Bakhsh A,** Naqqash MN, Gökçe A (2024). Heterologous expression of distinct insecticidal genes in potato cultivars encodes resistance against potato tuber moth, *Phthorimaea operculella* (Zeller)(Lepidoptera: Gelechiidae). Journal of Plant Diseases and Protection 14:1-3. DOI: 10.1007/s41348-024-00964-4
11. Tekinsoy M, **Bakhsh A**, Çalışkan ME (2024). Expression of Jaburetox 2-Ec in potato encodes resistance against *Tuta absoluta* Meyrick (Lepidoptera: Gelechiidae). Potato Research. https://doi.org/10.1007/s11540-024-09788-z
12. Awais M, Rao AQ, Sadaqat S, Yaqoob A, Bhutta MS, Shakoor S, Yasmeen A, Ajmal S, Ghramh HA, Khan KA, **Bakhsh A** (2024). The regulatory landscape of genetically engineered crops in Pakistan. Food and Energy Security 13(1): e494. DOI: 10.1016/j.indcrop.2023.117903
13. Bashir S, Yaqoob A, Bashir R, Bukhari S, Shahid N, Azam S, **Bakhsh A**, Husnain T, Shahid AA, Rao AQ (2024). Barley chitinase genes expression revamp resistance against whitefly (*Bemisia Tabaci*) in transgenic cotton (*Gossypium hirsutum L*.). Journal of Cotton Research 18;7(1):9. DOI:10.1186/s42397-024-00169-y
14. Ali F, Arif M, Ali A, Nadeem M, Aksoy E, **Bakhsh A**, Khan SU, Kurt C, Tekdal D, Ilyas MK, Hameed A (2024). GWAS identifies genetic loci related to fatty acid and branched-chain amino acid metabolism and histone modifications under varying nitrogen treatments in safflower. Functional Plant Biology 51(5): FP23310. DOI: 10.1071/FP23310
15. Salimov V, Mammadova R, Burak M, Alizade S, Sharifova S, **Bakhsh A,** Amrahov N, Hamidova M (2024) Inter simple sequence repeat (ISSR) based genetic and morphological polymorphism of Azerbaijani grape (*Vitis vinifera*) genotypes. Genetic Resources and Crop Evolution. DOI: 10.1007/s10722-024-02110-3
16. Suleimanova G, Kalibayev B, Tatyana Z, Yuri D, Bakhsh A (2024) Evaluating the Interaction of Ascochyta Blight and Fusarium Wilt in Chickpea Germplasm and their Impact on Agronomic Performance. Pakistan Journal of Agricultural Sciences, 61(3). DOI: 10.21162/PAKJAS/24.260
17. Choudry MW, Riaz R, Nawaz P, Ashraf M, Ijaz B, **Bakhsh A** (2024) CRISPR-Cas9 mediated understanding of plants' abiotic stress-responsive genes to combat changing climatic patterns. Functional & Integrative Genomics 24(4):1-23, DOI: 10.1007/s10142-024-01405-z
18. Mammadova R, Akparov Z, Amri A, **Bakhsh A**, Alo F, Alizade S, Amrahov, Yunisova F (2024). Genetic diversity analysis of Azerbaijani bread wheat (*Triticum aestivum* L.) genotypes with simple sequence repeats markers linked to

drought tolerance. Genetic Resources and Crop Evolution. DOI: 10.1007/s10722-024-01977-6

19. Babar M, Salisu IB, **Bakhsh A**, Haq HMS, Naz F, Ali Q, Rao AQ, Shahid AA (2024). Safety evaluation of genetically modified cotton expressing pectin methylesterase gene using wistar rats as an animal model. Fresenius Environmental Bulletin 33: 434-444
20. Hossain MJ, **Bakhsh A**, Joiya FA, Aksoy E, Gökçe NZ, Khan MS (2024). High quality and purified DNA extraction protocol from transplastomic potato lines by Cetyltrimethylammonium Bromide (CTAB)-based method. Trends in Current Biology 8:2. DOI:10.14719/tcb.3114
21. Majeed DM, Al-shahwany AW, **Bakhsh A** (2024). Effects of different growth hormones on *Solanum tuberosum* L. callus induction and regeneration. Plant Science Today 13;11(3). DOI: 10.14719/pst.4056
22. Mammadova RB, Guseynova LA, **Bakhsh A**, Abdulaliyeva GS, Mammadova AO, Mammadov ZM, Alizade SA, Amrahov NR (2024). The study of genetic effects of combining ability in diallelic cotton hybrids with improved fiber traits. Advances in Biology & Earth Sciences. 2024 ;9(3). DOI: 10.62476/abes93338
23. Yasmeen A, **Bakhsh A**, Ajmal S, Muhammad M, Sadaqat S, Awais M, Azam S, Latif A, Shahid N, Rao AQ (2023). CRISPR-Cas9-mediated genome editing in diploid and tetraploid potatoes. Acta Physiologiae Plantarum 45:32. DOI: 10.1007/s11738-022-03513-4
24. Hossain MJ, **Bakhsh A**, Joyia FA, Aksoy E, Gökçe NZÖ, Khan MS (2023). Engineering of insecticidal hybrid gene into potato chloroplast genome exhibits promising control of Colorado potato beetle, *Leptinotarsa decemlineata* (Coleoptera: Chrysomelidae). Transgenic Research 36:497-512 DOI: 10.1007/s11248-023-00366-6.
25. Saeed F, Hashmi MH, Aksoy E, Demirel U, **Bakhsh A** (2023). Identification and characterization of RNA Polymerase II (RNAP) C-Terminal Domain Phosphatase-like 3 (SlCPL3) in tomato under biotic stress. Molecular Biology Reports 50:6783-6793, DOI: 10.1007/s11033-023-08564-5
26. Maqbool A, Şahin A, **Bakhsh A**, Aksay E (2023). Genome-wide identification of QTLs associated with iron deficiency tolerance in soybean reveals GATA12 as the integrator of iron signaling in roots. Turkish Journal of Botany, 47(6):511-528.
27. Tariq H, Gökçe A, Aksoy E, Elçi E, **Bakhsh A** (2023). Exploring the efficacy of RNAi-mediated gene knock-down via oral delivery of dsRNA in the Colorado potato beetle (Leptinotarsa decemlineata Say). Turkish Journal of Zoology 47:492-504
28. Liaqat A, Salisu IB, **Bakhsh A**, Ali Q, Imran A, Ali MA, Farooq AM, Rao AQ, Shahid AA (2023). A sub-chronic feeding study of dual toxin insect-resistant transgenic maize (CEMB-413) on Wistar rats. PloS one, 18(8), p.e0285090.
29. Saeed F, Chaudhry UK, Raza A, Charagh S, **Bakhsh A** et al. (2023). Developing future heat-resilient vegetable crops. Functional and Integrative Genomics 23:47, DOI: 10.1007/s10142-023-00967-8
30. Bayrıl BN, **Bakhsh A**, Nadeem MA, Demirel U (2023). Elucidating the genetic diversity and population structure of international cotton germplasm using inter-

primer binding site (iPBS) retrotransposon marker system. Genetic Resources and Crop Evolution, DOI: 10.1007/s10722-023-01726-1

31. Rao AQ, Bajwa KS, **Bakhsh A**, Ali MA, Iqbal A, Latif A, Husnain T, Nasir IA, Shahid AA (2023). Evaluation of weed control efficiency of herbicide resistant transgenic cotton. Journal of Plant and Animal Sciences 33:75-84 DOI:10.36899/JAPS.2023.1.0596
32. Naqqash MN, Gökçe A, Bakhsh A, Salim M (2023). Demographic features and population projection of resistant and susceptible populations of Colorado potato beetle, Leptinotarsa decemlineata (Coleoptera: Chrysomelidae). Phytoparasitica. 2023 Mar 17:1-0.
33. Tanveer S, Malik HA, Shahid N, Salis IB, Ahmed N, Latif A, Yasmeen A, Hassan S, **Bakhsh A**, Rao AQ (2023). Production of Proinflammatory cytokines by expressing Newcastle disease vaccine candidates in corn. Journal of King Saud University – Science 35: 102537 DOI: 10.1016/j.jksus.2022.102537
34. Aasim M, Ali SA, Aydin S, **Bakhsh A**, Sogukpinar C, Karataş M, Khawar KM, Aydin ME (2023). Artificial Intelligence-Based Approaches to Evaluate and Optimize Phytoremediation Potential of In vitro Regenerated Aquatic Macrophyte – *Ceratophyllum demersum* L. Environmental Science and Pollution Research 30: 40206–40217 DOI: 10.1007/s11356-022-25081-3
35. Sapakhova Z, Raissova NU, Dairova AK, Dairov DL, **Bakhsh A**, Zhapar KK, Zhambakin KZ, Shamekova MK (2023). The area of fruit and berry growing in Kazakhstan. Ġylym Zăne Bìlìm 2(3(72):131-142. DOI 10.52578/2305-9397-2023-3-2-131-142
36. Hashmi MH, Saeed F, Demirel U, **Bakhsh A** (2022). Establishment of highly efficient and reproducible Agrobacterium mediated transformation system for tomato (*Solanum Lycopersicum* L.). In Vitro Cellular & Developmental Biology Plant 58:1066-1076, DOI: 10.1007/s11627-022-10300-w
37. Yasmeen A, Shakoor S, Azam S, **Bakhsh A**, Shahid N, Latif A, Shahid AA, Husnain T, Rao AQ (2022). CRISPR/Cas-mediated knockdown of vacuolar invertase gene expression lowers the cold-induced sweetening in potatoes. Planta 256:107, DOI: https://doi.org/10.1007/s00425-022-04022-x
38. Tariq M, Tabassum B, **Bakhsh A**, Farooq AM, Qamar Z, Akram F, Naz F, Rao AQ, Malik K, Nasir IA (2022). Heterologous expression of cry1Ia12 insecticidal gene in cotton encodes resistance against pink bollworm, Pectinophora gossypiella (Lepidoptera: Gelechiidae); an alternate insecticidal gene for insect pest management. Molecular Biology Reports 49:10557-10564, DOI:10.1007/s11033-022-07824-0
39. Baloch FS, Aasim M, Mustafa Z, **Bakhsh A**, Katrici R, Nadeem MA, Ali SA, Akgur O, Chung SK (2022). Innovation in the breeding of common bean through a combined approach of in vitro regeneration and machine learning algorithms. Frontiers in Genetics 13:897696, DOI: 10.3389/fgene.2022.897696
40. Kaleem Ullah RM, Gökçe A, **Bakhsh A**, Salim M, Wu HY, Naqqash MN (2022). Insight into use of eco-friendly synergists in resistance management of

Leptinotarsa decemlineata (Coleoptera: Chrysomelidae). Insects 13:846, DOI: https://doi.org/10.3390/insects13090846

41. Saeed F, Chaudhry UK, **Bakhsh A**, Raza A, Saeed Y, Bohra A, Varshney RK (2022). Moving beyond DNA sequence to improve plant stress responses. Frontiers in Genetics 929, DOI: 10.3389/fgene.2022.874648
42. Naeem MY, Jabran K, Özden M, **Bakhsh A** (2022). Assessment of morphological and biochemical characteristics of common purslane (Portulaca oleracea L.) accessions. Pakistan Journal of Agricultural Sciences 59:1017-1028.
43. Akhtar T, Awais M, Sadaqat S, Malik HNAT, Riaz M, **Bakhsh A**, Rao AQ (2022). Microbial metabolic engineering and CRISPR; applications and future prospective. Pure and Applied Biology 12:449-462.
44. Shad M, Yasmeen A, Azam S, **Bakhsh A**, Latif A, Shahid N, Din S, Sadaqat S, Rao AQ, Shahid AA (2021). Enhancing the resilience of transgenic cotton for insect resistance. Molecular Biology Reports 49:5315-5323, DOI: 10.1007/s11033-021-06972-z
45. Hossain J, Aksoy E, Gökçe ZNÖ, Joyia FA, Khan MS, **Bakhsh A** (2021). Rapid and efficient in vitro regeneration of transplastomic potato (*Solanum tuberosum* L.) plants after particle bombardment. Turkish Journal of Agriculture and Forestry 45:313-323
46. Gökçe ZNÖ, Aksoy E, **Bakhsh A**, Demirel U, Calıskan S, Caliskan ME (2021). Combined drought and heat stresses triggers different sets of miRNAs in contrasting potato cultivars. Functional & Integrative Genomics 21:489-502.DOI:10.1007/s10142-021-00793-w
47. Salim M, **Bakhsh A**, Gökçe A (2021). Stacked insecticidal genes in potatoes exhibit enhanced toxicity against Colorado potato beetle, *Leptinotarsa decemlineata* (Coleoptera: Chrysomelidae). Plant Biotechnology Reports 15: 197-215, DOI:10.1007/s11816-021-00668-3
48. Miladinovic D, Antunes MD, Yildırım K, **Bakhsh A**, Cvejiç S, Kondić-Špika A, Jeromela AM, Sorteberg HO, Zambounis A, Hilioti Z (2021). Targeted plant improvement through genome editing: from lab to field. Plant Cell Reports 40:935-951, DOI: doi.org/10.1007/s00299-020-02655-4
49. Arshad U, Azeem F, Mustafa G, Bakhsh A, Toktay H, McGiffen M, Nawaz MA, Naveed M, Ali MA (2021). Combined application of biochar and biocontrol agents enhances plant growth and activates resistance against Meloidogyne incognita in Tomato. Gesunde Pflanzen 73:591-601, DOI: 10.1007/s10343-021-00580-4
50. Aasim A, Gökce ZNO, Bakhsh A, Çaylı IT, Aksoy E, Çalişkan S, Çalişkan ME, Demirel U (2021). Individual and combined effect of drought and heat stresses in contrasting potato cultivars overexpressing miR172b-3p. Turkish Journal of Agriculture and Forestry 45:651-668, DOI:10.3906/tar-2103-60
51. Salim M, **Bakhsh A**, Gökçe A (2021). Demographic study of imidacloprid-Resistant Colorado potato beetle, Leptinotarsa decemlineata (Coleptera: Chrysomelidae) fed on transgenic and commercial potato cultivars. Phytoparasitica 50:201-221. DOI: 10.1007/s12600-021-00937-5

52. Yaman C, **Bakhsh A**, Uranbey S (2021). Influence of basal media, growth regulators, explant type and photoperiod on callus competency and pigmentation of Alkanna orientalis L. Cumhuriyet Science Journal 42:766-774
53. **Bakhsh A**, Hussain T, Rahamkulov I, Demirel U, Çalışkan ME (2020). Transgenic potato lines expressing CP4-EPSP synthase exhibit resistance against glyphosate. Plant Cell Tissue and Organ Culture 140:23-34
54. Yavuz C, Tillaboeva S, Bakhsh A (2020). Apprehending the potential of BABY BOOM transcription factors to mitigate cotton regeneration and transformation. Journal of Cotton Research 3:1-14. DOI: 10.1186/s42397-020-00071-3
55. **Bakhsh A** (2020). Development of efficient, reproducible, and stable *Agrobacterium*-mediated genetic transformation of five potato cultivars. Food Technology and Biotechnology 58:57-63.
56. Naqqash MN, Gökçe A, Aksoy E, **Bakhsh A** (2020). Downregulation of imidacloprid resistant genes alters the biological parameters in Colorado potato beetle, *Leptinotarsa decemlineata* Say (chrysomelidae: Coleoptera). Chemosphere 240:124857 https://doi.org/10.1016/j.chemosphere.2019.124857
57. Kavas M, Gökdemir G, Seçgin Z, **Bakhsh A** (2020). Ectopic expression of common bean ERF transcription factor PvERF35 promotes salt stress tolerance in tobacco. Plant Biology 22: 1102-1112. DOI: 10.1111/plb.13167
58. Rahamkulov I, **Bakhsh A** (2020). Tissue specific and inducible promoters establish their containment of foreign gene expression in transgenic potatoes. 3 Biotech. 10:426. doi.org/10.1007/s13205-020-02350-x
59. Dangol SD, Yel Ilknur, Çalışkan ME, **Bakhsh A** (2020). Manipulating genome of diploid potato inbred line Solanum chacoense M6 using selectable marker gene. Turkish Journal of Agriculture and Forestry 44:399-407.
60. Bakhsh A, Dangol SD, Naeem M, Azimi MH, Yasmeen A (2020). Genetic approaches for engineering biotic stress resistance in potato (*Solanum tuberosum* L). Journal of Animal and Plant Sciences 30: 1-17
61. Hussain T, Aksoy E, Caliskan ME, **Bakhsh A** (2019). Transgenic potato lines expressing hairpin RNAi construct of molting associated EcR gene exhibit enhanced resistance against Colorado potato beetle (*Leptinotarsa decemlineata*, Say). Transgenic Research 28:1-14 DOI: 10.1007/s11248-018-0109-7
62. Amir AN, **Bakhsh A (**2019). An effective pest management approach in potato to combat insect pests and herbicides. 3 Biotech. 9: 16 DOI: 10.1007/s13205-018-1536-0
63. Dangol SD, Barakate A, Stephends J, Calışkan ME, **Bakhsh A** (2019). Genome editing of potato using CRISPR technologies: current development and future prospective. Plant Cell Tissue and Organ Culture 139:403-416
64. Ali MA, Shahzadi M, Zahoor A, Dababat AA, Toktay H, **Bakhsh A**, Nawaz MA, Li H (2019). Resistance to cereal cyst nematodes in Wheat and Barley: An emphasis on classical and modern approaches. International Journal of Molecular Sciences 20: 432

65. Amin K, **Bakhsh A**, Gökçe AF (2019). Exploring the amenability of onions to *Agrobacterium* mediated transformation. Journal of Animal and Plant Sciences 29: 761-771
66. Qamar Z, Tariq M, Rao AQ, **Bakhsh A** etc (2019). Trackable CEMB-Klean Cotton transgenic technology: Affordable climate neutral agri-biotech industrialization for developing countries. Advancements in Life Sciences 6:131-138
67. Dönmez BA, Dangol SD, **Bakhsh A** (2019). Transformation efficiency of five Agrobacterium strains in diploid and tetraploid potatoes. Sarhad Journal of Agriculture 35:1344-50.
68. Sümer S, Rahamkulov İ, Demirel U, Çalışkan ME, **Bakhsh A** (2019). Production of Transgenic Potato Lines Expression Herbicidal Gene (CP4-EPSP Synthase), Journal of Agricultural Faculty Ege University 56:35-43
69. Khabbazi SD, Khabbazi AS, Özcan SF, **Bakhsh A**, Başlama D, Özcan S (2018). Expression of GNA and biting site-restricted cry1Ac in cotton; an efficient attribution to insect pest management strategies. Plant Biotechnology Reports 12: 273-282
70. **Bakhsh A**, Dinç T, Hussain T, Demirel U, Aasim M. Caliskan ME (2018). Stacked Insecticidal Genes in Tobacco Lead to Appreciable Insect Resistance. Turkish Journal of Biology 42: 174-186
71. Zia MAB, **Bakhsh A**, Çalışkan ME (2018). Mutation breeding in potato; endeavours and challenges. Journal of Animal and Plant Sciences 28: 177-186
72. Dangol SD, Naeem M, Azimi MH, Yasmeen A, Caliskan ME, Bakhsh A, Yasmeen A (2018). Genetic Engineering of *Solanum tuberosum* L. to Enhance Resistance Against Abiotic Stresses-A Review. JOJ Sciences. 2018;1(5):81-91.
73. Yildiz K, Cirik N, **Bakhsh A** (2018). Determination of callus induction competency from different explants of watermelon (*Citrullus lanatus* T.). Published as full text in proceedings of the 6th Turkish Seed Congress with international participation on 10-13 September, Nigde, Turkey
74. Ahmed HA, Onarıcı S, **Bakhsh** A, Akdogan G et al. (2017). Targeted expression of insecticidal hybrid SN19 gene in potato leads to enhanced resistance against Colorado potato beetle (*Leptinotarsa decemlineata* Say) and tomato leafminer (*Tuta absoluta* Meyrick). Molecular Biology Reports 11:315-329
75. **Bakhsh A**, Hussain T, Çalışkan ME (2017). A promising and cost-effective surface sterilizing method for sweet potato (*Ipomoea batatas* L.) cultivated in open environment. Fresenius Environmental Bulletin 26: 3062-3067
76. **Bakhsh A**, Anayol E, Khabbazi SD, Karakoç OC, Sancak C, Özcan S (2016). Development of insect resistant cotton lines with targeted expression of insecticidal gene. Archives of Biological Sciences. 68:773-80
77. Anayol E, **Bakhsh A**, Karakoç OC, Onarıcı S, Köm D et al. (2016.) Towards better insect management strategy: restriction of insecticidal gene expression to biting sites in transgenic cotton. Plant Biotechnology Reports 10:83-94.
78. Barpete S, **Bakhsh A**, Anayol E, Özcan FS, Oğuz MC, Karakoç ÖC, Özcan S (2016). Inducing osmotic stress leads to better genetic transformation efficiency in

Cotton (*Gossypium hirsutum* L.). Turkish Journal of Biology 40:826-836
79. Naqqash MN, Gökçe A, **Bakhsh A**, Salim M (2016). Insecticide resistance and its molecular basis in urban insect pests. Parasitology Research 115 :1363-1373
80. Khabbazi SD, **Bakhsh A**, Sancak C, Özcan S (2016). Molecular Characterization of snowdrop Lectin (GNA) and its comparison with reported lectin sequences of Amaryllidaceae. Czech Journal of Genetics and Plant Breeding 52: 94-100
81. **Bakhsh A**, Anayol E, Ozcan S (2016). An efficient and cost-effective sterilizing method with least microbial contamination and maximum germination ratio in invitro cotton culture. Journal of Animal and Plant Sciences 26: 868-873.
82. Day S, Aasim M, **Bakhsh A** (2016). Effect of preconditioning, plant growth regulators and KCl on shoot regeneration of peanuts (*Arachis Hypogea*). Journal of Animals and Plant Sciences 26: 294-300.
83. **Bakhsh A,** Zia MAB, Hussain T, Tekeli FO, Gokce AF (2016). Members of Alliaceae; better source of plant lectins to combat resistance against sucking pests of crops. Acta Horticulture. 1143. ISHS 2016. DOI 10.17660/ActaHortic.2016.1143.47.
84. **Bakhsh A**, Anayol E, Türkmen AK, Özcan S (2016). The Effect of improvised media and gelling agents on *in vitro* germination of cotton (*Gossypium hirsutum.* L.). Harran Journal of Agriculture and Food Sciences 20:223-229.
85. Saleem M, Gökçe A, Naqqash MN, **Bakhsh A** (2016). An overview of biological control of economically important lepidopteron pests with parasitoids. Journal of Entomology and Zoology Studies 4: 354-362.
86. **Bakhsh A**, Aasim M, Zia MA, Doğan M, Sadı G, Karataş M, Khawar KM (2016). First Report of Agrobacterium tumefaciens mediated genetic transformation of aquatic Rice paddy herb (*Limnophila aromatica*). Turkish Journal of Agriculture-Food Science and Technology 4:642-645.
87. **Bakhsh A** and Hussain T (2015). Engineering crop plants against abiotic stresses. Emirates journal of Food and Agriculture 27: 24-39.
88. **Bakhsh A**, Khabbazi SD, Baloch FS, Demirel U, Çalişkan ME, Hatipoğlu R, Özcan S, Özkan H (2015). Insect resistant transgenic crops: retrospects and challenges. Turkish Journal of Agricultural and Forestry 39: 531-548.
89. **Bakhsh A**, Anayol E, Özcan SF, Hussain T, Aasim M, Khawar KM, Özcan S (2015). An insight into cotton genetic engineering (*Gossypium hirsutum* L.): current endeavors and prospects. Acta Physiologae Plantarum 37: 171.
90. **Bakhsh A**, Anayol E, Ozcan SF (2014). Comparison of Transformation efficiency of five agrobacteriam strains in *Nicotiana tobaccum*. Emirates journal of Food and Agriculture 26: 259-264.
91. Hussain T, **Bakhsh A**, Munir B, Hassan S, Rao AQ, Shahid AA, Rashid B, Husnain T (2014). Mendelian segregation pattern and expression studies of insecticidal gene (cry1Ac) in insect resistant cotton progeny. Emirates Journal of Food and Agriculture 26: 706-715.
92. Aasim M, Khawar KM, Yalcin G, **Bakhsh A** (2014). Current trends in fenugreek biotechnology and approaches towards its improvement. American Journal of Social Issues and Humanities. Special Issues March/April: 128-136.

93. AQ Rao, Bajwa KS, Puspito AN, Khan MAU, Abbas MA, Rehman M, **Bakhsh A**, Shahid AA, Nasir IA and Husnain T (2013). Variation in Expression of Phytochrome B Gene in Cotton (*Gossypium hirsutum* L.). Journal of Agricultural Science and Technology 15: 1033-1042.
94. Khan GA, **Bakhsh A**, Ghazanffar M, Riazuddin S and T Husnain (2013). Development of transgenic cotton pure lines harboring a pesticidal gene (cry1Ab). Emirates Journal of Food and Agriculture. 25: 434-442.
95. Khawar, KM, Onarici S, Ozel CA, Aasim M, **Bakhsh A**, Rao AQ (2013). Plant Biotechnology (Editorial). Scientific World Journal Special Issue, DOI:10.1155/2013/736731.
96. Bajwa KS, Shahid AA, Rao AQ, Kiani MS, Ashraf MA, Dahab AA, **Bakhsh A,** Latif A, Khan MAU, Puspito AN, Aftab A, Bashir A and Husnain T (2013). Expression of Calotropis procera expansin gene CpEXPA3 enhances cotton fibre strength. Australian Journal of Crop Sciences 7: 206-212.
97. Khan GA, **Bakhsh A**, Ghazanffar M, Riazuddin S and Husnain T (2013). Field Evaluation of Transgenic Cotton Lines Harboring Insecticidal Gene (cry1Ab). Advances in Environmental Biology 7: 4022-4027.
98. **Bakhsh A**, Siddique S and Husnain T (2012). A Molecular Approach to Combat Spatio-temporal Variation in Insecticidal Gene (Cry1Ac) Expression in Cotton. Euphytica. 183:65-74.
99. **Bakhsh A** and Husnain T (2012). Endeavors of RuBisCO Small Subunit Promoter as a tool of Green Tissue Specific Expression. Czech Journal of Genetics and Plant Breeding 48: 1–9.
100. Khan GA, **Bakhsh A**, Husnain T and Riazuddin S (2012). Inheritance Pattern of an Insecticidal Gene (cry1Ab) in Transgenic Bt Cotton. Russian Agricultural Sciences 38: 210-217.
101. Shahid AA, Rao AQ, **Bakhsh A** and Husnain T (2012). Entomopathogenic fungi: new insights on their virulence and pathogenicity as biological control. Archives of Biological Sciences 64: 21-42.
102. **Bakhsh A**, Rao AQ, Khan AQ, Rashid B, Shahid AA and Husnain T 2012). Insect Resistance Studies of Transgenic Cotton Cultivar Harboring cry1Ac and cry2A. TABAD (Research Journal of Agricultural Sciences) 5: 167-171.
103. **Bakhsh A** and Husnain T (2012). Isolation, characterization and cloning of Rubisco (green tissue specific promoter) in plant expression vector. New Horizons in Science and Technology 1: 12-16.
104. **Bakhsh A**, Rao AQ, Shahid AA and Husnain T (2012). Spatio Temporal Expression of an Insecticidal Gene (Cry2A) in Advance Cotton Lines. Notulae Scientia Biologicae 4: 115-119.
105. Khan GA, **Bakhsh A**, Husnain T and Riazuddin S (2012). Comparative Study of Insecticide Applications on Transgenic Bt and Non-Bt Cotton Lines. New Horizons in Science and Technology 1:42-46.
106. Rahman M, Hussain K, Khan MAU, **Bakhsh A**, Rao AQ (2012). An Insight of Cotton Leaf Curl Virus: A Devastating Plant Pathogenic Begomovirus. Pure and Applied Biology 3: 52-58.

107. **Bakhsh A**, Shahzad K and Husnain T (2011). The variation in spatio temporal expression of insecticidal genes in transgenic Cotton. Czech Journal of Genetics and Plant Breeding. 47: 1–9.
108. **Bakhsh A**, Rao AQ, Shamim Z and Husnain T (2011). A MiniReview; RuBisCo Small Subunit as Strong Green Tissue Specific Promoter. Archives of Biological Sciences 63: 299-307.
109. Rao AQ, **Bakhsh A**, Nasir IA, Riazuddin S and Husnain T (2011). Phytochrome B mRNA expression enhances Biomass yield and physiology of cotton plants. African Journal of Biotechnology 10: 1818-1826.
110. Khan GA, **Bakhsh A**, Husnain T and Riazuddin S (2011). Introduction of Cry1Ab gene in Gossypium hirsutum enhances resistance against lepidopteran pests. Spanish Journal of Agricultural Research 9: 296-30.
111. Din S, Afzal A, **Bakhsh A**, Ahmad MR, Manzoor I and Liaquat S (2011). Comparison of the Antimicrobial Activity of Seed Protein Extracts from six Medicinal plants against Staphylococcus aureus 6736152. Emirates Journal of Food and Agriculture 23: 103-109.
112. Maqbool A, Abbas W, Rao AQ, Irfan M, Zahur M, **Bakhsh A,** Riazuddin S and Husnain T (2010). Gossypium arboreum GHSP26 enhances drought tolerance in *Gossypium hirsutum* L. Biotechnology Progress 26: 21-25.
113. Shamim Z, **Bakhsh A**, Hussain A, Ahmed KS, Mehmood MK, Khalil IH (2010). Genetic variability among maize genotypes under agro climatic conditions of Kotli (Azad Kashmir). World Applied Science Journal 8: 1356-1365.
114. **Bakhsh A**, AQ Rao, Shahid AA, Husnain T and Riazuddin S (2010). 35S CaMV as developmental promoter in being temporal and spatial expression of Cry1Ac and Cry2A genes in Cotton. Australian Journal of Basic and Applied Sciences 4: 37-44.
115. **Bakhsh A**, Rao AQ, Shahid AA, Husnain T and Riazuddin S (2009). Insect resistance and risk assessment Studies in advance lines of Bt Cotton harbouring *cry1Ac* and *cry2A* genes. American Eurasian Journal of Agriculture and Environmental Sciences 6: 01-11.
116. Rao AQ, **Bakhsh A**, Shahzad K, Kiani S, Shahid AA, Husnain T and Riazuddin S (2009). The Myth of Plant Transformation. Biotechnology Advances (Retracted) 27: 753-763.
117. Samiullah TR, **Bakhsh A**, Rao AQ, Naz M, Saleem M (2009). Isolation, purification, and characterization of extracellular β-glucosidase from Bacillus sp. Advances in Environmental Biology 3: 269-277.
118. Malik K, **Bakhsh A**, Babar M, Samiullah TR and Riazuddin S (2008). Immunoassay detection of Cry1Ac/Cry2A GM cotton for insect resistance trait. Pakistan Journal of Biochemistry and Molecular Biology 41: 125-128.

BOOKS PUBLISHED

- Çalışkan ME, **Bakhsh A**, Jabran K (2023). Potato Production Worldwide, Ist Edition. Academic Press, Elsevier Inc. ISBN: 9780128229255.
- **Bakhsh A**, Husnain T (2011). Expression of two insecticidal genes in Cotton:

Development of transgenic cotton with sustained resistance against targeted insect pests. LAP LAMBERT Academic Publishing, ISBN: 9783844389203

BOOK CHAPTERS PUBLISHED

1. Riaz S, Choudryh MW, Riaz R, Farooq AM, Bakhsh A (2025). Agrobacterium-Mediated Transformation of Soybean (*Glycine max* L.) using Split-Cotyledonary Explant. In: Stange Klein, C. (Eds) Agrobacterium. Methods in Molecular Biology, vol 2911. Humana, New York, NY. https://doi.org/10.1007/978-1-0716-4450-8_8

2. Barpete, S. et al. (2025). Application of Next-Generation Breeding Tools in Minor Pulses for Major Impact: A Way Ahead. In: Pandey, M.K., Mallikarjuna, M.G., Lohithaswa, H.C., S. Aski, M., Gupta, S. (eds) Breeding Climate Resilient and Future Ready Pulse Crops. Springer, Singapore. https://doi.org/10.1007/978-981-96-0483-8_11

3. Nazik N, Amin A, Yin Z, Mammadova R, Suleimanova G, Rao AQ, **Bakhsh A** (2025) CRISPR/Cas-Mediated Genetic Improvements in Vegetable Crops. In: Chaudhry, U.K., Öztürk, Z.N., Gökçe, A.F. (eds) Drought Stress. Springer, Cham, ISBN 978-3-031-80610-0, pp. 347-368, https://doi.org/10.1007/978-3-031-80610-0_13

4. **Bakhsh A**, Nazik N, Riaz R, Saeed R, Choudry MW, Ali S, Huma Z, Sajjad MN, Suleimanova G, Rao AQ (2024) CRISPR-Cas-mediated genome editing in tomatoes and potatoes. In: Abd-Elsalam KA, Ahmad A, Zhang B (eds) CRISPRized Horticulture Crops. Academic Press, ISBN: 9780443132292, pp. 265-276, https://doi.org/10.1016/B978-0-443-13229-2.00020-X

5. Prestwich BD, Cardi T, **Bakhsh A**, Nicolia A, Bhati KK (2024). Novel Delivery Methods for CRISPR-Based Plant Genome Editing. In: Ricroch, A, Eriksson D, Miladinović D, Sweet J, Van Laere K, Woźniak-Gientka E (eds) A Roadmap for Plant Genome Editing. Cham: Springer Nature Switzerland, ISBN 978-3-031-46149-1, pp. 41-67 https://doi.org/10.1007/978-3-031-46150-7_3

6. Dervishi A, Choudry MW, Riaz R and **Bakhsh A** (2024). Genetic Improvement in Leguminous Crops Through Genome Editing. In: Ricroch, A, Eriksson D, Miladinović D., Sweet J, Van Laere K, Woźniak-Gientka E (eds) (eds) A Roadmap for Plant Genome Editing. Cham: Springer Nature Switzerland, ISBN 978-3-031-46149-1, pp. 259-269. https://doi.org/10.1007/978-3-031-46150-7_16

7. Khalid S, Nadeem A, Shaheen S, Mammadova R, **Bakhsh A** (2023) Crop protection for sustainable agriculture in the era of climate change. In: Hasanuzzaman M (eds) Climate-Resilient Agriculture, Vol 1: Crop Responses and Agroecological Perspectives. Springer, Cham International Publishing, ISBN: 978-3-031-37424-1, pp. 349-361. https://doi.org/10.1007/978-3-031-37424-1_17

8. Yel I, Dönmez BA, Yeşil B, Tekinsoy M, Saeed F, **Bakhsh A** (2023) Doubled haploid production – mechanism and utilization in plant breeding. In: Raina, A., Wani, M.R.,

Laskar, R.A., Tomlekova, N., Khan, S. (eds) Advanced Crop Improvement, Volume 1: Theory and Practice, Springer, Cham International Publishing, ISBN: 978-3-031-28146-4, pp. 321–347, https://doi.org/10.1007/978-3-031-28146-4_13

9. Khalid S, Siddique R, **Bakhsh A** (2023) Smart plant breeding for potato in the post-genomics era. In: Singh, S., Sharma, D., Sharma, S.K., Singh, R. (eds) Smart Plant Breeding for Vegetable Crops in Post-genomics Era. Springer Singapore, ISBN: 978-981-19-5367-5, pp. 337-357, https://doi.org/10.1007/978-981-19-5367-5_13

10. Saeed F, Dangol SD, Hashmi MH, Hossain MJ, **Bakhsh A** (2023) Role of genetic engineering in improving potato production. In: Caliskan ME, Bakhsh A, Jabran A (eds) Potato Production Worldwide (Ist Edition). Academic Press, Elsevier Inc. ISBN: 9780128229255, pp. 303-315, https://doi.org/10.1016/B978-0-12-822925-5.00006-2

11. **Bakhsh A**, Jabran K, Nazik N, Calişkan ME (2023) Conclusion and future prospective in potato production. In: Caliskan ME, Bakhsh A, Jabran A (eds) Potato Production Worldwide (Ist Edition). Academic Press, Elsevier Inc. ISBN: 9780128229255, pp. 457-470, https://doi.org/10.1016/B978-0-12-822925-5.00004-9

12. **Bakhsh A**, Zainab R, Ali MA, Chung G, Golokhvast KS, Nawaz MA (2023) Genetically modified organism in Europe: state of affairs, birth, research and regulatory process(es). In Nawaz M, Chung G, Golokhvast KS, Tsatsakis A (Eds) GMOs and Political Stance (Ist Edition). Academic Press 2022, Elsevier Inc. ISBN: 9780128239049, pp.165-172, https://doi.org/10.1016/B978-0-12-823903-2.00012-3
13. **Bakhsh A**, Hossain J, Yerlikaya BA, Ayten S, Özcan S (2023) An overview of regulations of genetically modified organisms in Türkiye. In Nawaz M, Chung G, Golokhvast KS, Tsatsakis A (Eds) GMOs and Political Stance (Ist Edition). Academic Press 2022, Elsevier Inc. ISBN: 9780128239049, pp.193-230, https://doi.org/10.1016/B978-0-12-823903-2.00003-2
14. Yaman C, Khalid S, **Bakhsh A** (2022) Dormancy and germination of salvia species: An overview. In: Özyazici G (editor) New Developments and on Medicinal and Aromatic Plants-II. Iksad Publishing House, ISBN: 978-625-8213-33-1, pp. 321-356

15. Rana IA, **Bakhsh A**, Tillaboeva S, Arsh Q, Haihong S, Baig IA, Azhar MT (2021) Genetically modified cotton; boom or dust. In: Khan Z, Ali Z, Khan AA (eds) Cotton Breeding and Biotechnology. CRC Press Taylor and Francis Group 33 B/W Illustrations, ISBN 9780367562229, pp.271-289 https://doi.org/10.1201/9781003096856-16

16. Aksoy E. Demirel U, **Bakhsh A**, Zia MAB, Saeed F, Çalışkan S, Çalışkan M (2021) Recent advances in potato (*Solanum tuberosum* L.) breeding. In: Al-Khayri J.M., Jain S.M., Johnson D.V. (eds) Advances in Plant Breeding Strategies: Vegetable Crops. Springer, Cham. ISBN: 978-3-030-66965-2, https://doi.org/10.1007/978-3-030-66965-2_10

17. Hossain J, Tillaboeva S, Sirel IA, Kaya RB, Dönmez BA, Aasim M, **Bakhsh A** (2021) Genetic Engineering of ion transporter for osmotic stress tolerance. In Roychoudhury

A, Tripathi DK, Deshmukh R (Eds) Transporters and Plant Osmotic Stress, Academic Press, Elsevier Inc. pp. 133-166, https://doi.org/10.1016/B978-0-12-817958-1.00011-6

18. Dangol SD, Hashmi MH, Saeed F, Yel I, Öztürk A, **Bakhsh A** (2021) Utilizing RNA based approaches to understand plant-insect interactions. In Tang G et al. (eds) RNA-Based Technologies for Functional Genomics in Plants, Springer International Publishing. ISBN: 978-3-030-64994-4, pp. 393–428. https://doi.org/10.1007/978-3-030-64994-4

19. **Bakhsh A**, Sırel IA, Kaya RB, Ataman IH, Tillaboeva S, Dönmez BA, Yeşil B, Yel I, Tekinsoy M, Duru E (2021) Contribution of genetically modified crops in agricultural production: success stories. In Singh P et al. (eds) Policy Issues in Genetically Modified Crops, a Global Perspective. Academic Press, Elsevier Inc. http://dx.doi.org/10.1016/B978-0-12-820780-2.00006-6

20. Maqbool A, **Bakhsh A**, Aksoy E (2021) Effects of natural variations on of Biofortification. In: Azhar MT and Wani S (eds) Wild Germplasm for Genetic Improvement in Crop Plants. Academic Press, Elsevier Inc. https://doi.org/10.1016/B978-0-12-822137-2.00007-2

21. Hossain MJ, **Bakhsh A** (2020) Development and applications of transplastomic plants; a way towards eco-friendly agriculture. In: Fahad S. et al. (eds) Environment, Climate, Plant and Vegetation Growth. Springer, Cham. https://doi.org/10.1007/978-3-030-49732-3_12

22. Maqbool A, Abrar M, **Bakhsh A**, Çalışkan S, Khan HZ, Aslam M, Aksoy E (2020) Biofortification under climate change: The fight between quality and quantity. In: Fahad S. et al. (eds) Environment, Climate, Plant and Vegetation Growth. Springer, Cham. https://doi.org/10.1007/978-3-030-49732-3_9

23. Saeed F, Hashmi MH, Hossain MJ, Ali MA, **Bakhsh A** (2020) Transgenic technologies for efficient insect pest management in crop plants. In: Kiran U, Abidin MZ, Kamaluddin (eds) Transgenic Technology Based Value Addition in Plant Biotechnology. Academic Press, Elesvier Inc. https://doi.org/10.1016/B978-0-12-818632-9.00006-X

24. Salim M., Gökçe A., Naqqash M.N., **Bakhsh A**. (2020) Gene Pyramiding: An Emerging Control Strategy against Insect Pests of Agronomic Crops In: Hasanuzzaman M. (eds) Agronomic Crops Vol 3. Springer, Singapore https://doi.org/10.1007/978-981-15-0025-1_16

25. Ozturk Gokce Z.N. et al. (2020) Abiotic Stress Tolerance in Field Crops: Integration of Omics Approaches. In: Hasanuzzaman M. (eds) Agronomic Crops Vol 3. Springer, Singapore https://doi.org/10.1007/978-981-15-0025-1_24

26. Sattar MN, Iqbal Z, Dangol SD, **Bakkhsh A** (2019) CRISPR/Cas9: A new genome editing tools to Accelerate Cotton Breeding. In Advances in Plant Breeding Strategies: Nut and Beverage Crops Vol 4 Edited by Al-Khayri MJ, Jain SM, Dennis

V. Springer International Publishing ISBN: 978-3-030-23112-5, DOI: 10.1007/978-3-030-23112-5

27. Jabran K, Sami U, Chauhan BS, **Bakhsh A** (2019) An Introduction to Global Production Trends and Uses, History and Evolution, and Genetic and Biotechnological Improvements in Cotton. In Cotton Production, World Agriculture Series Edited by Jabran K and Chauhan BS. John Wiley and Sons Publishers ISBN: 1119385490, 9781119385493.

28. Aasim M, Khawar KM, Karataş M, Bloch FS, **Bakhsh A** (2019) An Insight to Micropropagation of Freshwater Aquatic Medicinal Plants. In: Ozturk M., Hakeem K. (eds) Plant and Human Health, Volume 2. Springer, Cham. ISBN 978-3-030-03344-6, pp 425-445
29. Aasim M, Sameeullah M, Karataş M, Bakirci S, **Bakhsh A**, Akhtar MS (2019) An Insight into Biotechnological Approaches Used for the Improvement of Secondary Metabolite from the medicinal Aquatic Plant, Water Hyssop (*Bacopa monnieri* L.). In: Akhtar MS, Swamy MK (eds) Natural Bio-active Compounds. Springer, Singapore. ISBN 978-981-13-7438-8, pp 123-152.
30. Aasim M., Baloch F.S., Nadeem M.A., **Bakhsh A**., Sameeullah M., Day S. (2018) Fenugreek (*Trigonella foenum-graecum* L.): An Underutilized Edible Plant of Modern World. In: Ozturk M., Hakeem KR., Ashraf M., Ahmad MSA. (eds) Global Perspectives on Underutilized Crops. Springer Nature. ISBN 978-3-319-77776-4, pp. 381-408
31. Aasim M., **Bakhsh A**., Sameeullah M., Karataş M., Khawar K.M. (2018) Aquatic Plants as Human Food. In: Ozturk M., Hakeem K., Ashraf M., Ahmad MSA. (eds) Global Perspectives on Underutilized Crops. Springer Nature. ISBN 978-3-319-77776-4, pp. 165-187
32. Aasim M, Baloch FS, **Bakhsh A**, Sameeullah M, Khawar KM (2018) Biotechnological approaches for genetic improvement of Fenugreek (Trigonella foenum-graceum L.). In Kumar N (ed) Biotechnological Approaches for Medical and Aromatic plants. © Springer Nature Singapore, ISBN 978-981-13-0535-1, pp. 417-444
33. Aasim M, Sameeullah M, **Bakhsh A**, Sivinç C, Day S, Khawar KM (2018) Plant Tissue Culture and Genetic Transformation Studies of Poor Man Crop Cowpea (*Vigna Unguiculata* L.). In Nikolic BA (ed) Cowpea Research Progress and Management Challenges. © 2018 Nova Science Publishers, Inc. ISBN: 978-1-53614-282-2, pp. 65-96.
34. **Bakhsh A**, Baloch FS, Hatipoğlu R, Özkan H (2015) Use of genetic engineering: benefits and health concerns. In Handbook of Vegetable Preservation and Processing, 2nd Edition Edited by Hui YH, Evranuz EÖ. CRC Press Taylor and Francis Group, 110 B/W Illustrations. ISBN 9781482212280.

RESEARCH PROJECTS

Grants Received as Principal Investigator

- **Project Leader,** Development of tomato lines resistant to tomato brown rugose fruit virus. A project awarded by M.Y. Genetiks Antalya Türkiye, 2023-2024, Budget 30,000 USD (**Continued**)
- **Project Leader,** Development of highly efficacious sucking and chewing insect resistant cotton prototype for commercialization (HEC TDF-04-302) (2024-2026). Awarded by Higher Education Commission, Pakistan, 2025-2026, Budget 9.3 million PKR (**Continued**)
- **Project Leader,** A Non-GM, Eco-friendly and Cost-effective dsRNA based Biopesticide to Control Cotton Pink bollworm (*Pectinophora gossypiella*) (PSDP Project#302) (2025). Awarded by Pakistan Academy of Sciences, Budget 12.105 million PKR (**Continued**)
- **Project Leader**, Production of insect resistant transplastomic potato lines against Colorado potato beetle and Potato tuber moth (TOVAG 216O027). 2017-2020. Budget 304,140 TL**.** A bilateral Project with University of Agriculture, Faisalabad, Pakistan supported by TUBITAK, Turkey and Pakistan Science Foundation, Pakistan (**Completed**).
- **Project Leader**, A novel Plant mediated RNAi strategy to develop insect resistant potato lines against Colorado Potato Beetle and Potato Tuber Moth (TOVAG 215O520). **2016-20**. Budget 306, 270.00 TL. TÜBITAK (**Completed**).
- **Project Leader**, Development of herbicide resistant potato lines (TOVAG 115O022). 2015-17. Budget 100,000.00 TL. TÜBITAK (**Completed**)

- **Project Leader**, Development of broad-spectrum insect-resistant tobacco cultivars using gene pyramiding strategy. 2014-15. Awarded by Scientific Research and Project Units (FEB314/10-BAEP6), Nigde Omer Halisdemir University, Turkey (**Completed**).
- **Project Leader,** Transformation of a R2R3-MYB Gene in Potato against biotic stress (2020-21). Awarded by Scientific Research and Project Units (BAP), Niğde Omer Halisdemir University, Turkey. Project Budget (30,000 TL) (**Completed**).
- **Project Leader**, Knock down of some important genes of Colorado potato beetle (*Leptinotarsa decemlineata*, Say) using RNAi technology (TGT 2020/10-LÜTEP). 2020-21. Awarded by Scientific Research and Project Units (BAP), Niğde Omer Halisdemir University, Turkey. Project Budget (7,500 TL) (**Completed**).
- **Project Leader,** Silencing some important genes of *Tuta absoluta* (Lepidoptera: Gelechiidae) with plant-mediated RNAi Technology (2020-22). Scientific Research and Project Units (BAP), Niğde Omer Halisdemir University, Turkey Project Budget (15000 TL) (**Completed**).
- **European Co-operation in Science and Technology** (COST), MC member (substitute) from Turkey. **CA18111** - Genome editing in plants - a technology with transformative potential. Cost Chair, Dr. Dennis Eriksson, Swedish University of Agricultural Sciences, Alnarp/Sweden (**Completed**).

Participation in Projects as Consultant

- **Advisor,** Genome editing of local rice cultivar to develop blast resistant lines. Awarded by **University Grants Commission Nepal**- Collaborative Research and Innovation Grant (UGC-CRIG) Award (Grant Number: CRIG-78/79-S&T-08), Project Budget 56526 USD (**Continued**).
- **Advisor,** improving dsRNA efficiency against Potato Beetle (*Leptinotarsa Decemlineata* Say.) using mineral-based nanocomposites (TOVAG 223O259). 2024-2027. Grant awarded by **TÜBİTAK,** Türkiye with budget (1 million TL)

Participation as Researcher (Co-Principal Investigator)

- **Co-PI**, Development of cotton lines with economical traits and resistance to wilting diseases (2024-2027). Awarded Islamic Development Bank (IsDB), Jeddah, KSA, Project Budget 150,000 USD.
- **Co-PI,** CRISPR/cas 9 mediated knock out of LOV1 and AOS2 genes to impart biotic stress resistance in potato (*Solanum tuberosum*), Awarded by Higher Education Commission (HEC), CPEC-CRG Grant, Project Budget 12.9 million PKR (**Continued**)
- **Co-PI,** Development of Climate Resilient cotton resistant to drought and heat through editing of negative regulators by using Cpf1 multiplex system (2023-2025). Awarded by Pakistan Science Foundation (PSF), Project Budget 10 million PKR (**Continued**).
- **Researcher,** Investigation of the Role of GATA12 in Regulation of Iron Deficiency Signaling in Arabidopsis thaliana, 2019-2021. Awarded by "The Scientific and Technological Council of Turkey (TUBITAK)". Project Budget (360,240.00 TL) (**Completed**).
- **Researcher**, Development of novel screening tools to identify Potato Genotypes with low acrylamide potential (Depola) (TOVAG 115O949) 2017-20. Awarded by "The Scientific and Technological Council of Turkey (TUBITAK)". Project Budget (358,700.00 TL) **A bilateral Project with Germany** (**Completed**).
- **Researcher**, Identification of miRNAs and their functions regulating drought and heat tolerance of potato (TOVAG 115O405). 2015-18. Awarded by "The Scientific and Technological Council of Turkey (TUBITAK)". Project Budget (459,240.00 TL) (**Completed**).
- **Researcher**, Comparison of agricultural and economic productivity of potato minitubers produced in soil and without soil production systems. 2015-2017. Awarded by Doğuş Agricultural Research and Development Private Limited. Project Budget (213,500.00 TL) (**Completed**).
- **Researcher**, Improving Processing Potato lines using conventional plant breeding and molecular markers techniques. 2014-17. Awarded by Ministry of Food, Agriculture and Livestock (TAGEM-14/AR-GE/38), Turkey. Project Budget (186,211.00 TL) (**Completed**).
- **Researcher,** Use of Gene Silencing Techniques (RNAi) in control of Colorado potato beetle, [*Leptinotarsa decemlineata* (Chrysomelidae: Coleoptera)]. 2017-20. Awarded

by Doğuş Agricultural Research and Development Private Limited. Project Budget (60,000 TL) (**Completed**).

- **Researcher,** Determination of genetic and biological properties of a new virus detected by New Generation Sequencing (NGS) of grapevine 2019-2021 (TGT 2019/06-BAGEP). Awarded by Scientific Research and Project Units (BAP), Niğde Omer Halisdemir University, Turkey. Project Budget (29,984.43 TL) (**Completed)**
- **Researcher**, Control of *Leptinotarsa decemlineata* (Say) and *Phthorimaea operculella* Zeller with pyramiding of insecticidal genes in potato. 2017-20. Awarded by Scientific Research and Project Units (BAP), Niğde Omer Halisdemir University, Turkey. Project Budget (20,000.00 TL) (**Completed**).
- **Researcher**, Determining Production of Alkanin/Şikonin (A/S) Metabolites in *Alkanna orientalis* (L) Boiss. var. orientalis and Alkanna sieheana Rech. Fil. by *Agrobacterium rhizogenesis* mediated transformation. 2018-2020. Awarded by Scientific Research and Project Units (BAP), Bozok University, Yozgat, Turkey. Project Budget (14,000.00 TL) (**Completed**).
- **Researcher**, Agrobacterium tumefaciens Mediated Genetic Transformation in Aquatic Plants. 2014-16. Awarded by Scientific Research and Project Units (BAP: 03-M-14), Karamanoğlu Mehmet Bey University, Karaman, Turkey. Project Budget (19,993.00 TL) (**Completed**).
- **Researcher,** Overexpression studies PCS1 gene in *Ceratophyllum demersum* to investigate its phytoremediation Potential. 2017-19. Awarded by Scientific Research and Project Units (BAP), Necemettin Erbakan University, Konya, Turkey. Project Budget (50,000.00 TL) (**Completed**).

PROFESSIONAL TRAINING/WORKSHOPS

- Two days international training entitled "Pakistan Biosafety Capacity Building Programme on Biotech Innovation, Biotech Regulation and their Impacts" on 24-25th January 2024 organized by University of Missouri, Colombia, USA and The Sustainable Development Policy Institute (SDPI), Pakistan in **Dubai, United Stated of Emirates**.
- Two days training international workshop entitled "Bridging the Gap: Enhancing Biosafety and Biosecurity Regimes for a Secure Future", on 3-4 December 2023 organized by COMSTECH and Republic of Kazakhtan at COMSTECH Secretariat, Islamabad, **Pakistan**
- Two days training workshop "Patent and Plant Breeder Rights Application Drafting" on 31st May-1st June 2023 organized by National Institute for Genomics and Advance Biotechnology (NIGAB), PARC-NARC, Islamabad, **Pakistan**
- Four days capacity building workshop for effective reporting and implementation of Cartagena Protocol on Biosafety, UNEP-GEF Project For Sustainable Capacity Building for Effective Participation in the BCH (BCH-III) organized by Ministry of Climate Change on 20-23 February 2023, Islamabad, **Pakistan**
- International three days' workshop on "Science Communication and Community Engagement organized by COMSTECH and Ministry of Foreign Affairs in collaboration with Technology Times, Regional Rapport, and Pakistan Biotechnology

Information Centre (PABIC) on 1-3 February 2023 at COMSTECH, Islamabad, **Pakistan**.

- COMCEC-COMSTECH training and workshop on new breeding technologies for food and nutritional security on 30th Nov-2nd December 2021, organized by Middle East Technical University, Ankara, **Turkey**
- ICGEB-JRC Workshop "Genome Editing Applications and Beyond" 19-20 November 2019 | Trieste – **Italy**
- International Workshop on "Use of Genome Editing & Other New Breeding Technologies for Global Food Security" arranged by COMSTECH-ICGEB-NIBGE from April 8-10, 2019 at COMSTECH, Islamabad, **Pakistan**
- Course on Map Construction and QTL Analysis in Plants organized by University of Copenhagen, 14-18th Nov2011, **Denmark**
- Three Months training in mutation breeding at Nuclear Institute for Agriculture and Biology (NIAB) on May-July 2004, Faisalabad. **Pakistan**

ORGANIZATION OF CONFERENCES/WORKSHOPS

- Organized international Conference on Trends and Challenges in Health Sciences on 01-02 March 2023 at CEMB.
- Hands on Training Workshop on Structural Bioinformatics Tools on February 2023 at CEMB, University of the Punjab, Lahore.
- International Conference on Plant Molecular Biology (ICPMB) on 14-15 December 2022 at CEMB, University of the Punjab, Lahore.
- 4th International Symposium on Advances in Molecular Biology of the Plants and Health Sciences, 23-24 December 2021 at CEMB, University of the Punjab, Lahore.
- CEMB Cotton Seminar, Success, Challenges and Future Directions on 22 March 2022 at CEMB at CEMB, University of the Punjab, Lahore.
- National Seminar "Awareness seminar on GM soybean and potential of Soybean cultivation in Pakistan" on January 23, 2023 at CEMB, University of the Punjab, Lahore.

AWARDS, FELLOWSHIPS

- UNESCO-TWAS sponsored fellowship for scientific visit to Tribhuvan University, Kathmandu, 2024, Nepal
- Early-Stage Research Fellowship (2013) awarded by University of Bologna, Italy.
- Postdoctoral Fellowship awarded by TUBITAK (Scientific and Technological Research Council of Turkey), Ankara, Turkey
- Indigenous PhD scholarship (2006) awarded by Higher Education Commission, Islamabad, Pakistan.

COURSES TAUGHT

MS/PhD Courses (Both in Fall and Spring Semester)

- AGE7103 Analysis of Genes and Genomes in Plants (average 10 student)
- AGE6113Tissue Culture in Plant Breeding (average 10 student)

- AGE6101 Genetically Modified Plants (average 10 student)
- AGE6108 Haploids in Plant Breeding (average 10 student)
- AGE6112 Functional Genomics in Plant Breeding (average 10 student)
- AGE7102 Gene Transfer Techniques in Plants (average 10 student)
- 502-Biotechnology (at CEMB)

Undergraduate Courses (Both in Fall and Spring Semester)

- TGM3005 Plant Genetic Engineering (average 30 students)
- TGM4035 Biosafety (average 30 students)
- TGM2010 Plant Cell Tissue and Organ Culture (average 30 students)
- TGM3044 Recombinant DNA Technology (average 30 students)
- TGM4062 Breeding for Biotic Stress (average 30 students)

STUDENT ADVISORY

PhD Student (Graduated)

- **Faisal Saeed** (2024) Developing mutants of negative regulator of immune response gene (CPL-3) in tomato using CRISPR-Cas9. Nigde Omer Halisdemir University, Turkey.
- **Muneeb Hassan Hashmi** (2022) Plant mediated RNAi strategy to develop resistant tomato lines against Potato Tuber Moth. Nigde Omer Halisdemir University, Turkey
- **Md. Jakir Hossain** (2021) Production of insect resistant transplastomic potato lines against Colorado potato beetle. Nigde Omer Halisdemir University, Turkey
- **Sarbesh Das Dangol** (2021) Knockdown of Potato Invertase Inhibitor gene by CRISPR/Cas9 based approach**,** Nigde Omer Halisdemir University, Turkey

PhD Students (Continued)

- **Noman Nazik** (2021-26) Development of tomato lines resistant to Tomato brown rugose fruit virus (ToBRV). Centre of Excellence in Molecular Biology, University of the Punjab, Lahore, Pakistan
- **Amina Amin Chaudhry** (2022-27). Use of different transgenic approaches to develop tomato lines resistant to insect pests. Centre of Excellence in Molecular Biology, University of the Punjab, Lahore, Pakistan
- **Muniba Shahid** (2023-28). dsRNAs Based Control of Cotton Bollworms, University of the Punjab, Lahore, Pakistan
- **Muhammad Abbas Khan** (2022-25). CRISPR-Cas based genome editing approach to knock out invertase inhibitor gene in potatoes. Institute of Biochemistry and Biotechnology, PMAS Arid Agriculture University, Rawalpindi, Pakistan
- **Duha Mysire Majeed** (2022-25). Development of Glyphosate resistant potato lines expressing EPSP synthase gene. Department of Biotechnology, University of Baghdad, Iraq
- **Prince Charles Kulekey** (2024-28). Development of broad spectrum resistance lines of Bambara Groundnut (*Vigna subterranean* L.) against potyviruses using CRISPR-Cas mediated Genome editing. Department of Plant Production and Technologies, Faculty of Agricultural Sciences and Technologies, Nigde Omer Halisdemir University, Nigde, Türkiye.

MS Students (Graduated)

- **Toga Dinç** (2016). Development of insect resistant tobacco lines expressing c*ry1Ac* and *cry2a* genes. Nigde Omer Halisdemir University, Turkey
- **Safa Sümer** (2018). *Agrobacterium tumafaciens* mediated gene transformation of potato with herbicidal gene (CP4-EPSPS), Nigde Omer Halisdemir University, Turkey
- **Abdul Naser Amiri** (2018). Development of transgenic potato lines expressing insecticidal and herbicidal gene, Nigde Omer Halisdemir University, Turkey
- **Ilhom Rahamkulov** (2019). Comparison of different promoters' activity in transgenic potato, Nigde Omer Halisdemir University, Turkey
- **İrem Aycan SIREL** (2018-2020). Overexpression of SlAIMI gene encoding R2R3 MYB transcription factor in potato under drought conditions. Nigde Omer Halisdemir University, Turkey
- **Rabia Busenaz GÜNDÜZ** (2018-2020). Transformation of MYB108 gene in potato against biotic stress. Nigde Omer Halisdemir University, Turkey
- **Shakhnozakhan TILLABOEVA** (2018-2021). Overexpression of Baby Boom gene in cotton to enhance somatic embryogenesis, Nigde Omer Halisdemir University, Turkey
- **Ayça Betül Dönmez** (2019-2021). Optimization of *in vitro* regeneration of different soybean cultivars, Nigde Omer Halisdemir University, Turkey
- **Binnur Yeşil** (2019-2021). Evaluation of genetic diversity of cotton genotypes (*Gossypium hirsutum* L.) using iPBS marker system, Nigde Omer Halisdemir University, Turkey
- **Merve Tekinsoy** (2020-2022). Overexpression of Jaburetox 2-Ec in Potato (*Solanum Tuberosum* L.), Nigde Omer Halisdemir University, Turkey.
- **Saqib Ali** (2021-2023). Optimization of in vitro culture and genetic transformation in local soybean cultivars, University of the Punjab, Lahore, Pakistan
- **Zille Huma** (2021-2023). Development of dsRNA based biopesticide against cotton dusky bug, *Oxycarenus hyalinipennis* Costa (Lygaeidae: Hemiptera), University of the Punjab, Lahore, Pakistan
- **Muhammad Waqas Choudry** (2022-2024). Optimization of CRISPR/Cas9-based Gene Knockout in Soybean (*Glycine max* L.) – targeting AtPQT3 and AtPAR1 Homologs for Paraquat Tolerance Trait. University of the Punjab, Lahore, Pakistan
- **Rabia Riaz (**2022-2024). Optimization of CRISPR/Cas9-based Gene Knockout in Canola (*Brassica napus* L.) – targeting AtPQT3 Homologs for Paraquat Tolerance Trait. University of the Punjab, Lahore, Pakistan

MS Students (Continued)

- **Arshia Amin Khan** (2023-25). Evaluation of CRISPR/Cas9 mediated Soybean (*Glycine max* L.) mutants of AtPQT3 and AtPAR1 genes
- **Sumbal Sabir** (2023-25). Evaluation of CRISPR/Cas9 mediated Canola (*Glycine max* L.) mutants of AtPQT3 gene

PhD Students Graduated (As Committee Member)

- **Hanif Tariq (2023). E**valuation of dsRNAs targeting different genes in control of Colorado potato beetle (*Leptinotarsa decemlineata*). Nigde Omer Halisdemir University, Turkey
- **Muhammad Nadir Naqqash (2019)**. Use of Silencing Gene Techniques in Colorado potato beetle, *Leptinotarsa decemlineata*, control. Nigde Omer Halisdemir University, Turkey
- **Muhammad Saleem (2019)**. Pyramiding of Insecticidal Genes in Potato to encode Resistance against Colorado Potato Beetle, Leptinotarsa *decemlineata* (Say). Nigde Omer Halisdemir University, Turkey
- **Tahira Hussain (2018)** Development of Potato Lines Resistant to Colorado Potato Beetle Using RNAi based Transformation Approach. Nigde Omer Halisdemir University. Nigde Omer Halisdemir University, Turkey
- **Saber Delpasand Khabazi (2017)** Transformation of Cotton with *GNA* and *cry1Ac* gene for insect resistance. University of Ankara, Turkey

MS Students Graduated (As Committee Member)

- **Beyazit Şanli** (2020). Investigation of potential of miR162 in sustainable agriculture through overexpression in potato cultivars. Nigde Omer Halisdemir University, Turkey
- **Melis Yalçin** (2020). Investigation of Function of Novel 9 miRNA in Contrasting Potato Cultivars Using Transgenic Approach. Nigde Omer Halisdemir University, Turkey
- **Esra Karakaş** (2019). Identification of Tissue, developmental stage and Stress Response Specificity of WRKY Transcription Factor Family. Nigde Omer Halisdemir University, Turkey
- **Busimuhan Abudureyımu** (2019). Analysis of the role of RNA metabolism regulator CPL1 in salinity stress tolerance in *Arabidopsis thaliana*. Nigde Omer Halisdemir University, Turkey
- **Canan Sevinç** (2019). Isolation and cloning of phytochelatin synthase (pcs1) gene used for phytoremediatıon studies. Necmettin Erbakan University, Konya, Turkey
- **Amir Maqbool** (2018). Investigation of Physiological, Biochemical and Molecular Response of Soybean Cultivars under Iron Deficiency. Nigde Omer Halisdemir University, Turkey
- **Muhammad Hussain Azimi** (2017). Comparison of Drought Stress Response of Potato Varieties at the Transcriptomic Level. Nigde Omer Halisdemir University, Turkey
- **Esra Kaplan** (2017). Identification of miRNAs in Response to Drought and Heat Stresses in Potato using Next generation Sequencing. Nigde Omer Halisdemir University, Turkey
- **Begimay Taalaybek kizi** (2017). Regulation of drought tolerance in Potato mediated by miRNAs. Nigde Omer Halisdemir University, Turkey

- **Khazina Amin** (2016). Optimization of genetic transformation in Onion (*Allium Cepa* L.). Nigde Omer Halisdemir University, Turkey
- **Hasibe Yildiz** (2015). Investigation of Tissue Culture Propagation Techniques of some Vaccinium Species. Nigde Omer Halisdemir University, Turkey

BS Thesis Students (Graduated)

- Nurefsan Cırık (2020) Genetic Transformation studies in watermelon. Nigde Omer Halisdemir University, Turkey
- Esra Duru (2020). Effect of drought and heat stress on in vitro cultured Black Nightshade. Nigde Omer Halisdemir University, Turkey
- Ykbal Azezbayeva (2020). Optimization of in vitro culture conditions for cotton cultivars. Nigde Omer Halisdemir University, Turkey
- Betül Ayça Dönmez (2019). Comparative Gene Transfer Efficiency of Five Agrobacterium Strains in Diploid and Tetraploid Potatoes
- İlknur Yel (2019). Optimization of Genetic Transformation in Diploid Potato
- Eyüp Özarslan (2019). PCR based detection of Begomoviruses from Different Weeds in Tarsus Surroundings
- Emre Benği (2019). Detection of Begomoviruses from Different Vegetables in Tarsus Surroundings
- Hilal İlkay Ataman (2018). Effect of dsRNA of EcR to CPB Fecundity and survival. Nigde Omer Halisdemir University.
- Zehranur Gülbahar (2018). Characterization of wound inducible promoter from *Asparagus Officinalis* L. Nigde Omer Halisdemir University.
- Oktay Şahin (2018). Investigation of Juberotox protein gene as potential insecticidal and antifungal agent. Nigde Omer Halisdemir University.
- Rabia Busenaz Kaya (2018). Over expression of DREB gene in Potato (*Solanum tuberosum* L.). Nigde Omer Halisdemir University, Türkiye

SCIENTIFIC JOURNAL EDITORSHIP

- PLOS ONE (SCI expanded)
- Turkish Journal of Agriculture and Forestry (SCI expanded)
- Frontiers in Genetics (SCI Expanded)
- Journal of Cotton Research (Emerging SCI)
- Frontiers in Plant Sciences (SCI Expanded)
- Turkish Journal of Agriculture, Food Science and Technology (Emerging SCI)
- Pure and Applied Biology
- Journal of Agriculture, Food, Environment and Animal Sciences

MEMBERSHIP OF LEARNED SOCIETIES

- The Society for *In vitro* Biology, USA
- International Society of Pest Information, Eulerweg 3, D-64347 Griesheim, Germany
- Member of Italo-Latin American Society of Ethnomedicine

CONFERENCE ORAL PRESENTATIONS

1. **Bakhsh A** (2025). Genome Editing, Successes, Limitations and Regulatory Challenges. Presented as **Invited Speaker/Trainer** in training course on "Sustainable cotton production in OIC countries: strengthening farmer resilience and economic Growth" organized by Statistical, Economic and Social Research and Training Centre for Islamic Countries (**SESRIC**) on 11-12 March 2025, Ankara, **Türkiye**
2. **Bakhsh A** (2025). dsRNA-based green biopesticides against insect pests: towards better IPM. Presented **as Invited Speaker** to Refresher Course on Crop Improvement: From Breeding to Genome Editing March 3-7, 2025, Online Mode, Organized by Agri Biotech Foundation (ABF), Hyderabad and Federation of Asian Biotechnology Associations (FABA), Hyderabad, and ICAR-Indian Institute of Rice Research (IIRR), Hyderabad, **India**
3. **Bakhsh A** (2024). The regulatory landscape of genome edited plants with focus on regulatory policies: where we are heading. Presented as **Invited Plenary Speaker** in International Conference on Plant Biology and Biotechnology (**ICPBB 2024**), on June 03-06, 2024, Almaty, **Kazakhstan**.
4. **Bakhsh A**, Tariq H, Gökçe Ay (2024). The dsRNA based green pesticides for the control of Colorado potato beetle, Leptinotarsa Decemlineata Say (chrysomelidae: Coleoptera). **Presented as Invited Speaker in International Conference** Astana Biotech 2024 on 12-13 September, Astana, Kazakhstan.
5. **Bakhsh A (**2024). Potential of dsRNA for better crop improvement. Presented in 1st International Congress on Biotech Solutions for Sustainability (Hybrid). Jointly Organized Institute of Biotechnology Gebze Technical University, Kocaeli Turkiye & Institute of Plant Breeding & Biotechnology, MNSUAM, Multan, **Pakistan**.
6. Tariq H, **Bakhsh A** (2024). dsRNA based green pesticides for the control of insect pests with case study of Colorado potato beetle. Presented as **Invited Speaker** in Conference on Plant Genomics for Climate Mitigation on 28th June, Forman Christian College University, Lahore, **Pakistan**.
7. **Bakhsh A** (2023). The advent of genome edited crops, towards better plant protection measures. Presented in International Scientific and Practical Conference "Phytosanitary Safety: threats and solutions" organized by Kazakh Research Institute of Plant Protection and Quarantine on 14-15 December 2023, Almaty, **Kazakhstan**.
8. **Bakhsh A** (2023). Modern day technologies to control insect pests of crops; Efficient IPM, better Farm Productivity. Presented in 1st International Turkic World Biology Congress organized by Ahmet Yassawi University on 23-24 November 2023, Turkestan, **Kazakhstan**.
9. **Bakhsh A** (2023). Modern genetically edited crops, implications, challenges and regulatory bottlenecks. Presented in 4th International Conference on Rehabilitation Sciences (ICRS) organized by Riphah International University on 6-8th October, Pearl Continental Hotel, Lahore, Pakistan

10. **Bakhsh A** (2023). The advent of genome edited cotton, new possibilities for cotton improvement in Pakistan. Presented at event organized by Pakistan Cotton Ginners Association on 7th October, Multan, Pakistan
11. **Bakhsh A**, Huma Z (2023). Modern Molecular Tools for Crop Improvement with case study of double stranded RNA based control of Dusky Cotton Bug. Presented in International Symposium on Turkic World, Science and Engineering Conference (Turk-COSE 2023) organized by Kyrgyz-Turkish Manas University on 14-16 September, Bishkek, **Kyrgyzstan**.
12. **Bakhsh A** (2023). Current Trends in Genome Editing of Crops; Success, Challenges and Regulatory Bottlenecks. Presented in Global conference on "Sustainable Developments in Agriculture, Biochemistry & Biotechnology organized by Women University, Multan on 15-16 February, Multan, Pakistan.
13. **Bakhsh A** (2023). Genome editing approach for better crop production and protection and regulatory landscape worldwide. Presented in International Conference on Mitigation and Adaptation (Focus on Agriculture and Food Security) organized by Forman Christian College University, on 6-9 February 2023, Lahore, Pakistan
14. **Bakhsh A** (2023). RNA interference; an important tool for better insect pest management. Presented in 2nd International Conference: New Trends in Biological Sciences organized by University of Okara on 16-17 January, Okara, Pakistan
15. Yasmin Aneela, **Bakhsh A**, Rao AQ (2022). Reduction in cold induced sweetening of potato through knockout of vacuolar invertase gene. Presented in VI. International Congress of Anatolian Agriculture, Food, Environment and Biology hosted by Nigde Omer Halisdemir University, Sivas Cumhuriyet University, Kutahya Dumlupinar University and Turkish Journal of Agriculture-Food Science and Technology (TURJAF), 07-09 October, Kütahya, **Türkiye**
16. **Bakhsh A** (2022). New Frontiers in Genome Editing of Plants and Regulatory Landscape Worldwide. Presented in Kazakhstan-Türkiye-Pakistan Youth Forum on Biotechnology organized by COMSTECH on 13-15th September, Islamabad, Pakistan.
17. **Bakhsh A**, Yasmin A, Rao AQ (2022). Addressing cold induced sweetening of potato through knock out of vacuolar invertase gene. Presented in 3rd PlantEd Conference on 5-7 September, Dusseldorf, **Germany**.
18. **Bakhsh A**, Yasmeen A, Rao AQ (2022). New Frontiers in Genome Editing of Crops, Success, challenges and regulatory bottlenecks. Presented in 3rd International Virtual Conference of Biotechnology Research Centre on 26-27 July 2022 organized by Al-Nahrain University, Baghdad, **Iraq** (**Keynote Speaker**).
19. **Bakhsh A**, AQ Rao, Yasmeen A, Azam S, Latif A (2022). The knockout of vacuolar invertase gene in potato to address cold induced sweetening. Presented in 4th International Turkic World Conference on Science and Technology on 23-24 June organized by Nigde Omer Halisdemir University, Nigde, **Türkiye**.
20. **Bakhsh A** (2022). The fate of genome edited crops, a regulatory perspective. Presented in 3rd international colloquium: challenges and opportunities of maize production organized by University of Agriculture, Faisalabad, Pakistan on 18-20 May, 2022.
21. **Bakhsh A** (2022). Application of genome editing for better pest control and its

regulatory landscape worldwide. Presented in International Conference on Food Security through Sustainable Plant Protection Strategies organized by Department of Plant Protection, The University of Agriculture, Peshawar, Pakistan on 16-20 January 2022.

22. **Bakhsh A** (2021). Case study: Development of genome-edited potato lines. Participated and presented as trainer in COMCEC-COMSTECH training and workshop on new breeding technologies for food and nutritional security on 30th Nov-2nd Dec, 2021, organized by Middle East Technical University, Ankara, **Turkey**.
23. **Bakhsh A** (2021). Modern molecular tools for insect pest management of horticultural crops. Presented as live webinar organized by Institute of Horticultural Sciences, University of Agriculture, Faisalabad on 2nd December 2021.
24. **Bakhsh A** (2021). Utilization of new plant protection technologies in crop plants, way forward towards better IPM. Presented in 10th International Molecular Biology and Biotechnology Congress virtually held on 4-7th October 2021, organized by Ondokuz Mayıs University, Samsun, **Türkiye.**
25. **Bakhsh A** (2021). Use of genome engineering and manipulation technologies for better insect pest and disease control. Presented in 2nd International Congress of the Turkish Journal of Agriculture-Food Sciences and Technology, International congress organized by Turkish Science Technology Publishing (TURSTEP) 25-29th October, Gazimağusa**, Cyprus**.
26. **Bakhsh A** (2021). Genome editing in vegetable and fruit plants. Participated as speaker in a live webinar February 26th organized by Kazak National Agrarian University KazNAU, Almaty, **Kazakhstan**
27. **Bakhsh A** (2021). Modern day approaches to integrated pest management (2021). Participated as speaker in a live webinar (April 09th) organized by Muhammad Ali Jinnah University, Karachi, **Pakistan**
28. **Bakhsh A**, Aksoy E, Gökçe A (2020). Towards application of dsRNA Technology to downregulate imidacloprid resistant genes of Colorao potato beetle CPB). **Virtually conducted** on 12-13th June 2020, Ashgabad, **Turkmenistan**.
29. **Bakhsh A** (2020). Application of dsRNA Technology against insect pests; towards better IPM. Presented as **Keynote speaker** in 3rd International Conference on Applied Zoology (ICAZ-2020) **virtually conducted** on 07-08 December, Faisalabad, **Pakistan**.
30. **Bakhsh A** (2020). Efficient In planta and Sprayable Delivery of dsRNAs against Colorado potato beetle, *Leptinotarsa decemlineata* Say (Chrysomelidae: Coleoptera). Presented in 4th Annual Conference: Contribution of RNAi to sustainable agriculture, food safety and security in February 26-28, Athens, **Greece**
31. **Bakhsh A**, Naqqash MN, Aksoy E, Gökce A (2020). Knock Down of Imidacloprid Resistant Genes in Colorado Potato Beetle, *Leptinotarsa decemlineata* (Chrysomelidae: Coleoptera). Presented in Plant and Animal Genome Conference XVIII, 11-15 January, San Diego, California, **USA**
32. **Bakhsh A**, Dangol S, Barakate A, Calışkan ME (2019) Elucidation of the role of potato invertase inhibitor using Crispr-Cas9 application. Presented in The 1st PlantEd Conference, Plant Genome Editing-State of the Art Cost Action CA18111 (05-07

November) organized by University of Novi Sad, Novi Sad, **Serbia**

33. **Bakhsh A**, Aksoy E, Gökçe ZNO (2019). Modern day techniques for efficient insect pest management in crop plants. Presented at Eurasion Congress on Molecular Biotechnology (ECOMB) on 19-21 September 2019, Trabzon, **Turkey**
34. Dangol S, Barakate A, Calışkan ME and **Bakhsh A** (2019). Knockdown of Potato Invertase Inhibitor gene by CRISPR/Cas9 based approach. Presented in 2019 SIVB meeting (07-12 June) Tampa, Florida, **USA**
35. Rahamkulov I, Aksoy E, **Bakhsh A** (2019). Activity of stress inducible rd29A promoter in transgenic potato under abiotic stress. Presented in II International Green Biotechnology Congress (09-11 September) Organized by Marmara University, Istanbul, **Turkey**
36. Naqqash MN, **Bakhsh A**, Gökçe A (2019). Silencing of some important genes leads to reduced fecundity and survival rates of Colorado Potato Beetle (*Leptinotarsa decemlineata* (Chrysomelidae: Coleoptera). Presented in 1st International Molecular Plant Protection Congress on 10-13 April, Adana, **Turkey**
37. **Bakhsh A** (2019). Transgenic approaches towards better insect pest management. Presented in international seminar on modern techniques to improve crop yields in changing climate on 4th April 2019, Mansehra, **Pakistan**
38. Begimay TK, Asim A, **Bakhsh A**, Demirel U (2019). Investigating mirRNA Mediated Networking against Drought Tolerance in Potato (*Solanum tuberosum* L.). Presented in International Turkic World Congress on Science and Engineering on 17-18 June, Niğde Omer Halisdemir University, Niğde, **Turkey**
39. Dangol SD, Çalışkan ME, **Bakhsh A** (2018). An insight into gene editing technologies and role of Crispr in plant improvement. Presented in CRISPR 2018 International Congress on 10-14 September, Novosibirk, **Russia**
40. **Bakhsh A**, Hussain T, Aasim M, Pirlak U, Aksoy E, Caliskan ME (2018) Development of Transgenic Potato Lines Expressing Ecdysone Receptor Gene of Colorado Potato Beetle. Presented in 2018 SIVB meeting (02-06 June), St. Louis, Missouri, **USA**
41. **Bakhsh A,** Hussain T, Rahamkulov I, Aasim M, Pirlak U, Aksoy E, Caliskan ME (2018). Plant Mediated RNAi Strategy to Induce Insect Resistance in Transgenic Potato Lines. Presented as oral presentation at International Agricultural Science Congress (09-12 May), Van, **Turkey**
42. **Bakhsh A,** Sumer S, Rahamkulov I, Hussain T, Demirel U, Caliskan ME (2018). Development of Glyphosate Tolerant Potato Lines Expressing Mutant Version of EPSP Synthase. Presented as oral presentation at 7th International Molecular Biology and Biotechnology Congress on 25-27 April, Konya, **Turkey**
43. **Bakhsh A** (2018). Confinement of foreign gene expression to targeted parts of the plants. Presented as **invited speaker** in "Integration of classical and non-classical techniques to improve crop yields" on 19th September, Swabi, **Pakistan**
44. **Bakhsh A** (2018). Genetic manipulations in Soybean against biotic stresses. Presented in "International conference on biofortification of staple food crops on 24-26th September, The University of Agriculture-Peshawar, **Pakistan**
45. Dangol SD, Caliskan ME, **Bakhsh A** (2018). Various Gene Editing Strategies and

Developments Based on CRISPR Technologies in Plants. Presented as oral presentation at International Agricultural Sciences Congress (09-12 May), Van, **Turkey**

46. **Bakhsh A,** Anayol E, Ahmed HA et al. (2017). Confining Insecticidal Gene Expression to Insect Wounding Parts in Transgenic Cotton. Presented as invited speaker at SINO-PAK International conference on innovations in cotton breeding and biotechnology on 22-24 November, Multan, **Pakistan**
47. **Bakhsh A**, Hussain T, Demirel U, Çalışkan ME (2017). Towards developing herbicide resistant potato lines. Presented as **invited Speaker** in 6th International and 15th National Conference on "Dynamic Trends in Plant Sciences: Fostering Environment (9-11 May), Quetta, **Pakistan**
48. Bakhsh A, Hussain T, Demirel U (2017). Developing herbicide resistant potato lines. Presented in International Plant & Animal Genome XXV / January 14-18, 2017 - San Diego – **USA**
49. **Bakhsh A**, Hussain T, Demirel U, Çalışkan ME. (2016). Development of Efficient, reproducible and stable genetic transformation protocol for potato cultivars. Presented in international conference on biological sciences (21-23 October), Konya, **Turkey**
50. **Bakhsh A,** Dinç T (2016). Gene pyramiding strategy: an efficient approach to develop broad spectrum insect-resistant crops. Turkey 6th Plant Protection Congress (5-8 September), Konya, **Turkey**
51. **Bakhsh A**, Aasim M, Demirel U, Hussain T, Zia MAB, Çalışkan ME (2015). Gene pyramiding strategy to develop sustainable insect resistant tobacco lines. Presented in 1st International Congress on Applied and Biological Sciences (16-20 September), Tetova, **Macedonia**
52. Aasim A, **Bakhsh A**, Sadi G, Zia MAB, Karataş M, Khawar KM. 2015. Establishment of an efficient reproducible genetic transformation method in aquatic plant (*Bacopa monnieri* L.). Presented in 1st International Congress on Applied and Biological Sciences (16-20 September), Tetova, **Macedonia**
53. **Bakhsh A**, Zia MAB, Hussain T, Tekeli FÖ, Gökçe AF (2015). Members of Alliace; better source of plant lectins to combat against sucking pests of the crops. Presented in ISEA 2015; The 7th International Symposium on Edible Alliaceae (21-25th May), Nigde, **Turkey**
54. **Bakhsh A**, Ozcan S (2015). Transgenic Bt crops with limited gene expression to insect biting sites only; an approach towards efficient pest resistance strategy. Presented in first conference on environment and biosciences (16-17th April) organized by Sardar Bahadir Khan Women's University, Quetta, **Pakistan**
55. **Bakhsh A**, Qayyum AQ, Shahid AA, Husnain T (2014). Insecticidal gene (cry1Ac) in transgenic Bt cotton under the control of tıssue specific promoter (rbcS) exhibits enhanced resistance against lepidopterans. Presented in plant physiology and genetics; achievements and challenges (24-26 September) in Sofia, **Bulgaria**
56. **Bakhsh A** (2014). Current Status of GMOs, Economic Impact and Biosafety Assessments. Presented in 2nd KOP regional development symposium (23-24 October), Niğde, **Turkey**

57. Özcan S, Anayol E, **Bakhsh A**, Onarıcı S, Aydın G, Aasim, Ozcan SF, Khawar KM, Ünlü L (2013). A new Approach to produce insect resistance transgenic cotton. Presented in Field Crop Congress, Konya, **Turkey**
58. **Bakhsh A**, GA Khan, M Ghazanfar, S Riazuddin, T Husnain (2012). Development of Transgenic Cotton with Pesticidal Gene (Cry1Ab) to encode resistance against Lepidopterans. Presented in 2nd Molecular Biology and Biotechnology Conference (15-18 November) in Antalya, **Turkey**
59. S Özcan, **A Bakhsh**, E Anayol, H Böke, F Özcan, S Onarici, M Aasim, KM Khawar, L Ünlü (2012). An approach to limit the cry endotoxin protein production in transgenic cotton using a wound induced promoter. Presented in First International Biology Conference (24-26 September) in Bishkek, **Kyrgyzstan**
60. **Bakhsh A**, AQ Rao, GA Khan, AA Shahid and T Husnain (2012). Insect Resistance Studies of Transgenic Cotton Cultivar Harbouring Cry1Ac And Cry2A. Presented in Tarim Symposium (20-23rd April) organized by Cankiri Karatekin University, Cankiri, **Turkey**
61. M Hajizadeh, **Bakhsh A**, Khawar KM (2012). Genetic Transformation of Chickpea (cv. Gokce) using mature embryonic axis expland. Presented in EUROBIOTECH 2012 Agriculture Symposium (12-14th April, Kayseri/Turkey) organized by Eurobiotechnology Thematic Network Association, **Turkey**
62. **Bakhsh A**, Aasim M, Rao AQ, Shahid AA, Khawar KM, Ozcan S and Husnain T (2011). Paradigms of biotechnology in Pakistan. Presented in European Biotechnology Congress (28 September -1 October) in Istanbul, **Turkey**.
63. **Bakhsh A**, Onarıc S, Özcan SF, Ahmed HA, Khawar KM, Aasim M and Özcan S (2011). A Molecular Approach to Restrict Insecticidal Gene Expression in insect biting sites of Transgenic Crops. Presented in 3rd Biosafety and Genetic Engineering Congress (13-15 June) held in Islamic Azad University, Science and Research Branch, Tehran, **Iran**
64. Saleem MJ, Bajwa R, Hannan A, **Bakhsh A**, Qaiser TA, Khokhar MA and Mehmoood N (2010). Genetic Diversity of Maize Seed Borne Mycoflora. Published in proceedings of International Science Conference on Utilization of Modern Agriculture Technology in changing Environmental Prospectives organized by University of Azad Jammu and Kashmir, July 21-23, 2010, **Pakistan.**