

CURRICULUM VITAE

NARATIVE

Dr. El Bouhssini and his team have pioneered the development of integrated pest management (IPM) options for insect pests of cereal and legume crops in Central and West Asia and North Africa (CWANA). Over the past twenty years, he has built up a world-class entomology research program at the International Center for Agricultural Research in the Dry Areas (ICARDA), and a large, well organized research network linking countries in the CWANA region with advanced research centers in the West. Innovation and partnerships are the hallmarks of Mustapha’s research. Innovation is reflected in the quality of his science outputs. Cooperation is clearly seen in his strong partnerships with ICARDA scientists from different disciplines, with national program scientists in every country where ICARDA works, and with advanced research institutions. Some of the major accomplishments that Dr. El Bouhssini has been associated with are summarized below:

1. His team was the first to demonstrate the effectiveness of the Focused Identification of Germplasm Strategy (FIGS) approach in identifying sources of insect pest resistance from large germplasm collections. FIGS uses GIS-enabled analysis of agro-climatic data from germplasm collection sites to make predictions about in-situ selection pressures. This approach greatly reduces the time and resources required to identify sources of resistance.
2. Identification of sources of resistance in the ICARDA gene bank to a wide range of insect pests, including for the first time to Sitona weevil (*Sitona crinitus* Herbst) in wild lentil (Lens) species, and to Sunn pest (*Eurygaster* *integriceps* Puton) in wheat and its wild relatives at vegetative stages. Sources of resistance in wheat and its wild relatives to Hessian fly and in barley to Russian wheat aphid have been shared with cooperators worldwide.
3. Development of the first ever wheat varieties with resistance to Hessian fly, *Mayetiola destructor* (Say), in CWANA: three resistant bread wheat and six durum wheat varieties were released in Morocco. These varieties (or their derivatives) are expected to have major impact throughout the Hessian fly-infested areas in North Africa.

1. Development of a range of germplasm with resistance to the Russian wheat aphid*,* *Diuraphis noxia* (Kurdjumov): 71 F6 barley lines for North Africa, 200 F5 barley lines for Ethiopia, and 50 F8 bread wheat lines for the highland areas of CWANA - the first aphid-resistant barley and wheat developed in CWANA.
2. Development of a range of germplasm with resistance to chickpea leaf miner (*Liriomyza cicerina* Rondani): 42 F8 resistant lines of which seven (with good agronomic characteristics, seed quality, high yield) were registered in the Journal of Plant Registrations (2007). These were the first chickpea breeding lines with leaf miner resistance. This resistant germplasm has been shared with countries in CWANA and Latin America.
3. Elucidation of the mechanism of resistance in chickpea to leaf miner: His research group demonstrated that the oxalic acid concentration in leaves was found correlated with resistance to chickpea leaf miner.

1. Elucidation of the genetics of resistance in wheat, and avirulence in Hessian fly (complete or incomplete dominance in relation to larval survival on resistant wheat plants). The studies showed how deployment of resistance genes with incomplete dominance could prolong the life span of resistant varieties by reducing selection pressure for virulence in Hessian fly populations. The approach has major implications in gene deployment strategies worldwide.
2. Sequencing the genomes of Hessian fly and Russian wheat (team member).
3. Isolation and characterization of a prolyl endoprotease from Sunn pest-infected wheat grains. The enzyme was found to be a unique serine protease of the S9A family by way of its substrate recognition of proteins greater than 30 KD in size. These findings have laid foundation for design of inhibitors for this devastating enzyme of Sunn pest.
4. Development of IPM options to control chickpea leaf miner using a combination of genetic resistance, planting date, and botanical insecticides.
5. Development of IPM package to control Sunn pest in wheat in West Asia with multiple components: changing spraying policy from indiscriminate aerial spraying to localized ground sprays based on economic thresholds, devolution of control to farmers, enhancement/conservation of egg parasitoids, and the use of entomopathogenic fungi. Parts of this package are being used by farmers on over 3 million hectares in several countries in West and Central Asia.
6. Development of human resources in CWANA (Advised 20 M.S. and 16 Ph.D. students, and trained over 500 junior scientists and technicians in the area of IPM).
7. Establishment of Farmers Field Schools (FFS) in several countries of CWANA to promote adoption of IPM options by farmers.

*In summary, Dr El Bouhssini has had outstanding achievements in the entomology at the international level and has had exemplary impact at the farmers’ level in improving livelihoods and rural welfare. While his work was mainly related to the CWANA region, the influence of his science is global.*

PERSONAL DATA

**Name:** Mustapha El Bouhssini

**Citizenship:** Moroccan/Canadian

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**EDUCATION**

* Ph.D., Entomology, 1992, Kansas State University, Manhattan, USA
* M.S., Entomology, 1986, Kansas State University, Manhattan, USA
* B.S., Techniques in Agronomy, 1980, National School of Agriculture, Meknes, Morocco

**AWARDS**

* Lifetime Achievement Award in plant resistance to insects from the International Association of Plant Resistance to Insects (IPRI), 2018.
* *Distinguished Scientist Award* from the International Branch of the Entomological Society of America, 2014.
* *Distinguished Alumnus Award* from the Entomology Department, Kansas State University, 2014.
* *Award of Merit* for Research on Hessian fly Resistance in Wheat in Morocco from the International Plant Resistance to Insects Working Group, 2014 (team member).
* ICARDA/Iraq O*utstanding Research Team* (IPM of date palm insect pests in Iraq), 2011 (team member).
* ICARDA O*utstanding Research Team* (Resistance to insects identified through the Focused Identification of Germplasm Strategy), 2010 (team member).
* *Hassan II Grand Prize* for Invention and Research for the development of high-yielding durum wheat varieties with excellent grain quality and resistance to Hessian fly, and diseases, adapted to dryland conditions, 2009 (team member).
	+ International Plant Protection *Award of Distinction* from the International Association for the Plant Protection Sciences (IAPPS), 2007.
* CSO (Civil Society Organizations)/*CGIAR* (Consultative Group on International Agricultural Research) *Award for Innovative Partnership* between ICARDA and the University of Vermont on IPM of Sunn Pest, 2006 (team leader).
* ICARDA O*utstanding Research Team* (IPM of Sunn Pest Research Group), 2005 (team leader).
* ICARDA O*utstanding Scientific Article*, 2005: M. Aquino de Muro, S. Elliott, D. Moore, B. L. Parker, M. Skinner, W. Reid, and M. El Bouhssini. 2005. Molecular characterization of *Beauveria bassiana* isolates obtained from overwintering sites of Sunn pests (*Eurygaster* and *Aelia* species). Mycological Research 109(3): 294–306.
* *Research and Development Prize*, 2002, ‘Scientific studies and new technologies’, from the Ministries of Higher Education, Industries and Agriculture, Morocco, for development of the first Hessian fly-resistant durum wheat varieties in Morocco (team member).
* ICARDA *Scientist of the Year*, 1998.
* R.C. Smith Award for *Outstanding Ph.D*. *Student* at Kansas State University, USA, 1991.

**LANGUAGES**

Fluent in Arabic, English, and French

**CONTINUING EDUCATION**

* *Visiting Scientist* at the University of Vermont: worked on the use of entomopathogenic fungi against insect pests, October 2003 to February 2004.
* Workshop on *project cycle management/logical framework*, organized by the University of Wolverhampton, U.K., at ICARDA, 21–25 November 1999.
* Workshop on *scientific writing* organized by the Department of Journalism, University of Nebraska, USA, and held in Settat, Morocco, 1993.
* Workshop on *research management*, organized by OICD (Office of International Cooperation and Development)-USDA, Alexandria, VA, USA, 1993.
* Workshops on *project research management* (method log frame and team), organized by Team Technologies Inc., and held in Settat, Morocco, 1992.

**POSITIONS HELD**

* *Adjunct Professor*, Entomology Department, Kansas State University, Manhattan, KS, USA, December 2005 to date.
* *Principal entomologist* (IPM of cereal and legume insect pests), ICARDA, Rabat, Morocco, 2014 to date.
* *Senior Entomologist* (IPM of cereal and legume insect pests), ICARDA, Aleppo, Syria, September 1997 to 2014.
* *Consultant Entomologist* (IPM of cereal and food legume insect pests), ICARDA, Aleppo, Syria, May 1996 to August 1997.
* *Research Entomologist* (IPM of cereal insect pests), Dryland Research Center (INRA), Settat, Morocco, April 1992 to April 1996.
* *Research Entomologist* (IPM of cereal insect pests), Dryland Research Center (INRA), Settat, Morocco, September 1985 to August 1988.

**TEACHING EXPERIENCE**

* Advised 20 M.S. and 16 Ph.D. students, and trained over 500 junior scientists and technicians from North Africa and West and Central Asia. The various courses (and related details) that I conducted are categorized as follows:
* **Integrated Pest Management**:
	+ - * Date palm pests, Manama, **Bahrain**, 4-26 March 2009; **Dubai, UAE**, 30 November-4 December 2014; **Al-Ain, UAE**, 20-23 December 2015.
			* Cereal and legume pests, **Algeria**, 20 -30 April, 2013.
			* Sunn pest, Erbil, **Kurdistan-Iraq**, 31 March-1 April, 2013.
			* Sunn pest, Erbil, **Kurdistan-Iraq**, 25-26 March, 2012.
			* Cereal and legume pests, Settat, **Morocco,** 11-15 May 2009 and 23-26 May, 2011.
			* Sunn pest, Isfara, **Tajikistan**, 23-25 May 2007.
			* Sunn pest, Al Maty, **Kazakhstan**, 14–17 March 2006.
			* Cereal pests, Tashkent, **Uzbekistan**, 18–23 May 2004.
			* Sunn pest, University of Kabul, **Afghanistan**, 24–29 August 2003 and 6–8 March 2004.
			* Cereal and legume pests, ICARDA headquarters (Tel Hadya), **Syria**, every other year from 1996 to 2011.
			* Cereal insects for engineers and technicians from the West Asia and North Africa region, ICARDA, Aleppo**, Syria**, 1994.
			* Cereal insects, for engineers and technicians from the Maghreb countries, **Algeria**, 1992.
			* Cereal insects, for engineers from Syria (Southern Regional Agricultural Development Project), Settat, **Morocco**,1995
* **Host Plant Resistance to Insects**:
	+ - * Graduate course at the Institut Agronomique et Vétérinaire (IAV Hassan II), Rabat, **Morocco**, 1992–1996.
			* Genetic resistance of wheat to Hessian fly and other insects. Med. Campus: "Valorisation agronomique et industrielle des céréales Méditerranéennes", **Tunis**, 1995.
* **Pests surveillance**:
	+ - * Methods of pests’ surveillance, **Fes-Morocco**, 4-6 June, 2012.
			* Surveillance Methods of Date Palm Pests, **Dubai**, 28-31 January, 2013.

##### MEMBERSHIPS AND ACTIVITIES IN PROFESSIONAL ORGANIZATIONS

* Moroccan Association of Plant Protection; Arab Society for Plant Protection; Entomological Society of America; International Association for the Plant Protection Sciences.
* Member, Organizing Committee of the Conference ‘Acquis et Perspectives de la Recherche Agronomique dans les Zones Arides et Semi-arides du Maroc’, Rabat, **Morocco** (May 1994).
* Chair, International Organizing Committee of the Second International Conference on Sunn Pest, ICARDA, Aleppo, **Syria** (July 2004).
* Co-organizer (T. Shanower and M. El Bouhssini), Symposium on “Advances in Managing Wheat Insect Pests: A Global Perspective”, XXII International Congress of Entomology, Brisbane, **Australia** (August 2004).
* Member of the Entomological Society of America Committee on Education & Outreach (January 2011 to November 2015).
* Member of the Governing Board of the International Association for the Plant Protection Sciences (IAPPS) (October 2011 to date).
* Member of the 2014 Presidential Committee on ESA Grand Challenge Agenda
* Member of the International Steering Committee of the IPRI (International Plant Resistance to Insects) working Group (April 2012 to date)
* Co-chair of the Local Organizing and Scientific Committee of the 21st Biennial International Plant Resistance to Insects Workshop, Marrakech, Morocco April 14-18, 2014.
* Member of the local organizing and scientific committee of the International Conference on Pulses, Marrakech, Morocco, April 18-20, 2016.
* Member of the funding Committee, International Congress of Entomology (ICE), Orlando, Florida, September 25-30, 2016.

**Journal Reviews**

Journal of Applied Entomology, Crop Protection, Annals of Applied Biology, Journal of Insect Science, Bulletin of Entomological Research, Journal of Economic Entomology, Environmental Entomology, Plant Protection Sciences, Arab Journal of Plant Protection, Moroccan Journal of Plant Protection.

**MAJOR RESEARCH INTERESTS**

Integrated pest management, including:

* Biological control (parasitoids/predators and entomopathogenic fungi)
* Host-plant resistance (screening of germplasm, mechanisms of resistance, molecular markers and biotypes characterization through differential and molecular techniques)

##### PUBLICATIONS

Refereed Journal Articles

Livinus Emebiri, **Mustapha El Bousshini**, Mui-Keng Tan, and Francis C. Ogbonnaya. Field-based screening identiﬁes resistance to Sunn pest (Eurygaster integriceps) feeding at vegetative stage in elite wheat genotypes. 2017. Crop & Pasture Science, 126–133 http://dx.doi.org/10.1071/CP16355.

Alexey Morgounov, Aygul Abugalieva, Kadir Akan, Beyhan Akın, Stephen Baenziger, Madhav Bhatta, Abdelfattah A. Dababat, Lütfü Demir, Yerlan Dutbayev, **Mustapha El Bouhssini**, Gül Erginbaş-Orakci, Masahiro Kishii, Mesut Keser, Emrah Koç, Altynbek Kurespek, Abdul Mujeeb-Kazi, Aysel Yorgancılar, Fatih Özdemir, Ibrahim Özturk, Thomas Payne, Gular Qadimaliyeva, Vladimir Shamanin, Kemal Subasi, Gulnura Suleymanova, Enes Yakişir and Yuriy Zelenskiy. 2017. High-yielding winter synthetic hexaploid wheats resistant to multiple diseases and pests. Plant Genetic Resources; 1–6 ISSN 1479-2621 doi:10.1017/S147926211700017X.

Somanagouda B. Patil & Aakash Goyal & Satish S. Chitgupekar & Shiv Kumar & **Mustapha El-Bouhssini.** 2017. Sustainable management of chickpea pod borer. A review. Agron. Sustain. Dev. 37:20 DOI 10.1007/s13593-017-0428-8.

L. C. Emebiri, M.-K. Tan, **M. El Bouhssini**, O. Wildman, A. Jighly, W. Tadesse & F. C. Ogbonnaya. 2016. QTL mapping identifies a major locus for resistance in wheat to Sunn pest (Eurygaster integriceps) feeding at the vegetative growth stage. Theor Appl Genet DOI 10.1007/s00122-016-2812-1.

Ming-Shun Chen, Sanzhen Liu, Haiyan Wang, Xiaoyan Cheng, **Mustapha El Bouhssini** and R. Jeff Whitworth. 2016. Genes Expressed Differentially in Hessian fly Larvae Feeding in Resistant and Susceptible Plants. *Int. J. Mol. Sci.* *17*(8), 1324; doi: 10.3390/ijms17081324.

Chen M-S, Liu S, Wang H, Cheng X, **El Bouhssini M**, Whitworth RJ. 2016. Massive Shift in Gene Expression during Transitions between Developmental Stages of the Gall Midge, Mayetiola Destructor. PLoS ONE 11(5): e0155616. doi:10.1371/journal.pone.0155616.

Douglas A. Landis, Nurali Saidov, Anvar Jaliov, **Mustapha El Bouhssini,** Megan Kennelly, Christie Bahlai, Joy N. Landis, Karim Maredia. 2016. Demonstration of an Integrated Pest Management Program for Wheat in Tajikistan*.* Journal of Integrated Pest Management 2016 7 (1): 11doi: 10.1093/jipm/pmw010.

Khatib, F., A. Karkoukly, A.N. Trisi and **M. El-Bouhssini**. 2016. Genetic diversity of some isolates of entomopathogenic fungi collected from different regions. Arab Journal of Plant Protection, 34(1): 52-61

Ali, L., **M. El-Bouhssini** and M.N. Al-Salty. 2016. Using Sequence Tagged Site (STS) marker and Cleaved Amplified Polymorphic Sequence (CAPS) to study the genetic variation of Sunn pest populations collected from six countries (Iraq, Iran, Uzbekistan, Kazakhstan, Turkey and Syria). Arab Journal of Plant Protection, 34(1): 62-70.

El Fakhouri K., Lhaloui S., Faouzi B., Rochd M. & **El Bouhssini M. 2016.** Spacio-temporal distribution of major Lepidoptera of mint in the Chaouia region. Revue Marocaine de Protection des Plantes, 2016, N° 9 : 1-10.

El Damir M., **El Bouhssini** M., Al Salti M. N. & Abd. Elmoneim A. M. 2016. Adult *Sitona crinitus* H. (Coleoptera: Curculionidae) feeding preference on some legume species. Revue Marocaine de Protection des Plantes, 2016, N° 9: 11-16.

Lhaloui S., **El Bouhssini** M., Otmane R., Ouriniche S. & El Alami A. 2016. Comparative Biology and Life Cycle of the Barley Stem Gall Midge and Hessian fly (Diptera: Cecidomyiidae) in Morocco. Revue Marocaine de Protection des Plantes, 2016, N° 9 : 17-37.

Sabraoui A., **El Bouhssini** M., Lhaloui S., Boulamtat R. & Bouchelta A. 2016. Insecticidal effects of essential oils against chickpea leaf miner, *Liriomyza cicerina R.* Revue Marocaine de Protection des Plantes, 2016, N° 9: 39-46.

Otmane R., Lhaloui S., Osman A., Amamou A., **El Bouhssini** M., Nsarellah N., Gaboun F., Ouriniche S., & Bencharki B. 2016. Selection of new high yield potential bread wheat lines resistant to Hessian fly, *Mayetiola destructor* *(Say),* in Morocco. Revue Marocaine de Protection des Plantes, 2016, N° 9: 47-60.

Ghannoum M.I., **El Bouhssini** M., Nachit M.M. & Kornosor S. 2016. Sources of resistance in durum wheat and its wild relatives to Russian wheat aphid (Hemiptea: Aphididae)*.* Revue Marocaine de Protection des Plantes, 2016, N° 9: 61-67.

Ouriniche S., Hilali A., Lhaloui S., Baidani A., Nsarellah N., Otmane R. & **El Bouhssini** M. 2016. Evaluating the cost and gain from genetic resistance to Hessian fly (*Mayetiola destructor (say))* in durum wheat in Morocco using recombinant inbred lines. Revue Marocaine de Protection des Plantes, 2016, N° 9: 69-81.

El-Miziani I., Lhaloui S., **El Bouhssini** M, Lamiri A.& Gaboun F. 2016. Diagnosis of qualitative and quantitative damage caused by Bruchids on legumes in Morocco. Revue Marocaine de Protection des Plantes, 2016, N° 9: 83-99.

Lina Ali, Mustapha **El Bouhssini**, Abdul Nasser Trissi and Nawal Kahkah. 2015. Susceptibility of some Chickpea accessions to infestation with leaf miner *Liriomyza* *cicerina* Rondani and its impact on yield. Arab Journal of Plant Protection Volume 33 (2), 150-156.

Mui-Keng Tan, Mustapha **El Bouhssini**, Livinus Emebiri, Ossie Wildman, Wuletaw Tadesse, Francis C. Ogbonnaya. 2015. A SNP marker for the selection of HfrDrd, a Hessian fly-response gene in wheat. Molecular Breeding, Volume 35, Issue 11 (doi:10.1007/s11032-015-0410-6)

Staffan C. Andersson, Eva Johansson, Michael Baum, Fawzi Rihawi, and Mustapha **El Bouhssini.** 2015. New resistance sources to Russian wheat aphid (Diuraphis noxia, Kurdjumov) in Swedish wheat substitution and translocation lines with rye (Secale cereale) and Leymus mollis. Czech J. Genet. Plant Breed. 51: 162-165.

Tamer M, Trissi AN, **El Bouhssini** M, Kahkah N. 2015. Survey and biological study of Barley stem gall midge Mayetiola hordei Keiffer (Diptera: Cecidomyiidae) in Syria. Arab Journal of Plant Protection, 33(3): 259-264.

Zhao, C., ….M. **El Bouhssini** et al. 2015. A Massive Expansion of Effector Genes Underlies Gall- Formation in the Wheat Pest Mayetiola destructor. Current Biology 25, 613-620.

Ravi Yandamuri, Ranjeeta Gautam, Charles Darkoh, Vanitha Dareddy, Mustapha **El-Bouhssini**, Beatrice Clack. 2014. Cloning, Expression, Sequence Analysis and Homology Modeling of the Prolyl Endoprotease from Eurygaster integriceps Puton. Insects, 5: 762-782; doi: 10.3390/insects 5040762.

Chitvan Khajuria, Christie E Williams, Mustapha **El Bouhssini,** R Jeff Whitworth, Stephen Richards, Jeffrey J Stuart and Ming-Shun Chen. 2013. Deep sequencing and genome-wide analysis reveals the expansion of MicroRNA genes in the gall midge Mayetiola destructor. BMC Genomics, 14:187.

Joukhadar, R**., El-Bouhssini**, M. Jighly, A. Ogbonnaya, F.C. 2013. Genome-wide association mapping for five major pest resistances in wheat. Molecular Breeding, 1380-3743, [*http://dx.doi.org/10.1007/s11032-013-9924-y*](http://dx.doi.org/10.1007/s11032-013-9924-y).

Kher, S. V., L. M. Dosdall1, H. A. C\_arcamo & M. **El-Bouhssini**. 2013. Antibiosis resistance to cereal leaf beetle, Oulema melanopus (L.) (Coleoptera: Chrysomelidae), in Central Asian wheat germplasm. Journal of Applied Entomology, doi: 10.1111/jen.12074.

Trissi Abdul Nasser, Mustapha **El Bouhssini**, Mohammad Naif Alsalti, Maria von Korff, Aladdin Hamwieh, Margaret Skinner, Bruce L. Parkerand Michel Baum. 2013. Genetic diversity among summer and winter *Beauveria bassiana* populations as revealed by AFLP analysis. Journal of Asia-Pacific Entomology 16 (2013) 269–273.

Chitvan Khajuria, Haiyan Wang, Xuming Liu, Shanda Wheeler, John C. Reese, Mustapha **El Bouhssini**, R. Jeff Whitworth and Ming-Shun Ming Chen. 2013. Mobilization of lipids and fortification of cell wall and cuticle are important in host defense against Hessian fly. Journal: BMC Genomics 2013, 14:423.

Trissi Abdul Nasser, Mustapha **El Bouhssini**, Mohammad Naif Alsalti, Maria von Korff, Aladdin Hamwieh, Margaret Skinner, Bruce L. Parkerand Michel Baum. 2013. Genetic diversity among summer and winter *Beauveria bassiana* populations as revealed by AFLP analysis. Journal of Asia-Pacific Entomology 16: 269–273.

Abdulhai, M., G. Mustapha, M. **El Bouhssini**, M.N. Al Salti and A.N. Trissi. 2012. Some Biological Characteristics of Sunn pest *Eurygaster integriceps* Puton in Northern Syria. Arab Journal of Plant Protection, 30: 153-156.

**El Bouhssini**, M., F. C. Ogbonnaya, M. Chen, S. Lhaloui, F. Rihawi, A. Dabbous. 2012. Sources of Resistance in Primary Synthetic Hexaploid Wheat (*Triticum aestivum* L*.)* to Insect Pests – Hessian fly, Russian wheat aphid and Sunn pest in the Fertile Crescent. Genetic Resources and Crop Evolution, DOI 10.1007/s10722-012-9861-3.

Shahadi, F., M. **El-Bouhssini**, M. Abdulhai and B.P. Parker. 2012. Suitability of Five Prey Aphid Species for Development, Fecundity and Survival of the Predators *Coccinella septempunctata* (L.) and *Harmonia axyridis* (Pallas) Under Laboratory Conditions. Arab Journal of Plant Protection, 30: 261-265.

Khoja, S., M. **El Bouhssini**, R. Malhotra, N. Kakha and M. Abdul Hai. 2012. Categories of Resistance of Some Chickpea Lines to Chickpea Leaf Miner *Liriomyza cicerina* Rondani. Arab Journal of Plant Protection, 30: 208-212.

Trissi, A., M. **El Bouhssini**, M. N. Al Salti, M. Abdulhai, M. Skinner and B. L. Parker. 2012. Virulence of *Beauveria bassiana* against Sunn pest, *Eurygaster integriceps* Puton (Hemiptera: Scutelleridae) at different time periods of application. Journal of Entomology and Nematology 4(5): 49-53.

**El Bouhssini**, M., F. C. Ogbonnaya, H, Ketata, M. M. Mosaad, K. Street, A. Amri, M. Keser, S. Rajaram, A. Morgounov, F. Rihawi, A. Dabus and C. M. Smith. 2011. Progress in host plant resistance in wheat to Russian wheat aphid (Hemiptera: Aphididae) in North Africa and West Asia. Australian Journal of Crop Science 5(9): 1108-1113.

**El Bouhssini**, M., K. Street, A. Amri, M. Mackay, F. C. Ogbonnaya, A. Omran, O. Abdalla, M. Baum, A. Dabbous, and F. Rihawi. 2011. Sources of resistance in bread wheat to Russian wheat aphid (*Diuraphis noxia*) in Syria identified using the Focused Identification of Germplasm Strategy (FIGS). Plant Breeding 130: 96-97.

Parker, B.L., M. Amir-Maafi, M. Skinner, J.S. Kim and M. **El Bouhssini**. 2011. Distribution of Sunn Pest, Eurygaster integriceps Puton (Hemiptera: Scutelleridae), in Overwintering Sites.  J. Asian-Pacific Entomol.14 (1): 83-88.

Abdul Hai, M., M. **El Bouhsinni**, M. Jamal, B. Parker, M. Skinner and Z. Sayyadi. 2011. Characterization and Laboratory Evaluation of Efficacy of Five Isolates of the Fungus, *Paecilomyces farinosus* (Holm.) Brown & Smith on Sunn Pest Overwintered Adults *Eurygaster integriceps* Put. Arab Journal of Plant Protection, 29: 214-218.

Ali, L., M. **El Bouhssini**, S.M. Udupa, M. Baum, M.N. Al Salti. 2010. Genetic variation among Sunn pest (Eurygaster integriceps put.) populations in some countries of West and Central Asia**.** Arab Journal of Plant Protection 28(1): 1-8.

Abdulhai, M., M. **El Bouhssini**, M. Jamal, A.N. Trissi, Z. Sayyadi, M. Skinner and B. L. Parker. 2010. *Beauveria bassiana* Characterization and Efficacy vs. Sunn Pest, *Eurygaster integriceps* Puton (Hemiptera: Scutelleridae). Pakistan Journal of Biological Science, 13: 1052-105.

Darkoh, C., M. **El Bouhssini**, M. Baum, and B. Clack. 2010. Characterization of a prolyl endoprotease from *Eurygaster integriceps* Puton (Sunn Pest) Infested Wheat. Archives of Insect Biochemistry and Physiology 74(3):163-178.

Kutuk, H.; R. Canhilal, M. Islamoglu,A.D. Kanat, and M. **El Bouhssini**. 2010. Predicting the number of nymphal instars plus new-generation adults of the Sunn Pest from overwintered adult densities and parasitism rates.Journal of Pest Science 83(1): 21-25.

Liu, X., J. L. Marshall , P. Stary, O. Edwards , G. Puterka , L. Dolatti, M. **El Bouhssini**, J. Malinga, J. Lage, and C. M. Smith. 2010. Global phylogenetics of *Diuraphis noxia* (Hemiptera: Aphididae), an invasive aphid species: Evidence for multiple invasions into North America. Journal of Economic Entomology 103(3): 958-965.

Trissi, A.N., M. **El Bouhssini**, M.N. Al-Salti, B.L. Parker, M. Skinner and A. Massri. 2010. Efficacy of Some *Beauveria bassiana* Isolates on Sunn Pest, *Eurygaster integriceps* Put. (Hem.: Scutelleridae) and Their Side Effects on its Egg Parasitoid, *Trissolcus grandis* Thomson. Arab Journal of Plant Protection 28: 163-168.

Ali, L., M. **El Bouhssini**, M. N. Al-Salti, J. Valkoun, M. Nachit, O. Abdallah, and M. Singh. 2009. Evaluation of some wheat and its wild relative accessions for resistance to Sunn pest (*Eurygaster integriceps* Put.). Arab Journal of Plant Protection 27 (1): 10-13.

Chen, M. S., X. M. Liu, H.Wang, and M. **El Bouhssini**. 2009. Hessian fly (*Mayetiola destructor*) interactions with barley, rice, and wheat seedlings. Journal of Economic Entomology 102(4): 1663-1672.

**El Bouhssini**, M., K. Street, A. Joubi, Z. Ibrahim, and F. Rihawi. 2009. Sources of wheat resistance to Sunn pest, *Eurygaster integriceps* Puton, in Syria. Genetic Resources and Crop Evolution 56: 1065-1069.

**El Bouhssini**, M., M. Chen, S. Lhaloui, G. Zharmukhamedova, and F. Rihawi. 2009. Virulence of Hessian fly (Diptera: Cecidomyiidae) in the Fertile Crescent. Journal of Applied Entomology 133: 381-385.

Ennahli, S., M. **El Bouhssini**, S. Grando, R. Anathakrishnan, T. Niide, L.Starkus, S. Starkey, and C. M. Smith. 2009. Comparison of categories of resistance in wheat and barley genotypes against biotype 2 of the Russian wheat aphid, *Diuraphis noxia* (Kurdjumov). Arthropod Plant Interactions 3 (1): 45-53.

Trissi, A.N., M. **El Bouhssini**, and A. Kzaez. 2009. The Effect of temperature on some biological characteristics of *Trissolcus* *vassilievi* Mayer, an egg parasitoid of Sunn Pest (*Eurygaster integriceps* Puton.). Arab Journal of Plant Protection 27 (1): 73-78.

**El Bouhssini**, M., K. Mardini, A. Babi, R. S. Malhotra, A. Joubi, and N. Kagka. 2008. Effects of planting dates, varieties and insecticides on chickpea leaf miner (*Liriomyza cicerina* R.) infestation and the parasitoid *Opius monilicornis* F. Crop Protection 27: 915-919.

**El Bouhssini**, M., A. Sarker, W. Erskine, and A. Joubi. 2008. First sources of resistance to Sitona weevil (*Sitona crinitus* Herbst) in wild Lens species. Genetic Resources and Crop Evolution 55: 1-4.

**El Bouhssini**, M., M. Nachit, J. Valkoun, O. Abdalla, and F. Rihawi. 2008. Sources of resistance to Hessian fly (Diptera: Cecidomyiidae) in Syria identified among *Aegilops* species and synthetic derived bread wheat lines. Genetic Resources and Crop Evolution 55:1215-1219.

Edgington, S., D. Moore, M. **El Bouhssini**, and Z. Sayyadi. 2007. *Beauveria bassiana* for the control of Sunn Pest (*Eurygaster integriceps*) (Hemiptera: Scutelleridae*)* and aspects of the insect’s daily activity relevant to a mycoinsecticide. Biocontrol Science and Technology, 17(1) 63-79.

Ibrahim, J., M. **El Bouhssini**, M. Abdulhai, and A. N. Trissi. 2007. The effect of egg parasitoids in regulating Sunn pest (*Eurygaster integriceps* Puton) population. Research Journal of Aleppo University, 52:13-22.

Malhotra, R. S., M. **El Bouhssini**, and A. Joubi. 2007. Registration of seven improved chickpea breeding lines resistant to leaf miner. Journal of Plant Registrations, 1(2):145-146.

Thomas, R. J., E. De Pauw, M. Qadir, A. Amri, M. Pala, A. Yahyaoui, M. **El-Bouhssini**, M. Baum, L. Iñiguez, and K. Shideed. 2007. Increasing the resilience of dryland agro-ecosystems to climate change. Journal of Semi-Arid Tropical Agricultural Research 4(1): 1-37.

Canhilal, R, W. Reid, H. Kutuk, and M. **El Bouhssini**. 2006. Natural occurrence of entomopathogenic nematodes (Rhabditida*:* Steinernematidae and Heterorhabditidae) in Syrian soils. Research Journal of Agriculture and Biological Sciences 2(6):493-497.

Chen, M. S., J. P. Fellers, Y. C. Zhu, J. J. Stuart, S. Hulbert, M. **El-Bouhssini**, and X. Liu. 2006. A super-family of genes coding for secreted salivary gland proteins from the Hessian fly, *Mayetiola destructor*. Journal of Insect Science 6:12.

Liu, X., J. P. Fellers, Y. C. Zhu, N. S. Mutti, M. **El Bouhssini**, and M. S. Chen. 2006. Cloning and characterization of cDNAs encoding carboxypeptidase-like proteins from the gut of Hessian fly [*Mayetiola destructor* (Say)] larvae. Insect Biochemistry and Molecular Biology 36:665-673.

Trissi, A. N., M. **El Bouhssini**, J. Ibrahem, M. Abdulhai, Bruce L. Parker, W. Reid, and F. J. El-Haramein. 2006. Effect of egg parasitoid density on the population suppression of Sunn Pest, *Eurygaster integriceps* (Hemiptera: Scutelleridae), and its resulting impact on bread wheat grain quality. Journal of Pest Science 79 (2): 83-87.

Aquino de Muro, M., S. Elliott, D. Moore, M. Skinner, W. Reid, B. L. Parker, and M. **El Bouhssini**. 2005. Molecular characterisation of *Beauveria bassiana* isolates obtained from overwintering sites of Sunn Pest (*Eurygaster* and *Aelia* spp). Mycological Research 109: 294-306.

Canhilal, R., H. Kutuk, A. Duran Kanat, M. Islamoglu, F. Jaby El-Haramein, and M. **El Bouhssini**. 2005. Economic threshold for the Sunn Pest, *Eurygaster integriceps* Put. (Hemiptera: Scutelleridae) on wheat in southeastern Turkey. Journal of Agricultural and Urban Entomology **22 (3&4):** 191-201.

Porter, D. R., C. A. Baker, and M. **El Bouhssini**. 2005. Resistance in wheat to a New North American-Russian wheat aphid biotype. Plant Breeding 124, 1-2.

Abdul Hay M., M. **El Bouhssini**, and A. Babi. 2004. Some biological characteristics of two egg parasitoids (*Trissolcus grandis* Thomson) and (*Trissolcus simoni* Mayr) of Sunn pest (*Eurygaster integriceps* Put.) under laboratory conditions in Syria. Arab Journal of Plant Protection 22: 82-84.

**El Bouhssini**, M. Abdul Hay, and A. Babi. 2004. Sunn Pest (Hemiptera: Scutelleridae) oviposition and egg parasitism in Syria. Pakistan Journal of Biological Sciences 7 (6):934-936.

El Damir, M., M. **El Bouhssini**, and M. N. Al-Salty. 2004. Embryo development and egg hatching of *Sitona crinitus* Herbst (Coleoptera: Curculionidae) under constant temperature regimes. Pakistan Journal of Biological Sciences 7(7): 1191-1193.

Al-Houssari, F., M. **El Bouhssini**, J. Ibrahim, and M. N. Al Salti. 2003. Effect of methanol extract from fruits of *Melia azedarach* on *Coccinnella septempunctata* (Coleoptera: Coccinellidae). Arab Journal of Plant Protection 22: 85-88*.*

**El Bouhssini**, M., F. Bakkoush, M. Assol, and I. Ghariani. 2003. Survey of major insect pests of wheat and barley in Libya. Arab Journal of Plant Protection 21: 35-38.

Naber, N., M. **El Bouhssini**,and S. Lhaloui. 2003. Biotypes of Hessian fly (Diptera; Cecidomyiidae) in Morocco. Journal of Applied Entomology 127: 174-176.

Nsarellah N., A., Amri, M., Nachit, M. **El Bouhssini**, and S. Lhaloui. 2003. New durum wheat with Hessian fly resistance from T*riticum araraticum* and *Triticum carthlicum* in Morocco. Plant Breeding 122: 435-437.

Nsarellah, N., A. Amri, M. M. Nachitt, M. **El Bouhssini**, et S. Lhaloui. 2003. Transfert de la résistance à la cécidomyie des sources de blé tendre H5, H11 et PI 321644 au blé dur. Al Awamia 107: 47-57.

Parker, B. L., M. Skinner, Scott D. Costa, S. Gouli, W. Reid, and M. **El Bouhssini**. 2003. Entomopathogenic fungi of *Eurygaster* *integriceps* Puton (Hemiptera: Scutelleridae): collection and characterization for development. Biological Control 27: 260-272.

Parker, B. L., Scott D. Costa, M. Skinner, and M. **El Bouhssini**. 2002. Sampling Sunn Pest (*Eurygaster integriceps* Puton) in overwintering sites in northern Syria. Turkish Journal of Agriculture and Forestry 26: 109-117.

Shahadi, F., M. **El Bouhssini**, and A. Babi. 2002. First record of parasitoids on the predator seven spotted coccinellid, *Coccinella septempunctata* L. (Coleoptera: Coccinellidae) in Syria. Arab Journal of Plant Protection 20: 49-51.

Benlhabib, O., G. Diria, M. **El Bouhssini**, S. Lhaloui, and M. Nachit. 2001. Characterization of Moroccan *Aegilops* spp. for germplasm enhancement. Actes Institut Agronomique et Vétérinaire 21 (4): 193-198.

**El Bouhssini**, M., J. H. Hatchet, T. S. Cox, and G. Wilde. 2001. Genotypic interaction between resistance genes in wheat and virulence genes in the Hessian fly *Mayetiola destructor* (Diptera: Cecidomyiidae). Bulletin of Entomological Research 91, 327-331.

Lhaloui, S., M. **El Bouhssini**, S. Ceccarelli, S. Grando, and A. Amri. 2001. The Russian wheat aphid on barley in Morocco: Survey, and identification of new sources of resistance. Bulletin of the International Organization of Biological Control for the West Palaearctic Regional Section 24 (6): 33-37.

Lhaloui, S., M. **El Bouhssini**, and A. Amri. 2001. The Hessian fly in Morocco: Surveys, loss assessment, and genetic resistance in bread wheat. Bulletin of the International Organization of Biological Control for the West Palaearctic Regional Section 24 (6): 101-107.

Lhaloui**, S**., M. **El Bouhssini**, N. Nsarellah, M. M. Nachitt, and A. Amri. 2000. Biotic stress limiting durum wheat production in Morocco, Hessian fly and the Russian wheat aphid: surveys, loss assessment, and identification of sources of resistance. Options Méditerranéennes 40: 373-379.

**El Bouhssini**, M., and M. Nachit. 2000. New sources of resistance in durum wheat and wild relatives to Russian wheat aphid (Homoptera: Aphididae). Options Méditerranéennes 40:393-395.

El Damir, M., M. **El Bouhssini**, and M. N. Al-Salti. 2000. Effect of *Melia azedarach* (L.) (Meliaceae) fruit extracts on *Sitona crinitus* (H) (Coleoptera: Curculionidae) adults feeding. Arab Journal of Plant Protection 18: 64-67.

El Damir, M., M. N. Al-Salti, and M. **El Bouhssini**. 2000. Ecology and biology of *Sitona crinitus* H. in northern Syria. Bassel Al-Assad Journal for Engineering Sciences:109-119.

Naber, M. **El Bouhssini**, M. Nachit, S. M. Udupa, M. Nachit, M. Baum, S. Lhaloui, A. Benslimane, and H. El Abbouyi. 2000. Genetic variation among populations of the Hessian fly *Mayetiola destructor* (Diptera: Cecidomyiidae) in Morocco and in Syria. Bulletin of Entomological Research 90: 245-252.

Parker, B. L., M. Skinner, M. Brownbridge, and M. **El Bouhssini**. 2000. Control of insect pests with entomopathogenic fungi. Arab Journal of Plant Protection 18: 133-138.

Abdul Hay M., A. Babi, and M. **El Bouhssini.** 1999. Survey of egg parasitoids of Sunn pest *Eurygaster integriceps* (Hemiptera: Scutelleridae) in Syria. Research Journal of Aleppo University: 9-16.

**El Bouhssini**, M., J. H. Hatchett, and G. E. Wilde. 1999. Hessian fly (Diptera: Cecidomyiidae) larval survival as affected by wheat resistance alleles, temperature and larval density. Journal of Agriculture and Urban Entomology 16:245-254.

**El Bouhssini**, M., N. Nsarellah, M. M. Nachit, A. Bentika, O. Benlhabib, and S. Lhaloui. 1999. First source of resistance in durum wheat to Hessian fly (Diptera: Cecidomyiidae) in Morocco. Genetic Resources and Crop Evolution 46:107-109.

Mardini, K., M. **El Bouhssini**, and A. Babi. 1999. Effect of food quality on some biological parameters of two coccinellids *Harmonia axyridis* and *Coccinella septumpunctata* (Coleoptera: Coccinellida*e*) under laboratory conditions. Research Journal of Aleppo University: 165-172.

Mardini, K., M. **El Bouhssini**,and A. Babi. 1999. Preliminary study of two parasitoids *Diglyphus* *isaea* and *Opius monilicornis* on larvae of chickpea leafminer *Liriomyza cicerina* R. in Syria. Research Journal of Aleppo University: 47-54.

**El Bouhssini**, M., and J. H. Hatchett. 1998. Survival of Hessian fly (Diptera: Cecidomyiidae) larvae on wheat cultivars carrying different genes for antibiosis. Journal of Agricultural Entomology 15(3): 183-193.

**El Bouhssini**, M., O. Benlhabib, M. M. Nachit, A. Houari, A. Bentika, Nsarellah, and S. Lhaloui. 1998. Identification in *Aegilops* species of resistant sources to Hessian fly (Diptera: Cecidomyiidae) in Morocco. Genetic Resources and Crop Evolution 45:343-345.

El-Damir, M., M. **El Bouhssini**, and N. Al-Salti. 1998. A simple screening technique of lentil germplasm for resistance to *Sitona crinitus* H. (Coleoptera: Curculionidae) under artificial infestation. Arab Journal of Plant Protection 17(1):33-35.

Azzam A., S. Azzam, S. Lhaloui, A. Amri, M. **El Bouhssini**,and M. Moussaoui. 1997. Economic returns to research in Hessian fly (Diptera: Cecidomyiidae) resistant bread wheat varieties in Morocco. Journal of Economic Entomology 90(1): 1-5.

**El Bouhssini**, M., S. Lhaloui, J. H. Hatchett, et N. Naber. 1997. Nouveaux gènes de résistance efficaces contre la mouche de Hesse (Diptera: Cecidomyiidae) au Maroc. Al Awamia 96:55-63.

**El Bouhssini**, M., J. H. Hatchett, and S. Lhaloui. 1996. Larval survival on wheat plants carrying resistance genes to Hessian fly (Diptera: Cecidomyiidae) in Morocco. Arab Journal of Plant Protection 13(2): 103-105.

**El Bouhssini**, M., S. Lhaloui, A. Amri, M. Jlibene, J. H. Hatchett, N. Nsarellah, and M. Nachit. 1996. Wheat genetic control of Hessian fly (Diptera: Cecidomyiidae) in Morocco. Field Crops Research 45: 111-114.

**El Bouhssini**, M., S. Lhaloui, N. Naber, M. Mergoum, A. Ben Belkacem, and J. H. Hachett. 1996. A New Source of Resistance to Hessian fly (Diptera: Cecidomyiidae) identified in an Algerian bread wheat collection. Arab Journal of Plant Protection 14(2): 102-104.

Khalifi, L., M. **El Bouhssini**, A. Amri, et S. Lhaloui. 1996. Effet de la Température sur l'expression de la Résistance à la mouche de Hesse (Diptère: Cecidomyiidae) chez le blé tendre (*Triticum aestivum* L.). Al Awamia 92: 33-42.

Ryan, J., M. Abdel Monem, J. P. Shroyer, M. **El Bouhssini**, and M. M. Nachit. 1996. Potential for nitrogen fertilization and Hessian fly-resistance to improve Morocco's dryland wheat yields. European Journal of Agronomy 8:153-159.

Amri, A., M. **El Bouhssini**, M. Jlibene, T. S. Cox, and J. H. Hatchett. 1992. Evaluation of *Aegilops* and *Triticum* species for resistance to the Moroccan Hessian fly (Diptera: Cecidomyiidae*).* Al Awamia 77: 109-118.

Amri, A., M. **El Bouhssini**, S. Lhaloui, T. S. Cox, and J. H. Hatchett.1992. Estimates of yield loss due to Hessian fly (Diptera: Cecidomyiidae) on bread wheat using near-isogenic lines. Al Awamia 77: 75-87.

Amri, A., M. **El Bouhssini**, T. S. Cox, and J. H. Hatchett. 1992. Expression of genes for resistance to Hessian fly (Diptera: Cecidomyiidae) at three temperature regimes. Al Awamia 77: 119-127.

**El Bouhssini**, M., A. Amri, J. H. Hatchett, and S. Lhaloui. 1992. New sources of resistance in wheat to Hessian fly, *Mayetiola destructor* (Say), (Diptera: Cecidomyiidae) in Morocco. Al Awamia 77:89-107.

**El Bouhssini**, M., J. H. Hatchett, S. Lhaloui, and A. Amri. 1992. Suppression of Hessian fly (Diptera: Cecidomyiidae) populations in Morocco by the use of resistant wheat cultivars. Al Awamia 77: 129-145.

Lhaloui, S., L. Buschman, M. **El Bouhssini**, A. Amri, J. H. Hatchett, D. Keith, K. Starks, and K. El Houssaini.1992. Infestations of *Mayetiola* spp. (Diptera: Cecidomyiidae) in bread wheat, durum wheat and barley: Results of the five annual Surveys in the major cereal- growing regions of Morocco. Al Awamia 77: 21-53.

Lhaloui, S., L. Buschman, M. **El Bouhssini**, K. Starks, D. Keith, and K. El Hossaini, 1992. Control of *Mayetiola* species (Diptera: Cecidomyiidae) with Carbofuran in bread wheat, durum wheat and barley with yield loss assessment and its economic analysis. Al Awamia 77: 55-73.

Sekkat, A., and M. **El Bouhssini**. 1992. Les pucerons du blé dans le Sais. Al Awamia 75: 11-23.

Gagné, R. J., J. H. Hatchett, S. Lhaloui, and M. **El Bouhssini**. 1991. The Hessian fly and the barley stem gall midge, two different species of Mayetiola (Diptera: Cecidomyiidae) in Morocco. Annals of Entomological Society of America 84(4): 436-443.

Amri, A., J. H. Hatchett, T. S. Cox, M. **El Bouhssini**, and R.G. Sears. 1990. Resistance to Hessian fly from North African durum wheat germplasm. Crop Science 30:378‑381.

**El Bouhssini**, A. Amri, and J. H. Hatchett. 1988. Wheat genes conditioning resistance to the Hessian fly (Diptera:Cecidomyiidae) in Morocco. Journal of Economic Entomology 81:709‑712.

**Conference proceeding papers**

**El Bouhssini,** M., S. Lhaloui, A. Amri and A. Trissi. 2011. Implications of climate change on insects: the case of cereal and legume crops in North Africa, West and Central Asia. Proceedings of an International Conference on Food Security and Climate Change in Dry Areas, 1-4 February, Amman, Jordan, p.166-169. Solh, M. and Saxena, M.C. (eds).

**El Bouhssini**, M., M. Jamal, S. Gomez, F.Porcelli, S.Lhaloui, and M.Abdulhai. 2010. Improving Mediterranean cooperation and strengthening national strategies for integrated management of the red palm weevil, Rhynchophorus ferrugineus. Actes de l'atelier international sur le thème: Renforcement d'une stratégie nationale de recherche, de lutte et d'éradication du Charançon rouge du Palmier (Rhynchophorus ferrugeneus Oliver). Pp: 90-97. 9 Octobre 2009, INRA, Rabat, Maroc. Abbad et al. (eds.).

**El Bouhssini**, M., S. Lhaloui, A. Amri, et N. Trissi. 2009. Implications du changement climatique sur les insectes: cas des céréales et légumineuses alimentaires en Afrique du Nord, l’Ouest et le Centre de l’Asie. Proceedings of the colloque international sur la gestion des risques phytosanitaires, 9-11 November, Marrakech, Morocco, p. 89-94.

**El Bouhssini**, M., K. Mardini, S. Khoja, F. Al-Housari, R. S. Malhotra, A. Joubi, and N. Kagka. 2008. Management of chickpea leaf miner (*Liriomyza cicerina* R.) in West Asia and North Africa. In: Food Legumes for Nutritional Security and Sustainable Agriculture, Vol 2: 393-397. M. C. Kharkwal (ed.).

Sharma, H. C., S. L. Clement, T. J. Ridsdill-Smith, G.V. Ranga Rao, M. **El Bouhssini**, R. Ujagir, C. P. Srivastava, and M. Miles. 2008. Insect pest management in food legumes: the future strategies. In: Food Legumes for Nutritional Security and Sustainable Agriculutre, Vol 1: 522-544. M. C. Kharkwal (ed.).

[Street, K](http://ses.library.usyd.edu.au/browse?type=author&value=Street%20K&value_lang=en_AU)., M. [Mackay,](http://ses.library.usyd.edu.au/browse?type=author&value=Mackay%20M&value_lang=en) O. [Mitrofanova,](http://ses.library.usyd.edu.au/browse?type=author&value=Mitrofanova%20O&value_lang=en) J. [Konopka, M.](http://ses.library.usyd.edu.au/browse?type=author&value=Konopka%20J&value_lang=en) [**El Bouhssini,**](http://ses.library.usyd.edu.au/browse?type=author&value=El%20Bouhssini%20M&value_lang=en) N. [Kaul,](http://ses.library.usyd.edu.au/browse?type=author&value=Kaul%20N&value_lang=en) and E. [Zuev](http://ses.library.usyd.edu.au/browse?type=author&value=Zuev%20E&value_lang=en). 2008. [Swimming in the gene pool - a rational approach to exploiting large genetic resource collections](http://ses.library.usyd.edu.au/handle/2123/3390). The 11th International Wheat Genetics Symposium proceedings. R. Appels, R. Eastwood, E. Lagudah, P. Langridge, M. Mackay, L. McIntyre, and P. Sharp (Eds). Sydney, Sydney University Press.

Abdulhai, M., R. Canhilal, M. **El Bouhssini**, W. Reid, and F. Rihawi. 2007. Survey of Sunn pest adult parasitoids in Syria. In: Sunn Pest Management: A Decade of Progress 1994-2004. Parker, B. L., M. Skinner, M. El Bouhssini and S. G. Kumari (Eds.), p. 315-318.

Abdulhai, M., Z. Sayyadi, W. Reid, and M. **El Bouhssini**. 2007. Survey of Syrian soils for entomopathogenic nematodes and efficacy vs. Sunn pest. In: Sunn Pest Management: A Decade of Progress 1994-2004. Parker, B. L., M. Skinner, **M. El Bouhssini** and S. G. Kumari (Eds.). p. 251-258.

Athanassios, S., M. C. A. Downham, D. I. Farman, D. R. Hall, S. J. Phythian and M. **El Bouhssini**. 2007. Behavioral Responses of Sunn pest to Volatiles from Conspecific Insects and Host Plants. In: Sunn Pest management: A Decade of Progress 1994-2004. Parker, B. L., M. Skinner, M. El Bouhssini and S. G. Kumari (Eds.). p. 167-180.

Edgington, S., D. Moore, H. Kutuk, H. Satar, and M. **El Bouhssini**. 2007. Progress in the Development of a Mycoinsecticide for Biological Control of Sunn pest. In: Sunn Pest management: A Decade of Progress 1994-2004. Parker, B. L., M. Skinner, M. El Bouhssini, and S. G. Kumari (Eds.). p. 237-244.

**El Bouhssini**, M., M. Nachit, J. Valkoun, M. Moussa, H. Ketata, O. Abdallah, M. Abdulhai, B. L. Parker, F. Rihawi, A. Joubi, and F. Jaby El-Haramein. 2007. Evaluation of wheat and its wild relatives for resistance to Sunn pest under artificial infestation. In: Sunn Pest Management: A Decade of Progress 1994-2004. Parker, B. L., M. Skinner, M. El Bouhssini and S. G. Kumari (Eds.). p. 363-368.

El-Haramein, F. J., M. **El Bouhssini**, M. Amir-Maafi, R. Canhilal, and H. Kutuk. 2007. The Impact of Sunn pest Density on Grain and Flour Quality. 2007. In: Sunn Pest Management: A Decade of Progress 1994-2004. Parker, B. L., M. Skinner, M. El Bouhssini, and S. G. Kumari (Eds.). p. 181-186.

Green, S.V., M. C. A. Downham, D. I. Farman, D. R. Hall, and M. **El Bouhssini**. 2007. The role of Vibratory Signals in Mating Behavior of Sunn pest. 2007. In: Sunn Pest Management: A Decade of Progress 1994-2004. Parker, B. L., M. Skinner, M. El Bouhssini, and S. G. Kumari (Eds.). p. 157-166.

Gul, A., A. Aw-Hassan, H. Kutuk, R. Canhilal, A. Mazid, M. Hasani Moghaddam, H. Haj Hamoud, and M. **El Bouhssini**. 2007. Shifting from aerial to ground spraying for Sunn pest control: farmers’ perceptions and problems. In: Sunn Pest Management: A Decade of Progress 1994-2004. Parker, B. L., M. Skinner, M. El Bouhssini, and S. G. Kumari (Eds.). p. 331-340.

Gul, A., A. Aw-Hassan, H. Isik, R. Canhilal, A. D. Kanat, A. Mazid, and M. **El Bouhssini**. 2007. Positive effects of commodity exchanges in Sunn pest control in Turkey. In: Sunn Pest Management: A Decade of Progress 1994-2004. Parker, B. L., M. Skinner, M. El Bouhssini, and S. G. Kumari (Eds.). p. 341-348.

Maafi, M., B. L. Parker, and M. **El Bouhssini**. 2007. Binomial and sequential sampling of adult Sunn pest, *Eurygaster integriceps* Puton. In: Sunn Pest Management: A Decade of Progress 1994-2004. Parker, B. L., M. Skinner, M. El Bouhssini, and S. G. Kumari (Eds.). p. 115-122.

Parker, B. L., M. Amir-Maafi, M. Skinner, and M. **El Bouhssini**. 2007. Sunn pest populations under Artemisia, Astragalus, Quercus and *Centaurea gaubae* in overwintering sites. In: Sunn Pest Management: A Decade of Progress 1994-2004. Parker, B. L., M. Skinner, M. El Bouhssini, and S. G. Kumari (Eds.). p. 93-98.

Skinner, B. L. Parker, M. **El Bouhssini**, W. Reid, and Z. Sayyadi. 2007. Temperature and rainfall: critical factors for management of Sunn pest in overwintering sites. In: Sunn Pest Management: A Decade of Progress 1994-2004. Parker, B. L., M. Skinner, M. El Bouhssini ,and S.G. Kumari (Eds.). p. 127-132.

Skinner, M., B. L. Parker, S. Gouli, W. Reid, M. **El Bouhssini**, M. Amir-Maafi, and Z. Sayyadi. 2007. Entomopathogenic fungi for Sunn pest management: efficacy trials in overwintering Sites. In: Sunn Pest Management: A Decade of Progress 1994-2004. Parker, B. L., M. Skinner, M. El Bouhssini and S. G. Kumari (Eds.). p. 319-328.

Trissi, A. N., M. **El Bouhssini**, J. Ibrahem, M. Abdulhai, and W. Reid. 2007. Survey of egg parasitoids of Sunn pest in northern Syria. In: Sunn Pest Management: A Decade of Progress 1994-2004. Parker, B. L., M. Skinner, M. El Bouhssini and S. G. Kumari (Eds.). p. 309-314.

**El Bouhssini**, M., S. Lhaloui, N. Nssarellah, M. Nachitt, A. Amri, J. H. Hatchett, and O.Benlahbib. 1998. Durum wheat resistance to insect pests in Morocco. In Proceedings, SEWANA, Durum Research Network. ICARDA, Aleppo, Syria, p. 280-286.

Amri. A., M. **El Bouhssini**, S. Lhaloui, M. El Yamani, A. Ben Belkacem, et J. H. Hatchett. 1994. Résultats préliminaires des prospections du puceron russe dans les pays du Maghreb. In Proceedings, Conférence sur « Les Acquis et Perspectives de la Recherche Agronomiques dans les Zones arides et Semi-arides du Maroc ». Rabat, 24-27 May, p. 488-491.

Boulmane. H., M. **El Bouhssini**, S. Lhaloui, A. Sekkat, M. El Yamani, B. Bencharki, M. Mergoum, A. Amri, et N. Nssarellah. 1994. Evaluation d'un germoplasme des céréales pour la résistance au puceron russe. In Proccedings, Conférence sur « Les Acquis et Perspectives de la Recherche Agronomiques dans les Zones arides et Semi-arides du Maroc ». Rabat, 24-27 May p. 492-494.

**El Bouhssini** M., S. Lhaloui, J. H. Hatchett, A. Amri, M. Jlibene, N. Nssarellah, M. Nachit, M. Mergoum, et O. Benlahbib. 1994. Lutte génétique contre les insectes des céréales du Maroc. In Proceeding, Conférence sur « Les Acquis et Perspectives de la Recherche Agronomiques dans les Zones arides et Semi-arides du Maroc ». Rabat, 24-27 May, p. 469-475.

Fadlaoui, A. Azzam, A., S. Azzam, S. Lhaloui, A. Amri, M. **El Bouhssini**, et M. Moussaoui. 1994. Rentabilité des recherches sur les variétés résistantes à la cécidomyie au Maroc. In Proceeding, Conférence sur « Les Acquis et Perspectives de la Recherche Agronomiques dans les Zones arides et Semi-arides du Maroc ». Rabat, 24-27 May, p.483-487.

Lhaloui, S., et M. **El Bouhssini**. 1994. Estimation et analyse économique des pertes de rendement dues aux cécidomyies (mouche de Hesse et mouche de l'orge) sur blé et orge au Maroc. In Proceeding, Conférence sur « Les Acquis et Perspectives de la Recherche Agronomiques dans les Zones arides et Semi-arides du Maroc ». Rabat, 24-27 May, p. 476-482.

**Volunteered presentations**

151 volunteered presentations since 1991 (Entomological Society of America 13; International meetings, 86; Regional meetings: 52)

**Invited presentations**

**El Bouhssini** et al. 2018, Gene mining for resistance to pests using the focused identification of germplasm strategy (FIGS): successes and limitations. The 23rd symposium on plant resistance to insects (IPRI) held in Rothamsted, Harpenden, Hertfordshire, UK, 6-9 March.

**El Bouhssini** et al. 2016.Advances in host plant resistance to insect pests of cereals and food legumes in CWANA. International Insects Resistance Sympoisum, Stellenbosch, South Africa 5-8 March, 2016.

**El Bouhssini** et al. 2014. Host Plant Resistance to Insects pests of Cereals and Legumes: Progress made in the past few decades in North Africa, West and North Africa. 2014. Arab Congress of Plant Protection, Amman, Jordan, 9-13 November.

**El Bouhssini,** M., M. Nachit, N. Nsarellah, S. Lhaloui, A. Amri, K. Street , and A. Bari. International Durum wheat conference, **Rome**, Italy, May 2013, .Progress in host plant resistance in durum wheat to insect pests in North Africa, West and Central Asia.

**El Bouhssini**, M., K. Nazari, S. Kemal, and S. Kumari. 2010. Implications of climate change on diseases and pests in North Africa, West and Central Asia. Climate Change and Plant Disease Management Conference, Evora, **Portugal** 10-12 November.

**El Bouhssini**, M., and S. Lhaloui. 2010. International Perspectives on IPM: the CGIAR experience. Integrated Pest Management in Europe (ENDURE) conference, **Paris**, 24-25 November.

**El Bouhssini**, M., M. Jamal, S. Gomez, F. Porcelli, S. Lhaloui,and M. Abdulhai. 2009. Improving Mediterranean cooperation and strengthening national strategies for integrated management of the red palm weevil, *Rhynchophorus ferrugineu.* International Workshop on IPM of Red Palm Weevil, Rabat, **Morocco**, 9 February.

**El Bouhssini**, M., S. Lhaloui, A. Amri, et N. Trissi. 2009. Implications du changement climatique sur les insectes: cas des céréales et légumineuses alimentaires en Afrique du Nord, l’Ouest et le Centre de l’Asie. Colloque international sur la gestion des risques phytosanitaires, 9-11 November, Marrakech, **Morocco**.

**El Bouhssini,** M. IPM of Sunn pest. Seminar at the Agrarian University, Tashkent, **Uzbekistan**, November, 2009.

**El Bouhssini, M.** et al. IPM of cereal and legume insect pests in West and Central Asia and North Africa:

Conference on Organic Farming in the Arab World, Sana’a, **Yemen**, 28 June-1 July, 2008.

Seminars at the **University of Alberta,** April, 2007; Lethbridge Research Center, Ag-**Canada**, January, 2006; Ministry of Agriculture, Doha, **Qatar**, March, 2006; **McGill University**, January, 2005; CIDA (Canadian International Development Agency), January, 2005; **Kansas** **State University**, USDA-ARS, **Oklahoma State University**, Stillwater, **Oklahoma**, **Purdue** **University**, and the **University of Montreal**, December 2003; **University of Bari**, Italy, October 2010; **INRA/CIRAD, Montpelier**, France, November 2010, **Oregon State University**, USA, December 2010, **Kansas State University**, December, 2010; **McGill University,** July 2011; **Stephen F. Austin State University**, November 2011.

**El Bouhssini** M. et al. 2008. Biological control as an IPM component for the control of cereals and food legume insect pests in West and Central Asia and North Africa. Biological Control Workshop, Muscat, **Oman** 3-4 March.

**El Bouhssini**, M., B. James, G. Jahn, H. Sharma and J. Kroschel. International Perspectives on IPM: the CGIAR Experience:

Global IPM Forum, East Lansing, **Michigan State University**, 15-17 June, 2008.

Seminars at the **University of Alberta**, December, 2009; **Lethbridge Research Center**, Ag-Canada, December, 2008.

**El Bouhssini** et al. Progress in host plant resistance to:

Wheat insect pests in North Africa, West and Central Asia. Seminar at Limagrain Europe, Paris, December 2012.

Cereal and legume pests in North Africa, West and Central Asia. Seminars at **Kansas State University**, June, 2005& November 2014; **Swift Current Research Center**, Ag-Canada, December, 2008; **Texas A & M University**, November 2011..

Wheat pests in North Africa, West and Central Asia. Seminar at Rothamsted Research Center, **UK**, February, 2008.

**El Bouhssini** M. A Model of International Cooperation: ICARDA/the University of Vermont. Seminar at the **University of Vermont**, December, 2003.

**El Bouhssini**, M., et al. ICARDA and progress towards IPM of wheat and barley in North Africa, West and Central Asia. Seminar at the **University of Vermont**, December, 1999.

### **Newsletters**

**El El Bouhssini**, M., R. Canhilal, and A. Aw-Hassan. 2002. Integrated pest management of Sunn pest: a safe alternative to chemical control. ICARDA Caravan 16:37-38.

**El Bouhssini**, M., R. S. Malhotra, A. Babi, and K. Mardini. 2000. Sprays that spare pest predators. ICARDA Caravan 12: p.15.

Parker, B. L., M. Skinner, and M. **El Bouhssini**. 2000. Saving our daily bread from the Sunn pest, ICARDA Caravan 12: 13-14.

**El Bouhssini**, M., A. Amri, and J. H. Hatchett. 1996. Three wheat-resistance genes, H5, H11, and H13, effective against the Hessian fly, *Mayetiola destructor* (say), in Morocco. Rachis 5:23-25.

Miller, R. H., A. Kamel, S. Lhaloui, and M. **El Bouhssini**. 1989. Survey of Hessian fly in northern **Tunisia**. Rachis 8:27-28.

**El Bouhssini**, M., S. Lhaloui, J. H. Hatchett, D. Mulitze, and K. Starks. 1987. Preliminary evaluation of Sawfly damage to small grains in **Morocco**. Rachis 6: 29-31.

**Extension publications**

Less pests, more crops: an integrated approach. A brochure in three languages (**English**, **Arabic, and French**). ICARDA, 2016.

Parker, B. L., M. Skinner, J. Stewart, and M. **El-Bouhssini**. 2006. IPM of Sunn Pest. Translated into **Russian** and reprinted for the Sunn Pest IPM Workshop in Kazakhstan. 79 pp.

Parker, B. L., M. Skinner, and M. **El Bouhssini**. 2004. Keys to Sunn Pest Management (Brochure in **Arabic and English**). ICARDA, 2 pp.

Parker, B. L., M. Skinner, M. **El Bouhssini**, and B. Reid. 2003. IPM Training Manual on Sunn Pest. 79 pp.

Unlocking the Mysteries of an Ancient Problem, Sunn Pest. A brochure in six languages (**English**, **Arabic, Russian, Turkish, Dari and Pashtu**). ICARDA, 2001.

Integrated Sunn pest Management: Approaches for reducing the threat of Sunn pest to wheat harvests (Borchure in **English and Arabic**), ICARDA, 2013**.**

Contributed to the production of three **crop pest management expert systems** (wheat, barley and faba bean) for use by extension agents in CWANA.

**Books**

El Bouhssini, Mustapha and Jose Romeno Faleiro. 2018. Date Palm Pests and Diseases: Integrated Management Guide. Beirut, Lebanon: International Center for Agricultural Research in the Dry Areas (ICARDA).

Abbad Andaloussi F., Lhaloui S., **El Bouhssini** M., Bentata F., Baye Y., Hamal A., Saffour K., Krimi Benchekroun S., El Aissaoui A., Ramdani A., and El Youssfi B. Guide pratique pour la protection phytosanitaire des céréales et des légumineuses alimentaires. 2015. Edition INRA Maroc. 89pp. (French and Arabic).

Parker, B.L., M. Skinner & M. **El Bouhssini**. 2014. Entomopathogenic fungi for IPM: a manual for development. International Center for Agricultural Research in the Dry Areas. Beirut, Lebanon. 170 pp.

Parker, B. L., M. Skinner, M. **El Bouhssini**, and S. G. Kumari (Eds.). 2007. Sunn Pest Management: A Decade of Progress 1994-2004. 429 pp.

Lhaloui, S., M. **El Bouhssini**, N. Naserlhaq, A. Amri, M. Nachit, J. El Haddoury, et M. Jlibene. 2005. Cecidomyids of Cereals in Morocco: Biology, Damage and Control Methods (in **French**). 53 pp.

Parker, B. L., M. **El Bouhssini**, and M. Skinner. 2001. Field Guide: Insect Pests of Wheat and Barley in North Africa, West and Central Asia. ICARDA. 120 pp. (in **English, Dari and Pashtu)**.

**Book chapters**

Marion O. Harris, Kirk Anderson, Mustapha **El-Bouhssini**, Frank Peairs, Gary Hein, and Steven Xu. 2017. ‘Wheat pests: insects, mites and prospects for the future’ in P. Langridge (ed.), *Achieving sustainable cultivation of wheat Volume 1: Breeding, quality traits, pests and diseases*, Burleigh Dodds Science Publishing, Cambridge, UK (ISBN: 978 1 78676 016 6; [www.bdspublishing.com](http://www.bdspublishing.com)), pp. 467-544.

Sivasankar, S. et al. (ed.), Achieving sustainable cultivation of grain legumes Volume 2: Improving cultivation of particular grain legumes. 2017. Burleigh Dodds Science Publishing, Cambridge, UK (ISBN: 978 1 78676 140 8; [www.bdspublishing.com)](http://www.bdspublishing.com/)

H.C. Sharma, Tamo Manuele, Mustapha **El Bouhssini** and GV Ranga Rao. Pest Management in Grain Legumes: potential and limitations. 2016. Editor, Dharam P. Abrol, New India Publishing Agency, New Delhi. p.275-292.

Tadesse, W., A. Amri, M. Sanchez-Garcia, M. **El-Bouhssini**, M. Karrou, S. Patil, F. Bassi and M. Baum and T. Oweis. 2016. *Langridge, P. (ed.), Achieving sustainable cultivation of wheat Volume 2: Cultivation techniques,* improving wheat production in the Central and West Asia and North Africa (CWANA) region. *Burleigh Dodds Science Publishing, Cambridge, UK (ISBN: 978 1 78676 020 3;* [*www.bdspublishing.com)*](http://www.bdspublishing.com/).

Miller, R. H., M. **El Bouhssini**, and S. Lhaloui.  2007.  Insect pests of wheat in North America. *In* G. D. Buntin, K. S. Pike, M. J. Weiss, and J. A. Webster (Eds.), Handbook of Small Grain Insects, Entomological Society of America Handbook Series, USA, 120pp.

SHARMA, H.C., C.L.L. GOWDA, P.C. STEVENSON,T.J. RIDSDILL-SMITH, S.L. CLEMENT, G.V. RANGA RAO, J. ROMIES, M. MILES AND M. **EL BOUHSSINI.** 2006. Host Plant Resistance and Insect Pest Management in Chickpea. In S. Yadav (Ed.). Chickpea Breeding and Management, CAB International.

Stevenson, P. C., M. K. Dhillon, H. C. Sharma, and M. **El Bouhssini**. 2007. Insect pests of lentil and their management. p.331-348 In: Lentil: An Ancient Crop for Modern Times. Springer, Netherlands.

Nsarellah N., S. Lhaloui, M. **El Bouhssini**, A. Amri, and M. Nachit. 2005. Genetic basis for insect pest resistance in durum wheat. In durum wheat breeding: current approaches and future strategies, C. Royo, M. Nachit, and N. Di Fonzo (Eds.). Haworth Press, Inc.

Nsarellah N., M. **El Bouhssini**, and Julie M. Nicol. 2005. Selection strategies and methodologies for biotic stresses in durum wheat. In durum wheat breeding: current approaches and future strategies, C. Royo, M. Nachit, and N. Di Fonzo (Eds.). Haworth Press, Inc.

**Film:**

 “Bread Bugs,” a five-minute documentary on the IPM of Sunn Pest by the BBC *World Earth Report* in February 2006 (<http://www.handsontv.info/series7/programme_3.html>)