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**Citations 2037 H Index 25 (Google Scholar)**

### ACADEMICS

- PhD. 2010 (Molecular Biology). 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.

### PUBLICATIONS

1. 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
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5. 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
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7. 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>
8. Tariq M, Tabassum B, **Bakhsh A**, Farooq AM, Qamar Z, Akram F, Naz F, Rao AQ, Malik K, Nasir IA (2022). Heterologous expression of cryIIa12 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
9. Baloch FS, Aasim M, Mustafa Z, **Bakhsh A**, Katricic 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
10. 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
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  22. 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
  23. 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
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37. 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.
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39. 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
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- Stacked Insecticidal Genes in Tobacco Lead to Appreciable Insect Resistance. Turkish Journal of Biology 42: 174-186
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  54. **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.
55. 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.
  56. **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.
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  58. **Bakhsh A**, Khabbazi SD, Baloch FS, Demirel U, Çalışkan ME, Hatipoğlu R, Özcan S, Özkan H (2015). Insect resistant transgenic crops: retrospects and challenges. *Turkish Journal of Agricultural and Forestry* 39: 531-548.
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  60. **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.
  61. 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.
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  63. 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.
  64. 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.
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- Combat Spatio-temporal Variation in Insecticidal Gene (Cry1Ac) Expression in Cotton. *Euphytica*. 183:65-74.
69. **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.
  70. 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.
  71. 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.
  72. **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.
  73. **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.
  74. **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.
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  86. 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.
  87. Samiullah TR, **Bakhsh A**, Rao AQ, Naz M, Saleem M (2009). Isolation, purification, and characterization of extracellular  $\beta$ -glucosidase from Bacillus sp. Advances in Environmental Biology 3: 269-277.
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#### **BOOKS PUBLISHED**

- Çalışkan ME, **Bakhsh A**, Jabran K (2022). 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. 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. [https://doi.org/10.1007/978-981-19-5367-5\\_13](https://doi.org/10.1007/978-981-19-5367-5_13)
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8. 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. [https://doi.org/10.1007/978-3-030-66965-2\\_10](https://doi.org/10.1007/978-3-030-66965-2_10)
9. 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. DOI: 10.1016/B978-0-12-817958-1.00011-6
10. 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. DOI: 10.1007/978-3-030-64994-4
11. **Bakhsh A**, Sirel 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>
12. 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>
13. 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](https://doi.org/10.1007/978-3-030-49732-3_12)

14. 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](https://doi.org/10.1007/978-3-030-49732-3_9)
15. 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, Elsevier Inc. <https://doi.org/10.1016/B978-0-12-818632-9.00006-X>
16. 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](https://doi.org/10.1007/978-981-15-0025-1_16)
17. 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](https://doi.org/10.1007/978-981-15-0025-1_24)
18. Sattar MN, Iqbal Z, Dangol SD, **Bakhsh 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
19. 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.
20. 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
21. 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.
22. 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

23. 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
24. 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
25. Aasim M, Sameeullah M, **Bakhsh A**, Siviñç 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.
26. **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.

## CONFERENCE ORAL PRESENTATIONS

1. **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, Pakistan
2. Yasmin Aneela, **Bakhsh A**, Rao AQ (2022). Reduction in cold induced sweetening of potato through knock out of vacuolar invertase gene. Presented in International Congress of VI. International Anatolian Agriculture, Food, Environment and Biology Congress 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
3. **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 13-15<sup>th</sup> September, Islamabad, Pakistan.
4. **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**.
5. **Bakhsh A**, Yasmeen A, Rao AQ (2022). New Frontiers in Genome Editing of Crops, Success, challenges and regulatory bottlenecks. Presented in 3<sup>rd</sup> International Virtual Conference of Biotechnology Research Centre on 26-27 July 2022 organized by Al-Nahrain University, Baghdad, **Iraq (Keynote Speaker)**.
6. **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 4<sup>th</sup>

International Turkic World Conference on Science and Technology on 23-24 June organized by Nigde Omer Halisdemir University, Nigde, **Turkey**.

7. **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.
8. **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.
9. **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 30<sup>th</sup> Nov-2<sup>nd</sup> Dec, 2021, organized by Middle East Technical University, Ankara, **Turkey**.
10. **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 2<sup>nd</sup> December, 2021.
11. **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 4-7<sup>th</sup> October 2021, organized by Ondokuz Mayıs University, Samsun, **Turkey**.
12. **Bakhsh A** (2021). Use of genome engineering and manipulation technologies for better insect pest and disease control. Presented in 2<sup>nd</sup> International Congress of the Turkish Journal of Agriculture-Food Sciences and Technology, International congress organized by Turkish Science Technology Publishing (TURSTEP) 25-29<sup>th</sup> October, Gazimağusa, **Cyprus**.
13. **Bakhsh A** (2021). Genome editing in vegetable and fruit plants. Participated as speaker in a live webinar February 26<sup>th</sup> organized by Kazak National Agrarian University KazNAU, Almaty, **Kazakhstan**
14. **Bakhsh A** (2021). Modern day approaches to integrated pest management (2021). Participated as speaker in a live webinar (April 09<sup>th</sup>) organized by Muhammad Ali Jinnah University, Karachi, **Pakistan**
15. **Bakhsh A**, Aksoy E, Gökçe A (2020). Towards application of dsRNA Technology to downregulate imidacloprid resistant genes of Colorado potato beetle CPB). **Virtually conducted** on 12-13<sup>th</sup> June 2020, Ashgabad, **Turkmenistan**.
16. **Bakhsh A** (2020). Application of dsRNA Technology against insect pests; towards better IPM. Presented as **Keynote speaker** in 3<sup>rd</sup> International Conference on Applied Zoology (ICAZ-2020) **virtually conducted** on 07-08 December, Faisalabad, **Pakistan**.
17. **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**

18. **Bakhsh A**, Naqqash MN, Aksoy E, Gökçe 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**
19. **Bakhsh A**, Dangol S, Barakate A, Çalışkan ME. Elucidation of the role of potato invertase inhibitor using Crispr-Cas9 application. Presented in The 1<sup>st</sup> PlantEd Conference, Plant Genome Editing-State of the Art Cost Action CA18111 (05-07 November) organized by University of Novi Sad, Novi Sad, **Serbia**
20. **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**
21. Dangol S, Barakate A, Çalışkan 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**
22. 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**
23. 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**
24. **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 4<sup>th</sup> April 2019, Mansehra, **Pakistan**
25. 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**
26. 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, Novosibirsk, **Russia**
27. **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**
28. **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**
29. **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 7<sup>th</sup> International Molecular Biology and Biotechnology Congress on 25-27 April, Konya, **Turkey**

30. **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 19<sup>th</sup> September, Swabi, **Pakistan**
31. **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**
32. 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**
33. **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**
34. **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**
35. **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**
36. **Bakhsh A**, Dinç T (2016). Gene pyramiding strategy: an efficient approach to develop broad spectrum insect-resistant crops. Turkey 6<sup>th</sup> Plant Protection Congress (5-8 September), Konya, **Turkey**
37. **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 1<sup>st</sup> International Congress on Applied and Biological Sciences (16-20 September), Tetova, **Macedonia**
38. 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 1<sup>st</sup> International Congress on Applied and Biological Sciences (16-20 September), Tetova, **Macedonia**
39. **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 7<sup>th</sup> International Symposium on Edible Alliaceae (21-25<sup>th</sup> May), Nigde, **Turkey**
40. **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 (16-17<sup>th</sup> April) organized by Sardar Bahadir Khan Women’s University, Quetta, **Pakistan**
41. **Bakhsh A**, Qayyum AQ, Shahid AA, Husnain T (2014). Insecticidal gene (cry1Ac) in transgenic Bt cotton under the control of tissue specific promoter (rbcS) exhibits enhanced resistance against lepidopterans. Presented in plant physiology and genetics;

- achievements and challenges (24-26 September) in Sofia, **Bulgaria**
42. **Bakhsh A** (2014). Current Status of GMOs, Economic Impact and Biosafety Assessments. Presented in 2<sup>nd</sup> KOP regional development symposium (23-24 October), Niğde, **Turkey**
  43. Özcan S, Anayol E, **Bakhsh A**, Onarıcı S, Aydın G, Aasim, Özcan SF, Khawar KM, Ünlü L (2013). A new Approach to produce insect resistance transgenic cotton. Presented in Field Crop Congress, Konya, **Turkey**
  44. **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 2<sup>nd</sup> Molecular Biology and Biotechnology Conference (15-18 November) in Antalya, **Turkey**
  45. 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**
  46. **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**
  47. 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**
  48. **Bakhsh A**, Aasim M, Rao AQ, Shahid AA, Khawar KM, Özcan S and Husnain T (2011). Paradigms of biotechnology in Pakistan. Presented in European Biotechnology Congress (28 September -1 October) in Istanbul, **Turkey**.
  49. **Bakhsh A**, Onaric 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**
  50. Saleem MJ, Bajwa R, Hannan A, **Bakhsh A**, Qaiser TA, Khokhar MA and Mehmood N (2010). Genetic Diversity of Maize Seed Borne Mycoflora. Published in proceedings of International Science Conference on Utilization of Modern Agriculture Technology in changing Environmenal Prospectives organized by University of Azad Jammu and Kashmir, July 21-23, 2010, **Pakistan**

## **RESEARCH PROJECTS**

### **Grants Received as Principal Investigator**

- **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.

- **Project Leader**, A novel Plant mediated RNAi strategy to develop insect resistant tobacco lines against Colorado Potato Beetle and Potato Tuber Moth (TOVAG 215O520). **2016-19**. 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), Niğde 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) (**Continued**).
- **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) (**Continued**).

#### **Participation as Researcher (Co-PI)**

- **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) (**Continued**).
- **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) (**Continued**).
- **Researcher**, Determination of genetic and biological properties of a new virus detected by New Generation Sequencing (NGS) of grapevine (TGT 2019/06-BAGEP). Awarded by Scientific Research and Project Units (BAP), Niğde Omer Halisdemir University, Turkey. Project Budget (29,984.43 TL) (**Continued**).
- **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 rhizogenensis* 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), University of 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), **Necmettin Erbakan University, Konya**, Turkey. Project Budget (50,000.00 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 (**Continued**).

## COURSES

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

- AGE7103 Analysis of Genes and Genomes in Plants (average 10 student)
- AGE6113 Tissue 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)

- **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
- **Muneeb Hassan Hashmi** (2022) Plant mediated RNAi strategy to develop resistant tomato lines against Potato Tuber Moth. Nigde Omer Halisdemir University, Turkey

### PhD Students (Continued)

- **Faisal Saeed** (2018-2022) Developing mutants of negative regulator of immune response gene (CPL-3) in tomato using CRISPR-Cas9. Nigde Omer Halisdemir University, Turkey
- **Noman Nazik** (2022-2025) Development of tomato lines resistant against Tomato brown rugose fruit virus (ToBRFV). Centre of Excellence in Molecular Biology, University of the Punjab, Lahore, Pakistan

### MS Students (Graduated)

- **Toga Dinç** (2016). Development of insect resistant tobacco lines expressing *cryIAc* and *cry2a* genes. Nigde Omer Halisdemir University, Turkey
- **Safa Sümer** (2018). *Agrobacterium tumefaciens* 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 SIAIMI 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
- **Shakhnozakhon 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 (2019-2021). Overexpression of Jaburetox 2-Ec in Potato (*Solanum Tuberosum* L.), Nigde Omer Halisdemir University, Turkey.

#### MS Students (Continued)

- Saqib Ali (2021-2023). Use of RNAi to control cotton pink bollworm (*Pectinophora gossypiella*, Saunders)
- Zille Huma (2021-2023). Development of dsRNA based biopesticide against cotton dusky bug, *Oxycarenus hyalinipennis* Costa (Lygaeidae: Hemiptera)

#### PhD Students Graduated (As Committee Member)

- **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 *cryIAC* gene for insect resistance. University of Ankara, Turkey

#### MS Students Graduated (As Committee Member)

- **Beyazit Şanlı (2020)**. Investigation of potential of miR162 in sustainable agriculture through overexpression in potato cultivars. Nigde Omer Halisdemir University, Turkey
- **Melis Yalçın (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 Abudureyimu (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 phytoremediation 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 İlkey 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

#### **ORGANIZATION OF CONFERENCES/WORKSHOPS**

- A seminar entitled “Public awareness on GM soybean and potential of soybean cultivation in Pakistan at CEMB on 23<sup>rd</sup> January, 2023.
- International Conference on Plant Molecular Biology (ICPMB) on 14-15 December at CEMB, University of the Punjab, Lahore.
- 4<sup>th</sup> 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**

- Early-Stage Research Fellowship (2013) awarded by University of Bologna, Italy.
- Postdoctoral Fellowship awarded by TUBITAK (Scientific and Technological Research Council of Turkey).

### **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)
- International Journal of Plant Physiology and Biochemistry
- Sarhad Journal of Agriculture
- Pure and Applied Biology
- Journal of Agriculture, Food, Environment and Animal Sciences

### **PROFESSIONAL TRAINING/WORKSHOPS**

- COMCEC-COMSTECH training and workshop on new breeding technologies for food and nutritional security on 30<sup>th</sup> Nov-2<sup>nd</sup> Dec, 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**

### **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