

CURRICULUM VITAE

Name Muhammad Arshad
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Address Basti & Moza Khakhi P/o Ghazi Pur
Tehsil JalalPur Pir Wala Dist. Multan

RESEARCH AREA

My objective is to conduct research on the entomological related problems. My research is focused on the effect of herbivore damage on plant physiology and best management techniques looking for environment-friendly to manage insects of citrus, especially citrus leafminer. I have also worked with foreign scientists to determine the role of natural mortality factors acting on citrus leafminer in Citrus Valencia and Grapefruit Orchards of University of Florida, USA.

EDUCATION/QUALIFICATIONS

Ph.D. Dissertation stage
Department of Entomology
University College of Agriculture,
University of Sargodha

Title of research work: Host specific variations in citrus leafminer, *Phyllocnistis citrella* Stainton herbivory, damage and effects on net photosynthetic rates of different citrus cultivars

Supervisor: Dr. Muhammad Irfan Ullah
Co-supervisor: Prof. Dr. Muhammad Afzal

Master
MSc. (Hons) Agri-Entomology,
University of Agriculture, Faisalabad
CGPA: 3.59/4.00 (75%)

Title of research work: Evaluation of different insecticides formulation against aphid, *Lipaphis erysimi* (Kalt.) on *Camelina sativa* in Pakistan

Supervisor: Dr. Rashad Rasool Khan
Co-supervisor: Prof. Dr. Sohail Ahmed

Bachelor
BSc. (Hons) Agri-Entomology
University of Agriculture, Faisalabad
CGPA: 3.46/ 4.00 (73%)

Intermediate

F.Sc. (Pre-Medical)
Superior Science Higher Secondary School Muzaffar Garh
BISE: D.G. Khan
Marks: 807/ 1100 (73 %)

Matriculation

Science
Almansoor Public High School Jalal PurPir Wala
BISE: Multan
Marks: 608/ 850 (72%)

CERTIFICATION

1. Visiting Scholar at Indian River Research and Education Centre Fort Pierce University of Florida USA
2. Twelve (12) Weeks Internship at Pest Warning and Quality Control of Pesticides (Multan)

CONFERENCES

1. One-day workshop on Technical and Patent Writing. 25 June 2018, ORIC & Department of Chemistry, University of Sargodha, Sargodha
2. National Conference on Recent trends and opportunities to enhance citrus production and export. 3-4th May-2018, College of Agriculture, University of Sargodha
3. Citrus Expo Program 2017 11831 Bayshore Road North Fort Myers, FL 33917, United State of America
4. 6th International Conference of Pakistan Phytopathological Society: Plant health for sustainable agriculture, November 20-22, 2017, Bahauddin Zakariya University Multan and Central Cotton Research Institute Multan, Pakistan
5. International symposium about Innovative trends in Agricultural Sciences: Way forward to sustainable development, 23-25 November 2017, College of Agriculture, University of Sargodha
6. Workshop on Pesticides health hazards associated with fruit and vegetable production, Department of Entomology, University of Sargodha
7. International symposium about rural advisory services in Pakistan in the scenario of information communication technologies (ICTs), 13-Jan-2016 at

University College of Agriculture, University of Sargodha

8. Strategies for overcoming Food Security Problems through utilization of Rain-fed areas, 26-28 March 2014 at University of Sargodha, Sargodha, Pakistan.
9. 2nd Post Graduate Entomological Research Conference, 08-09 July 2013 at Department of Agri-Entomology, University of Agriculture, Faisalabad, Pakistan.

ORAL/POSTER PRESENTATIONS

1. M.I. Ullah, A.H. Khan, M. Afzal, **M. Arshad**, Y. Iftikhar and A. Aziz. 2018. Infestation response of citrus leafminer, *Phyllocnistis citrella* (Lepidoptera: Gracillariidae) to synthetic and organic fertilization under field condition. XI European Congress of Entomology, Napoli 2-6 July 2018. Pp 175.
2. M. Afzal, M.I. Ullah, A. Abdullah, A.B.M. Raza, **M. Arshad** and M. Saqib. 2018. Effect of different fodder crops and artificial diet on fecundity and survival of armyworm, *Spodoptera litura* Fabricius (Lepidoptera; Noctuidae). XI European Congress of Entomology, Napoli 2-6 July 2018. Pp 170.
3. **M. Arshad**, M.I. Ullah, M. Afzal, Y. Iftikhar, S. Khalid, Z. Hussain, H.M. Aatif and T. Abbas. 2018. Evaluation of synthetic insecticides and essential oils for the management of *Phyllocnistis citrella* Stainton (Lepidoptera: Gracillariidae). 1st International and 2nd National Conference on “Challenges and Opportunities to Boost Agriculture in Challenging Climate” 26-28 March 2018.
4. **M. Arshad**, M.I. Ullah, J.A. Qureshi and M. Afzal. 2018. Impact of leaf feeding by the citrus leafminer (*Phyllocnistis citrella*) on the photosynthetic and gaseous exchange rates in citrus. 92 Annual Meeting of the SEB ESA. 4-7 March 2018.
5. Afzal, M., **M. Arshad**, M.I. Ullah, M.A.B. Raza, A. Abdullah and M. Saqib. 2017. Variations in the host preferences of *Phyllocnistis citrella* (Lepidoptera: Gracillariidae) based on morphological characteristics and trace elements of different citrus cultivars. International Congress of Entomology Denver Colorado USA November 5-8. Number 2179. Pp 285.
6. Ullah, M.I., **M. Arshad**, M. Afzal, M. Saqib, Y. Iftikhar and A. Khaliq. 2017. Impact of citrus leafminer feeding on selected physiological parameters of different citrus cultivars. International Congress of Entomology Denver Colorado USA November 5-8. Number 2180. Pp 285.
7. M.I. Ullah, **M. Arshad**, M. Afzal, A. Khaliq, M. Saqib, S. Khalid, Y. Iftikhar and Z. Hussain. 2016. Seasonal Variations in the Occurrence of Citrus Leafminer, *Phyllocnistis citrella* Stainton, on *Citrus reticulata* in three Tehsils of District Sargodha, Pakistan. International Congress of Entomology Orlando Florida USA September 25-30. Number 3979. Pp 428.

8. **Arshad, M.**, R. R. Khan., M. I. Ullah and M. Afzal. 2015. Efficacy of different Insecticides against Aphid, *Lipaphis erysimi* (Kalt.) on *Camelina sativa* (L.) Crantz in Pakistan. The Annual Meeting of the Entomological Society of America, Minneapolis, MN. USA. November, 15-18, 2015.
9. Ullah, M. I., **M. Arshad.**, M. Khan, M. Afzal and Y. Iftikhar. 2015. Damage potential of *Spodoptera litura* (Fabricius) in various citrus nursery plantations. The Annual Meeting of the Entomological Society of America, Minneapolis, MN. USA. November, 15-18, 2015.
10. Afzal, M., M. I. Ullah, K. Khan and **M. Arshad.** 2015. Photosynthesis: A plant physiological parameter to evaluate the damage caused by American bollworm, *Helicoverpa armigera* (Hübner) in cotton cultivars. The Annual Meeting of the Entomological Society of America, Minneapolis, MN. USA. November, 15-18, 2015.

PUBLICATIONS

Abstract published

1. **M. Arshad**, M.I. Ullah, M. Afzal, Y. Iftikhar, S. Khalid, Z. Hussain, H.M. Aatif and T. Abbas. 2018. Evaluation of synthetic insecticides and essential oils for the management of *Phyllocnistis citrella* Stainton (Lepidoptera: Gracillariidae). 1st International and 2nd National Conference on “Challenges and Opportunities to Boost Agriculture in Challenging Climate” 26-28 March 2018. Pp. 164.
2. M.J. Hussain, M.A. Aqueel, A.B.M. Raza, S.K. Abbas, **M. Arshad**, A. Abdullah and M.A. Bakar. 2018. Host densities, *Brevicoryne brassicae* Linnaeus (Hemiptera: Aphididae) alters biotic potential of aphid parasitoid, *Diaeretiella rapae* (Hymenoptera: Braconidae: Aphidinae). 1st International and 2nd National Conference on “Challenges and Opportunities to Boost Agriculture in Challenging Climate” 26-28 March 2018. Pp. 183.
3. A. Abdullah, **M. Arshad**, M.J. Hussain, M.Z. Anjum, M.A. Bakar and M.Y. Ahmdani. 2018. Incidence of aphid along with diseases and impact of sowing dates on different wheat cultivars at different localities of Southern Punjab, Pakistan. 1st International and 2nd National Conference on “Challenges and Opportunities to Boost Agriculture in Challenging Climate” 26-28 March 2018. Pp. 145.
4. Abdullah A., M.I. Ullah, **M. Arshad**, M. Saqib, S.M.A. Zahid, A.M. Raza and M. Afzal. 2017. Feeding response of *Spodoptera litura* Fabricius (Lepidoptera: Noctuidae) against botanical extracts under laboratory conditions. 1st International Conference on Emerging Trends in Zoology, University of Sargodha. December 8-9, 2017. Pp 75.

5. M.I. Ullah, G. Murtaza, M. Afzal, Y. Iftikhar, S. Khalid, **M. Arshad**, H.M. Aatif, M. Saqib and M. Arshad. 2017. Efficacy and synergistic effect of plant extracts against red pumpkin beetle, *Aulacophora foveicollis* Lucas under laboratory conditions. National Conference, Challenges and opportunities to boost Agriculture in changing climate. College of Agriculture, Bahauddin Zakariya University, Bahadur Sub-campus, Layyah, Punjab, Pakistan. pp 87, 29-30 March, 2017.
6. **M. Arshad**, M.I. Ullah, M. Afzal, Y. Iftikhar, H.M. Aatif, T. Abbas, Z. Hussain and A.A. Khan. 2017. Bio-efficacy of some essential oils against citrus leafminer, *Phyllocnistis citrella* (Lepidoptera: Gracillariidae). National Conference, Challenges and opportunities to boost Agriculture in changing climate. College of Agriculture, Bahauddin Zakariya University, Bahadur Sub-campus, Layyah, Punjab, Pakistan. pp 83, 29-30 March, 2017.
7. M. Irfan, M.A. Sabri, M. Afzal, **M. Arshad**, A. Abdullah, M.J. Hussain, M.A. bakar and S.M.A. Zahid. 2017. Quantitative changes of hemocytes in *Spodoptera litura* (Fab.) (Lepidoptera: Noctuidae) larvae in response to different insecticides. National Conference, Challenges and opportunities to boost Agriculture in changing climate. College of Agriculture, Bahauddin Zakariya University, Bahadur Sub-campus, Layyah, Punjab, Pakistan. pp 122, 29-30 March, 2017.
8. M.J. Hussain, M.A. Aqueel, A.B.M. Raza, S.K. Abbas, **M. Arshad**, A. Abdullah and M.A. Bakar. 2017. Relative abundance of Aphids population on canola (*Brassica napus* L.) in different Districts of Punjab, Pakistan. National Conference, Challenges and opportunities to boost Agriculture in changing climate. College of Agriculture, Bahauddin Zakariya University, Bahadur Sub-campus, Layyah, Punjab, Pakistan. pp 123, 29-30 March, 2017.
9. **M. Arshad**, M.I. Ullah, S.M.A. Zahid, M. Saqib, Y. Iftikhar, T. Abbas and M. Afzal. 2016. Quantification of foliar damage caused by insect herbivory using smartphone application. International Entomological Congress, Pakistan Entomological Society, University of Agriculture, Faisalabad. Pp.38. 16-18 December, 2016.
10. S.M.A. Zahid, M.I. Ullah, M. Afzal, **M. Arshad**, M. Saqib and J. Moilina-Ochoa. 2016. Toxicity of botanicals and conventional insecticides on *Aenasius Bambawalei* Hayat (Encyrtidae: Hymenoptera); A parasitoid of cotton mealybug. International Entomological Congress, Pakistan Entomological Society, University of Agriculture, Faisalabad. Pp.46. 16-18 December, 2016.
11. K. Ahmad, A. Rehman, M. Yasin, M.I. Ullah, **M. Arshad**, M.A. Bakar. 2016. Effect of bio-fertilizers and chemical fertilizers on different wheat (*Triticum aestivum* L.) cultivars. 8th National and 2nd International wheat conference, Pakistan Agricultural Society, University of Sargodha, Pakistan. Pp. 36. 29-30, November, 2016.

Research article published

1. **M. Arshad**, M. I. Ullah and M. Afzal. 2018. Citrus leafminer *Phyllocnistis citrella* and its parasitoids in Sargodha region of Pakistan. *Bulletin OEPP/EPPO Bulletin*. DOI: 10.1111/epp.12479
2. **M. Arshad**, M.I. Ullah, J.A. Qureshi and M. Afzal. 2018. Physiological effects of citrus leafminer *Phyllocnistis citrella* (Lepidoptera: Gracillariidae) larval feeding on photosynthetic and gaseous exchange rates in citrus. *Journal of Economic Entomology*. doi: 10.1093/jee/toy150
3. MA. Bakar, MA. Aqueel, ABM. Raza, **M. Arshad**, R. Mahmood, and Z.A. Qadir. 2018. Comparative Efficacy of Five Commercial Synthetic Acaricides against *Varroa destructor* (Anderson and Trueman) in *Apis mellifera* L. Colonies. *Pakistan Journal of Zoology*. 50(3): 857-861.
4. Arshad, M.R., **M. Arshad**, N.A. Khan, M.I. Ullah, S.M. Khan, Y. Iftikhar, M.Z. Anjum, J. Molina-Ochoa and J.E. Foster. 2018. Suitability of sugarcane industry waste amended with agricultural wastes for oyster mushroom cultivation. *International Journal of Biosciences*. 12(1): 206-211.
5. **M. Arshad**, M.I. Ullah, M. Afzal, H.M. Aatif, Y. Iftikhar, J. Molina-Ochoa and J.E. Foster. 2018. Association of citrus leafminer *Phyllocnistis citrella* (Lepidoptera: Gracillariidae) damage with physiological parameters and larval weight in *Citrus reticulata*. *International Journal of Tropical Insect Science*. doi:10.1017/S1742758417000273
6. M.I. Ullah, S.M.A. Zahid, **M. Arshad**, Y. Iftikhar, S. Khalid, J. Molina Ochoa and M. Naveed. 2017. Toxicity of Botanicals and Conventional Insecticides to *Aenasius bambawalei* Hayat, an Endoparasitoid of Cotton Mealybug, *Phenacoccus solenopsis* Tinsley. *Southwestern Entomologist*. 42(4): 941-952.
7. S. Ali, M.I. Ullah, **M. Arshad**, Y. Iftikhar, M. Saqib and M. Afzal. 2017. Effect of botanicals and synthetic insecticides on *Pieris brassicae* (L., 1758) (Lepidoptera: Pieridae). *Turkish Journal of Entomology*. 41(3): 275-284.
8. M.A. Bakar, M.A. Aqueel, A.B.M. Raza, M.I. Ullah, **M. Arshad**, M. Sohail and J. Molina-Ochoa. 2017. Evaluation of few essential oils for the management of parasitic bee mites, *Varroa destructor* (Acari: Varroidae) in *Apis mellifera* L. colonies. *Pakistan Journal of Zoology*. 49(6): 2005-2010.
9. Abdullah, A., M.I. Ullah, M.W. Hussain, S. Khalid, Y. Iftikhar, **M. Arshad**, and J. Moilna-Ochoa. 2017. Response of *Azadirachta indica* against *Bemisia tabaci* Gennadius (Homoptera: Aleyrodidae) and *Amrasca biguttula* Ishida (Homoptera: Cicadellidae) on cotton cultivars. *Pakistan Journal of Zoology*. 49(6): 1983-1987.
10. N. Zeerak, Z. Iqbal, M. Kamran, Y. Iftikhar, **M. Arshad**, H. Abbas, N. Javed, S. Bashir and A. Rehman. 2017. Root knot nematodes associated with eggplant in different localities of District Sargodha-Pakistan and impact of

Pasteuria isolates on the development of Meloidogyne incognita. *International Journal of Biosciences*. 11(4): 107-115.

11. M.I. Ullah, **M. Arshad**, M. Afzal, S. Khalid, M. Saleem, I. Mustafa, Y. Iftikhar, J. Molina-Ochoa and J.E. Foster. 2016. Incidence of *Spodoptera litura* (Lepidoptera: Noctuidae) and its feeding potential on different citrus cultivars in the Sargodha region of Pakistan. *Florida Entomologist*. 99(2): 192-195.
12. M. Afzal, M.H. Ahmad, M.I. Ullah, A.B.M. Raza, A. Khaliq, M. Kamran and **M. Arshad**. 2016. Population dynamics of red spider mite, *Tetranychus urticae* (Koch), (Acari: Tetranychidae) in relation to abiotic factors on transgenic and non-transgenic cotton cultivars. *International Journal of Agriculture and Applied Sciences*. 8(2) 204-210.
13. **M. Arshad**, R.R. Khan, M.I. Ullah, M. Afzal, B. Tiroesele, I. Mustafa and J.E. Foster. 2016. Evaluation of different insecticide formulations against *Lipaphis erysimi* (Hemiptera: Aphididae) on *Camelina sativa* in Pakistan. *Pakistan Journal of Zoology*. 48(6): 1623-1626.
14. Ullah, M.I. **M. Arshad**, S. Ali, Y. Iftikhar, S.U. Mahmood and M. Arshad. 2016. Effect of thiamethoxam and some botanical extracts on *Cotesia glomerata* L. (Braconidae: Hymenoptera): an endoparasitoid of *Pieris brassicae* (L.) (Pieridae: Lepidoptera). *Egyptian Journal of Biological Pest Control*. 26(3): 545-549.
15. Ullah, M.I. **M. Arshad**, S. Ali, Y. Iftikhar, J. Molina-Ochoa and J.E. Foster. 2016. Host utilization of the Endoparasitoid, *Cotesia glomerata* L. (Hymenoptera: Braconidae) in different instars of *Pieris brassicae* L. (Lepidoptera: Pieridae). *Egyptian Journal of Biological Pest Control*. 26(3): 625-629.
16. **M. Arshad**, M.I. Ullah, M.U. Mehmood, M.R. Arshad and M.F. Khan. 2016. Agricultural students and their academic performance: A study of students in Punjab, Pakistan. *International Journal of Environmental and Science Education*. 11(12): 5429-5437.
17. **M. Arshad**, M.I. Ullah, G. Murtaza, M. Javed and M.H. Ahmad. 2016. Response of different wheat genotypes against aphid (*Schizaphis graminum* R.) and its natural enemies. *Journal of Entomology and Zoology studies*. 4(1): 445-447.
18. M. Tayyab, Z. Nazir, U. Tahira, **M. Arshad**, M. Abubakar, M.R. Arshad, and M.S. Raza. 2016. Study of citrus scab disease prevalence on Kinnow mandarin (*Citrus reticulata* Blanco) in Sargodha region of Pakistan, during 2012-13. *Archives of Applied Science Research*. 8(1): 13-16.
19. Ahmad, I. Mansoor-ul-Hasan, M.R. Arshad, M.F. Khan, Hafeez-ur-Rehman, S.M.A. Zahid and **M. Arshad**. 2016. Efficacy of different medicinal plant extracts against *Rhyzopertha dominica* (Fabr.) (Bostrichidae: Coleoptera).

Journal of Entomology and Zoology Studies. 4(6): 87-91.

20. M. Javed, M.Z. Majeed, A. Khaliq, **M. Arshad**, M.H. Ahmad and M. Sufyan. 2016. Quantitative losses in some advanced genotypes of barley incurred by *Tribolium castaneum* L. (Herbst.). *International Journal of Agronomy and Agricultural Research*. 8(2): 45-50.
21. M. Javed, M.Z. Majeed, A. Khaliq, **M. Arshad**, M.H. Ahmad and H.A. Ghafoor. 2015. Insecticidal potentiality of *Eruca sativa* (Mill.), *Piper nigrum* (L.) and *Withania somnifera* (L.) extracts against *Trogoderma granarium* (Everts) (Coleoptera: Dermestidae). *International Journal of Fauna and Biological Studies*. 3(1): 18-20.
22. **M. Arshad**, M.Z. Majeed, M.I. Ullah, K. Ahmad, M. Tayyab and M. Yahya. 2015. Laboratory evaluation of some insecticides against citrus mealybug *Planococcus citri*, (Homoptera: Pseudococcidae). *Journal of Entomology and Zoology Studies*. 3(6): 20-23.
23. M. Javed, M.Z. Majeed, A. Khaliq, **M. Arshad** and M.A. Bakar. 2015. Review on exposure, absorption and elimination of pyrethroids in humans. *Journal of Entomology and Zoology Studies*. 3(5): 180-184.
24. M.A. Bakar, M.A. Aqueel, M. Sohail, A.B.M. Raza, M. Afzal, M. Tayyab and **M. Arshad**. 2016. Influence of weather factors on the seasonal abundance of citrus mite *Eutetranychus orientalis* (Klein) on different citrus cultivars. *Journal of Entomology and Zoology Studies*. 4(1): 105-111.
25. M.I. Ullah, **M. Arshad**, K. Ahmad, A. Khaliq, Y. Iftikhar, S. Ali, M. Saqib, A. Abdullah and S. Khalid. 2016. Arthropods venom used as Bio-pesticides: A new challenge to manage insect pests. *International Journal of Agriculture and Applied Sciences*. 9(1): 122-131.

Accepted

1. **M. Arshad**, M.I. Ullah, M. Tayyab, K. Ahmad, A. Khaliq and M.H. Ahmad. 2016. Soil application of different insecticides against *Diaphorina citri* and *Phyllocnistis citrella* in citrus orchards of Sargodha, Pakistan. *International Journal of Agriculture and Applied Sciences*.

Submitted

1. **M. Arshad**, M.I. Ullah and M. Afzal. 2017. Host preference of *Phyllocnistis citrella* Stainton (Lepidoptera: Gracillariidae) on the basis of morphological characteristics and trace elements of different citrus cultivars leaves. *Agricultural and Forest Entomology*.

2. M.I. Ullah, **M. Arshad**, M.S. Ali, Y. Iftikhar, M. Afzal, S.M.A. Zahid. 2016. BioLeaf-Foliar Analysis: An Accurate Free Smartphone Application to Estimate Defoliation Caused by Insect Herbivory in Various Crops". *Peer J*.
3. M. Arshad, M.I. Ullah, M. Afzal, Y. Iftikhar, S. Khalid, Z. Hussain, J. Molina-Ochoa, and J.E. Foster. 2016. Seasonal abundance of *Phyllocnistis citrella* (Lepidoptera: Gracillariidae) on mandarin (Spindales: Rutaceae) groves in Pakistan. *Pakistan Journal of Botany*.

In draft

1. M.K. Saeed, M. Afzal, M.I. Ullah, M.H. Ahmad and **M. Arshad**. 2016. Host plant resistance against *Chilo partellus* (Swinhoe) (Pyralidae: Lepidoptera) in different genotypes of Maize (*Zea mays* L.).
2. **M. Arshad**, M.I. Ullah, M. Tayyab and M. Afzal. 2016. Incidence of citrus canker disease in Sargodha region of Pakistan and its relation with abiotic factors during 2012-2015.
3. K. Khan, M.I. Ullah and **M. Arshad**. American Bollworm herbivory and its effect on photosynthetic rates in different cotton cultivars.
4. M.I. Khan, M.I. Ullah, M. Afzal and M. Arshad. Feeding performance of American bollworm (*Helicoverpa armigera* H.) in relation to water status of different cotton cultivars.

Personal skills

MS Windows (98/2000/07/08/XP/Vista)
 Microsoft Office Tools
 MS-Word, Excel, Powerpoint
 Statistics 8.1
 Minitab 16.1
 Sigma plot
 Sigma scan pro 5.0
 SPSS 20

Additional Skills and Interest

Capturing the pictures of beautiful creature “insects” and uploading on websites for identification that help researchers worldwide.

<http://www.knowyourinsects.org/Hemiptera1.html#Pentatomidae>

<http://www.knowyourinsects.org/Psocoptera1.html>

REFERENCES

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