Curriculum Vitae
Salah-Eddin Araj

Contact details:
Department of Plant Protection
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Relevant Skills

- **Professor**: lecturer and researcher in these fields: vet and medical entomology, ecology, insect behaviour, plant protection, beekeeping, Biological control, Essential oils and Nanotechnology, and insect-transmitted plant diseases, 2011-now
- **Researcher: Mating-disruption in moth pests.** Six months' experience in mating-disruption of the light brown apple moth (*Epiphyas postvittana* (Walker)), using the advanced pheromones to contribute to managing this serious pest
- **Researcher: Conservation biological control.** Three years experience as a researcher in aphid biological control, my PhD work concerned with insect community ecology, focusing on the dynamics of the fourth trophic (feeding) level when floral resources were provided.
- **Biology teacher:** One year of experience as a biology teacher.

COMPETENCIES:

Communication/Negotiation

• Effectively wrote reports on student's progress, as a university teaching assistant and a secondary school teacher
• Communicate ideas clearly and in a range of styles appropriate to the level of the student.
• Communicated with 30 staff of different nationalities when managing in a manufacturing plant
• Regularly discuss results with colleagues and researchers in Crop and Food Research Institute and Massy University

Research skills

• I have produced some ground-breaking results from the laboratory, field and semi-field; in the latter case, I used large numbers of $2m^3$ field cages on lucerne in which to create replicated four-trophic-level insect communities of different structures. Floral resources in the form of flowering buckwheat are added to some treatments and the consequences for the second, third and fourth trophic levels are then investigated experimentally.
• Because CBC is a sustainable technology which is producing clear benefits for individual growers in terms of sustainable pest control, my work is very important in the way it is attempting to minimise the negatives of such practices.
• My work was pioneering and important and I am a hard-working individual I have developed insect community experimental skills which are second to none.

• I am also publishing actively with several manuscripts in production now.
• I have used a variety of software packages for data interpretation and analysis. I have word-processed all my laboratory and field reports during my study, and used graphics and desk top publishing packages to produce materials for presentations and printed articles.
• I have a good experience in testing the effectiveness of different insecticides and their residues on the second and the third trophic level in the laboratory or in the field.

Continuous Learning

• Generated innovative solutions in my research. And shared learning with other colleagues to improve my research skills.
• Demonstrated an openness to learning by being receptive to new plant protection ideas from the farmers, engineers, researchers whilst working as agriculture engineer
• Supported crop production and protection documentation
• Learnt from other engineers, researchers and took personal responsibility for educating self to improve performance
• Acknowledged mistakes and learnt from them and took steps to ensure they are not repeated

Collaboration, Co-operation and Teamwork

• Shared information expertise, knowledge with other staff members
• Communicated openly, honestly and in a consistent way
• Brought the engineers and farmers together to address production problems and quality standards.
• Took the time to get to know and understand farmers and support them
• Listened effectively and engaged farmers and engineers to understand their points of view
• Constructively responded to the ideas of the farmers and other engineers.

Quality and Management

• Set high personal goals for selecting researches of high quality to get high-quality results.
• Actively sought and suggested better ways of getting the job done and producing better results
• Understood the required level of quality and worked to that level
• Made the best use of available resources
• Prioritised issues in terms of their impact on and value to factory future.

Decision-Making/ Planning

• Utilised, analysed and evaluated data from different researches to draw conclusions and select solutions
• Used effective and transparent approaches for choosing appropriate solutions when facing a production problem.
• Took action that is consistent with available facts.
• Impartially considered all relevant opinions and viewpoints in making decisions
• Took responsibility for decisions
• Understood the impact and implications of decisions and provided feedback on outcomes
• Fostered an inclusive work environment by including other engineers in the decision making process

Experience:

2011-Now the University of Jordan Amman (Jordan)
Professor of Insect Ecology

- lecturer and researcher in these fields: Biological control, ecology, insect behaviour, plant protection, vet and medical entomology, bee keeping and insect transmitted plant diseases

2008-2009 **HortResearch** **Canterbury (New Zealand)**
Researcher/ mating disruption in moth pests

- Prepared laboratory LBAM colonies to be used in the field
- Implemented monitoring plans precisely

2004-2007 **Lincoln University** **Canterbury (New Zealand)**
PhD in Ecological Entomology
Thesis title:
"The role of floral resource subsidies in structuring a four trophic-level parasitoid / host system"

My PhD work was pioneering in that it grappled with a very difficult aspect of insect community ecology, concerning the dynamics of the fourth trophic (feeding) level. I was working on hyperparasitoids of aphids i.e. those insects which attack the parasitoids which attack aphids. The work is technically very difficult because it involves a complex, four-trophic-level culturing regime; I have to expose aphids containing a parasitoid lava or pupa which is at exactly the right development stage for the hyperparasitoid to detect it and to lay an egg in it. At one stage, I had six species of hyperparasitoids in laboratory culture, including one species which had not even been recorded in New Zealand at that time.
Having mastered the above technical difficulties (the first time this has been done in New Zealand), I went on to carry out ambitious laboratory and field experiments which investigated the potential negatives of conservation biological control (CBC) protocols. The idea behind my work was that when floral resources such as nectar and pollen are added to agro-ecosystems to improve the fitness of pests' natural enemies, it was very important to ensure that the added resources benefit the pests' natural enemies more than the pest itself or its own natural enemies – hence the work on hyperparasitoids.

2002 – 2003 **ASTRA Food Processing Company** **Tabuk (KSA).**
Agriculture Engineer/Production Line Supervisor of frozen french fries and potato chips processing lines.

•Managed and directed the production team.
•Requested of raw materials needed for production according to the planned shop orders.
•Ran and supervised the production Lines.
•Changed and adjusted process parameters.
•Controlled the quality at several points starting with the raw materials through to the finished product.
•Implemented documentation work including production analysis, daily and weekly reports.
•Controlled production wastage at all checks point.
•Controlled manning, timing, and capacities.
•Controlled hygiene and sanitation in areas related to human, equipment and premises resources.
•Helped in building up process parameters, BOM 3, routing and rating standards and established work procedures.
•Assisted in production planing according to available resources.
• managed team of 30, regularly contributing to team members to improve quality of products.

2001 – 2002 **Ibn – Timia School** **Madaba**
Teacher of Biology

•Taught students biology, and its importance to human beings.
•Made scientific trips, to increase capability of learning.

•Prepared quizzes, exams, and discussed the results with students.
• Student certification.

1998 – 2001 **Modern Food Industries** **Madaba**
Agriculture Engineer

•Worked as the general manager consultant.
•Made contracts with farmers to ensure potatoes were available most of the year.
•Made schedule for supervising farmers and monitoring crop growth and diseases
• Understood and influenced internationally approved processing standards for different crops
• Identified improvements in the approach to plant protection work
• Ensured plant protection policies, standards and systems were appropriate and harmonised with international principles and procedures.

1994-1998 **Jordan University** **Amman**
Teaching Assistant

•Prepared laboratory samples and lectures
•Implemented course plans precisely.
•Made up reports about the student's performance.

Education:

2004- 2007 **Lincoln University** **Canterbury (New Zealand)**
PhD in Ecological Entomology
Thesis title: The role of floral resources subsidies for Insects in structuring a four-trophic-level community

1994 – 1997 **University of Jordan** **Amman**
M.Sc. in Entomology
Thesis Title: Evaluation of three methods for testing four insecticides on the whitefly *Bemisia tabaci* and its parsitoid *Eretmocerus mundus*.

1990-1994 **University of Jordan** **Amman**
B.Sc. in Agriculture Engineering / Plant Protection.

Scholarships:

2004-2007	William Machin for Excellence	**Christchurch/New Zealand**
1996-1997	Manko	**Amman/Jordan**
1995-1996	Ministry of Higher Education	**Amman/Jordan**
1994-1995	Alansari	**Amman/Jordan**
1990-1994	Ministry of Higher Education	**Amman/Jordan**

Conferences:

25-29 Sep. 2006 **International Conference on Behavioural Ecology of Insect Parasitoids**
Nice/France

I did a presentation titled "Video *analysis of searching behaviour of an aphid parasitoid and its hyperparasitoid with and without floral nectar*"

8-10 Aug. 2006 **The New Zealand Plant Protection Society**
Blenheim/ New Zealand

I did a presentation titled **"***Floral nectar affects longevity of the aphid parasitoid Aphidius ervi and its hyperparasitoid Dendrocerus aphidum*"

Publications:

Theses

- Araj S.A. (1997) Evaluation of three methods for testing four insecticides on the whitefly *Bemisia tabaci* and its parasitoid *Eretmocerus mundus*. M.Sc. thesis, The University of Jordan. 78pp.

- Araj S.A. (2007) The role of floral resource subsidies in structuring a four trophic-level parasitoid / host system. Ph. D. thesis, Lincoln University. 98pp.

Refereed papers

- Araj S.A., Wratten S.D., Lister A.J. & Buckley H.L. (2006) Floral nectar affects longevity of the aphid parasitoid Aphidius ervi and its hyperparasitoid Dendrocerus aphidum. New Zealand Plant Protection, 59, 178-183

- Araj S.A., Wratten S.D., Lister A.J. & Buckley H.L. (2008) The effects of diversity on ecosystem function: floral diversity, parasitoids and hyperparasitoids-an initial laboratory approach. Basic and Applied Ecology, 9, 588-597

- Araj, S. A., Wratten, S. D., Lister, A. J. & Buckley, H. L. (2009) Adding floral nectar resources to improve biological control: Potential pitfalls of the fourth trophic level. Basic and Applied Ecology, 10, 554-562

- Araj, S. A., Wratten, S. D., Lister, A. J. & Buckley, H. L. (2011) Searching behavior of an aphid parasitoid and its hyperparasitoid with and without floral nectar. Biological Control, 57, 79-84

- Araj, S and Wratten, S. 2015. Comparing existing weeds and commonly used insectary plants as floral resources for a parasitoid. Biological Control, 81,15–20

- Araj, S. 2015. Relative effects of floral resources on the hyperparasitoid Phaenoglyphis villosa. Jordan Journal of Agricultural Sciences, 11, 1073-1081

- Ihab Husni Ghabeish and Salah-Eddin Abdesalam Ara. 2015. Population trend, host susceptibility and damage study on the eucalyptus gall wasp Ophelimus maskelli (Ashmead) (Hym., Eulophidae) in Jordan. Jordan Journal of Agricultural Sciences. (In press/accepted)

- Amal A. Al-Abbadi, Ihab H. Ghabeish, Mazen A. Ateyyat, Azmi D. Hawari and Salah-Eddin A. Araj . 2015. A Comparison between the Anti-microbial Activity of Native Propolis and the Anti-microbial Activity of Imported Ones against Different Health Microbes. Jordan Journal of Biological Sciences, 8 (1), 65-70

- Salah-Eddin A. Araj, Nida' M. Salem, Ihab H. Ghabeish, Akl M. Awwad. 2015. Toxicity of nanoparticles against Drosophila melanogaster (Diptera: Drosophilidae). Journal of Nonmaterials. http://dx.doi.org/10.1155/2015/758132

- Nidà Mohammed Salem, Akel N Mansour, Amany Abdeen, Salah Araj, Wafaa Khrfan. 2015. First report of Tomato chlorosis virus infecting tomato crops in Jordan. Plant Disease,9, 1286

- LR Jaber, SE Araj. 2018. Interactions among endophytic fungal entomopathogens (Ascomycota: Hypocreales), the green peach aphid Myzus persicae Sulzer (Homoptera: Aphididae), and the aphid endoparasitoid. Biological Control 116, 53-61

- RH Jado, SE Araj, B Abu-Irmaileh, MW Shields, SD Wratten. 2019. Floral resources to enhance the potential of the parasitoid Aphidius colemani for biological control of the aphid Myzus persicae. Journal of applied entomology 143 (1-2), 34-42
- LR Jaber, SE Araj, JR Qasem. 2018. Compatibility of endophytic fungal entomopathogens with plant extracts for the management of sweetpotato whitefly Bemesia tabaci Gennadius (Homoptera: Aleyrodidae). Biological control 117, 164-171
- TM Al-Antary, IH Belghasem, SE Araj. 2017. Toxicity of anise oil against the green peach aphid Myzus persicae Sulzer using four solvents (Homoptera: Aphididae). Fresen. Environ. Bull 26 (5), 3705-3710

- Salah-Eddin A Araj, Mahmoud Kasrawi , Nihad G Alsmirat, Yahia A Othman . 2018. Influence of greenhouse shading techniques on pest numbers, leaf-level physiology, fruit yield and quality of cucumber. Fresenius Environmental Bulletin 27 (8), 5721-5726
- TM Al-Antary, IH Belghasem, SA Alaraj. 2017. Evaluation of eco-friendly lemon oil against the green peach aphid Myzus persicae Sulzer (Homoptera: Aphididae) using four solvents. Fresenius Environ Bull 26, 8298-8303
- AY Ghidan, TM Al-Antary, AM Awwad, OY Ghidan, SEA Araj, MA Ateyyat. 2018. Comparison of different green synthesized nanomaterials on green peach aphid as aphicidal potential. Fresenius Environmental Bulletin 27 (10), 7009-7016
- SEA Araj, TM Al-Antary, M Saleh. 2018. Flavonoids analysis of buckwheat (Fagopyrum esculentum) and in relation to an aphid predator. Fresenius Environmental Bulletin 27 (4), 2410-2417

- IH Ghabeish, SEA Araj. 2016. Population Trend, Host Susceptibility and Damage Study on the Eucalyptus Gall Wasp Ophelimus Maskelli (Ashmead)(Hym., Eulophidae) in Jordan. Jordan Journal of Agricultural Sciences 405 (3691), 1-10
- Salah-Eddin Araj, Morgan W. Shields, SD Wratten. 2019. Weed floral resources and commonly used insectary plants to increase the efficacy of a whitefly parasitoid. BioControl. 1-9

- KM Alananbeh, SE Araj, HM Al Taweel. 2019. First record of Raoiella indica Hirst (Acari: Tenuipalpidae) in Jordan. International Journal of Acarology, 1-2
- N Alsmairat, T Al-Qudah, N El-Assi, G Mehyar, I Gammoh, YA Othman. 2019. Effect of drying process on physical and chemical properties of 'medjool' date palm fruits. Fresenius Environmental Bulletin 28 (2 A), 1563-1570

- FA Al-Zyoud, IH Ghabeish, SEA Araj. 2013. Positive density-dependent prey mortality of Bemisia tabaci puparia due to the predatory coccinellid Serangium parcesetosum Sicard. Journal of Food, Agriculture & Environment 11 (2), 417-420

- MM Al-Khawaldeh, SE Araj, KM Alananbeh, TM Al Antary. 2020. Wheat cultivable fungal endophytes in Jordan. Fresenius Environmental Bulletin 29, 13

- NM Salem, S Araj, T Alshareef, M Abu Muslem, H Bess, NI Katis. 2020. First report of Cucurbit chlorotic yellows virus from cucumber plants affected by interveinal yellowing disease in Jordan. Plant Disease 104 (12), 3277

- MA Majdalawi, M Al-Habbab, A Al-Assaf, M Tabeah, SE Araj,. 2020. Improving supply chain of date palm by analyzing the competitiveness using a constant market share analysis. Fresenius Environmental Bulletin 29 (12), 10997-11005

- M Saleh, Z AbuWaar, SE Araj, TM Al Antary, M Akash. 2020.Rheological and sensory characteristics of yoghurt powder solution. Fresenius Environmental Bulletin, 8480

- M Saleh, Z AbuWaar, SE Araj, TM Al Antary, Y lee. 2020. Comparing the impacts of fenugreek (trigonella foenum-gracum) galactomannan to arabic gum, kappa-carrageenan, xanthan and ca''oxymethyl cellulose on wheat flours functional …

Fresenius environmental bulletin 29 (9 a), 8472-8479

- Hayajneh FMF and Araj SA, 2023. Infectious bursal disease (Gumboro) in backyard chicken inJordan. International Journal of Veterinary Science 12(6): 810-814. https://doi.org/10.47278/journal.ijvs/2023.047

- F.M. Hayajneh , Abdelqader A , Araj S , Zakaria H , Al-Khazaleh J and Rabie Irshaid. 2024. Subclinical Clostridium Perfringens Infection and Marek's Disease in Jordanian Broiler Chickens. International Journal of Veterinary Science. 13(2): 132-138. https://doi.org/10.47278/journal.ijvs/2023.060

- Sakina Hakimi, S., Araj, S. A., Ateyyat, M. A., Bounechada, M., Demirtas, I. and

Gul, F.. 2024. Analysis of Essential Oils Extracted from Algerian Medicinal Plants and Their Aphicidal Effect Against the Melon Aphid Aphis Gossypii Glover (Homoptera: Aphididae). Jordan Journal of Agricultural Sciences. 20 (3): 158-172

- Hayajneh FMF, Abdelqader A, Zakaria H, Abuajamieh M and Araj SA, 2024. Drug resistance andcoccidiosis affects immunity, performance, blood micronutrients, and intestinal integrity in broiler chickens. InternationalJournal of Veterinary Science 13(1): 34-41. https://doi.org/10.47278/journal.ijvs/2023.054

- Kris A.G. Wyckhuys, Komivi S. Akutse , Divina M. Amalin, Salah-Eddin Araj, Gloria Barrera, Marie Joy B. Beltran, Ibtissem Ben Fekih et al. 2024. Functional structure of the natural enemy community of the fall armyworm, Spodoptera frugiperda in the Americas. Biological Control. https://doi.org/10.1016/j.biocontrol.2024.105640

- Kris AG Wyckhuys, Komivi S Akutse, Divina M Amalin, Salah-Eddin Araj, Gloria Barrera, Marie Joy B Beltran et. al. 2024. Global scientific progress and shortfalls in biological control of the fall armyworm Spodoptera frugiperda. Biological control. https://doi.org/10.1016/j.biocontrol.2024.105460

- Ghabeish, I., Sheyyab, M., Araj, S. E., & Ghabeish, A. (2024). Host-plant related effects on host feeding, parasitism and sex ratio of Neochrysocharis formosa (Westwood) (Hymenoptera, Eulophidae) attacking Liriomyza huidobrensis (Blanchard) (Diptera, Agromyzidae) leafminer. International Journal of Pest Management, 1–7. https://doi.org/10.1080/09670874.2024.2306479

Conference Presentations

- Araj S.A., Wratten S.D., Lister A.J. & Buckley H.L. (2006) Floral nectar affects longevity of the aphid parasitoid *Aphidius erv*i and its hyperparasitoid *Dendrocerus aphidum*. Blenheim, New Zealand, 8-10 August 2006 (The New Zealand Plant Protection Society Inc).
- Araj S.A., Wratten S.D., Lister A.J. & Buckley H.L. (2006) "Video *analysis of searching behaviour of an aphid parasitoid and its hyperparasitoid with and without floral* nectar*.* Nice, France, 25-29 Sep. 2006 (International Conference on Behavioural Ecology of Insect Parasitoids)

Research supervision

Student name	Thesis title	Year	Degree
Rana Jado	Effect of floral resources on *Aphidius colemani* Viereck (Hymenoptera: Braconidae) the parasitoid of the green peach aphid (*Myzus persicae*) Suzler (Hemiptera: Aphididae)	2016-2014	MSc
Osama Alarabiat	Effect of Three *Bacillus* spp. on Tobacco Whitefly *Bemisia tabaci* (Gennadius) (Hemiptera: Aleyrodidae)	2017-2015	MSc
Idris Belqasim	Toxicity of four essential oils against the green peach aphid	2015	MSc
Mashoor Alkhwaldeh	Effect of isolates of " endophytic fungi on wheat aphids (Rhopalosiphum padi (L.), Hemiptera; Aphididae)Under suitable and difficult environmental conditions	2022-2018	PhD
Eman Srour	Effect of planting substrate on the biocontrol potential of endophytic fungal entomopathogens against the	2022-2024	MSc

	yzus M green peach aphid persicae Sulzer (Homoptera: Aphididae) in sweet pepper		
Heba Aburub	Thiamethoxam Study of on superior seedless effect ygrapes in the Jordan Valle	2023-til now	MSc
Saeda Btaibet	Effect of selected nanotreated essential oils on *Myzus Pericea* and a *Fusarium* spp	2024-til now	MSc

:Discussion committees

year	Student name	Thesis title	Degree
2025	Wafaa Rushdi Saleh Isleem	Bioecology And Differential Gene Expressions Of Fall Armyworm *Spodoptera frugiper*da (J. E. Smith) (Lepidoptera: Noctuidae) In Jordan.	**PhD**
2018	Asma Shaderma	Evaluation of certain carbamate pesticides residues in tomatoes produced under local production conditions and effect of heat treatments, ozonation and UV-light exposure on their residues in tomato juices .	**PhD**
2016	Doa Ramadan	Diversity of aquatic and semi-aquatic insects in Wadi Al-Walah in Jordan	**MSc**
2016	Bassam Alhiare	Evaluation of the Attractiveness of the *L.* Oriental Wasp *Vespa orientalis* (Hymenoptera: spidae) to Different Toxic Baits Traps	**MSc**
2017	Fatema Alrwahea	Toxicity of two chemicals and neem leaf extract against two populations of dubas bugs *Ommatissus lybicus* De bergevin (Tropiduchidue: Homoptera) and genetic diversity	**MSc**

Training:

- Fire extinguishers (New Zealand) **Date: 18/02/2008**
- ISO 9002 **Date: 20/5/2000**
- Hazard Analysis of Critical Control Points **Date: 21/6/1999**
- Potatoes Production (Denmark) **Date: 6/9/1998 – 26/9/1998**

Memberships: **Member in Integrated Pest Management Program.**
National Centre for Agricultural Research and Transfer of Technology

(NCARTT) / Jordan
Practical Member

The Arab Society for Plant Protection since 2014.
The Jordanian Agricultural Engineers Association since 1994.
Scientific research association 2014

Interests: Reading, Sport, Gardening

Referees:

- **Prof. Naim Sharaf**

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University of Jordan
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- **Prof. Steve Wratten**

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- **Dr Hannah Buckley**

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University of Jordan
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- **Dr. Mazen A. Ateyyat**

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Al-Shoubak University College,
Al-Balqa' Applied University,
Al-Salt 19117
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