

# CURRICULUM VITAE



**Martín Ramón Aluja Schuneman Hofer**

**Senior Scientist Level E**

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## MARTÍN RAMÓN ALUJA SCHUNEMAN HOFER, Ph.D.

### CURRICULAR SUMMARY

Dr. Aluja was born in Mexico City in 1957 and currently lives in the state of Veracruz, Mexico. He studied at the Monterrey Institute of Technology and Higher Education (ITESM), Monterrey Campus, Mexico, and Cornell University - USA, obtaining the degree of Agricultural Engineer in 1981. He obtained a PhD degree at the University of Massachusetts - USA, Amherst Campus in 1990 (Entomology). He then completed a nine-month postdoctoral stay at the "Swiss Federal Research Station" in Wädenswil, Switzerland. He has worked at the Instituto de Ecología, A.C. - INECOL (Network of Biorational Pest and Vector Management) based in Xalapa / Coatepec, Veracruz, Mexico since 1990 as a scientist. From January 2010 to May 2017, he served as General Director of this research institution. His area of expertise falls within the Ecology and Behavior of Insects and Pest Management through Biorational Mechanisms. From the beginning of his career, he applied a mixed approach to his research, carrying out research on the cutting edge of knowledge in his field of expertise that resulted in various methodological and conceptual developments that are used in various parts of the world. He speaks and writes Spanish, English, and German fluently.

Dr. Aluja is a member of the "Sistema Nacional de Investigadores" (National System of Researchers - SNI) since 1990, having been awarded the highest level (Level III) in Area II (Chemistry & Biology) in 1999. To date he has generated a total of 253 publications, including 192 articles and six scientific notes/short communications in journals indexed by the Web of Science™ / Journal Citation Reports® (JCR®), nine articles in international/foreign (i.e., not Mexican) journals not indexed by JCR®, and eight articles in refereed Mexican journals. In addition, he has published 15 book chapters in international books and four in books published in Mexico. He has also written a book (Editorial Trillas) and coedited four additional ones (Springer, CRC Press, CABI, and AMC/FCE). The total number of primary citations (i.e., excluding self-citations by any coauthor, secondary citations, and theses) to these publications add to 5705, of which 4763 appear in journals indexed by JCR®. He has been awarded patents in USA, Mexico, and Colombia. He has also obtained funding for 68 grants totaling over 50 million Mexican pesos (ca. 2.7 million USD). He has given 110 invited talks (46 in Mexico, 64 in foreign countries).

He teaches graduate courses on Scientific Ethics/Integrity and Animal Behavior and a workshop on Scientific Article/Grant Writing and has directed 31 bachelor and five master's theses and eight doctoral dissertations. Of his doctoral students, two work as researchers at the Institute of Biotechnology and Applied Ecology (INBIOTECA) of the Universidad Veracruzana, where one lead the graduate school and directs doctoral dissertations, and the other also advises masters and doctoral students, publishing both independently, and being Levels III and II of the SNI, respectively. Two other doctorate students work at INIFAP (Michoacán and Yucatán) carrying out research focused on the solution of agricultural problems, two more in INECOL dedicated to fundamental and applied research (both Levels I of the SNI), and two others in Argentinean universities mainly dedicated to teaching and research, all with recent publications.

Among other distinctions to his work, Dr. Aluja received the "Harry A. Rosenfeld" Agricultural Entomology Research Award from the University of Massachusetts (1985), the King Baudouin Award from the International Foundation for Science (1994), the Scientific Research Prize in Natural Sciences of the Mexican

Academy of Sciences (1996), the Annual Prize as “Agronomist of the Year” from the Veracruz College of Agricultural Engineers (1997), the National Phytosanitary Prize from the Federal Ministry of Agriculture, Livestock, Rural Development and Fisheries (2012), and the Mexican National Prize for Science and Arts in the area of Technology, Innovation and Design in 2013 (highest recognition bestowed by the Mexican government to a scientist). He has also been distinguished with the naming of an insect genus (*Alujamyia*) and two species of parasitoid wasps (*Aganaspis alujai* and *Diachasmimorpha martinalujai*) in his honor. The latter two, in recognition of his work as a promoter of the Biological Control of fruit flies.

He served as chairman of the Working Group on Fruit Flies (> 400 members) of the International Organization of Biological Control (1994-1998), was elected president of the Southeast Section II of the Mexican Academy of Sciences (2001-2003) and of the National Phytosanitary Advisory Council (2000 - 2007). He participates in various editorial committees, having served as Associate Editor (2000 - 2018) of the prestigious specialized journal Biological Control (IF 2.6), and as a member of the Editorial Board (2018 - to date) of the Journal of Insect Behavior (IF 0.9).

One of the main contributions to the country and the world of Dr. Aluja, is represented by a research directed by him and published in the Journal of Economic Entomology in 2004, which served as the scientific support in the complex negotiations between the Mexican and US governments aimed at fully opening the US market to Hass avocados produced in Michoacán that had remained totally closed during 80 years. Thanks to this research, an economic spillover of more than 12,500 million dollars has been generated plus the creation of more than 50,000 direct and indirect jobs between 2004 and 2019 in both Mexico and the United States. In addition to the above, the methodology developed by Dr. Aluja and his colleagues, led him to be invited to write his second article in the prestigious Annual Review of Entomology (2008) in which, together with his colleague Dr. Robert Mangan, they proposed a new conceptual framework for the determination of the status as a fruit fly host of any fruit or vegetable worldwide. This methodology is already used in various countries to untangle trade disputes and represents the basis of an International Plant Protection Convention (IPPC - FAO) Standard currently applied in all UN member countries. The case was postulated by CONACyT as one of the clearest examples of the usefulness of science for the economic and social development of the country.

In addition to the above, Dr. Aluja founded the Department of Methods Development at the Mediterranean Fly Program in Metapa de Domínguez, Chiapas associated with the world's largest sterile insect production plant. Since the foundation of this department (currently sub-directorate) in 1983, various technological developments have matured (e.g., improvements to fruit fly mass-rearing methods, trapping devices, fruit fly biological control) that are used in Mexico and in various other countries. He created, along with his colleague, Dr. Pablo Liedo Fernández, the conceptual basis for the National Campaign against Fruit Flies that remains in force 35 years after being originally designed/implemented. He also directed the Emergency Campaign Against Citrus Bacteriosis (1983), avoiding a quarantine that could have caused millions in losses to the Mexican citrus export industry.

Dr. Aluja has also developed various low-cost “Fruit Fly Biorational Management Systems” for resource-poor rural farmers/peasants. Particularly a system of “trap crops” for the control of the Papaya Fly, and the use of baits for zero cost traps (dilutions of human urine and sugarcane). From the perspective of Technology and Innovation, Dr. Aluja, in collaboration with one of his former PhD

students and Swiss colleagues, patented a technological development (synthetic host marking pheromone) that is in its last phase of testing (FINNOVA Project), designed to support organic mango and citrus growers.

In his role as General Director of INECOL, he was a tireless promoter of the construction of new facilities for science, technology and innovation, successfully lobbying a historical support from the Mexican Federal Congress through two "Expenditure Decrees" assigned to INECOL in 2011/2012 for a total amount of 170 million Mexican pesos (ca. nine million USD), which, in addition to additional support from CONACyT, allowed the construction and equipping of the 17,000 m<sup>2</sup> BioMimic<sup>®</sup> Scientific and Technological Cluster where 50% of the Public Research Centers coordinated by the Mexican Science and Technology Council - CONACyT (INECOL, CIMAV, CIATEJ, CICESE, IPICYT, CIAD, CICY, CIQA, CIDESI, CIDE, CIBNOR, CIATEC, CIO) and the National Laboratory of Genomics for Biodiversity (LANGEBIO), currently collaborate intensively developing innovative research lines in the fields of agro-nanotechnology and environmental nanotechnology, chemical ecology, natural product chemistry, genomics/transcriptomics, proteomics, environmental microbiology, biorational pest, disease and vector management, among others. The final investment exceeded 400 million Mexican pesos including the cost of state-of-the-art equipment (ca. 21.5 million USD). Dr. Aluja also built facilities for the Recruitment Center for New Talents for Science and Technology (children and young kids between eight and 17 years), called "Nobel Prize Seedbed", one of the tasks to which Dr. Aluja still dedicates much time and effort. The BioMimic<sup>®</sup> Cluster represents a new collaboration paradigm in Mexico between national and foreign institutions, covers a huge gap in the area of scientific and technological infrastructure focused on innovation in southeastern Mexico, and has created over 25 new research positions (scientists and technicians recruited worldwide), in addition to attracting talented postdocs and graduate students.

Finally, Dr. Aluja is a passionate promoter of the conservation of natural resources and as such created a Federal Protected Natural Area in the modality of "Private Conservation Area" on land he bought in the early nineties as a coffee plantation with heavy agrochemical use, that was transformed into a highly biodiverse forest. He was also an active promoter of the first municipal program in Mexico of forest conservation to generate water ("natural water factory") in the Municipality of Coatepec, Veracruz Mexico that has been replicated in many other municipalities throughout the country, and is part of the public policies of the Federal Ministry of the Environment (SEMARNAT). The latter, in his role as Founding President of the NGO "Consejo Coatepecano por un Ambiente Sano – Coatepec Council for a Healthy Environment".

## CURRICULAR SUMMARY IN NUMBERS

Highest Academic Degree:	Ph.D.	
Research Groups formed:	3	
Books:	1	}
Edited books:	4	
Articles in Indexed Journals in the Web of Science™ (JCR® Thomson Reuters):	192	
Scientific Notes / Short Communications in indexed JCR® Thomson Reuters Journals:	6	
Articles in <b>Non-Indexed</b> International and Foreign Journals	8	
Articles in Refereed Mexican Journals:	9	
Chapters in International (15) and Mexican (4) Books:	19	
Outreach Articles:	11	
Primary citations to publications ( <b>excluding</b> self-citations, secondary citations, and theses):		
Indexed Journals in the Web of Science™ (JCR® Thomson Reuters)	4763	}
Journals NOT Indexed in the Web of Science™ (JCR® Thomson Reuters)	450	
Books	85	
Book chapters	407	
Patents:	3	
Courses taught:		
- Master / Doctorate (five as associate professor):	30	
Theses directed		
- Bachelor's degree:	31	
In process:	3	
- Master's degree:	5	
In process:	1	
- Doctorate degree:	8	
Financed Research Projects:		
- International:	20	
- National:	41	
- Binational:	3	
Invited Magistral Conferences:		
- International:	25	
- Foreign:	39	
- México:	46	
Awards (9) and Professional Distinctions (6):	15	
SNI Level (Assessed in Area II [Biology & Chemistry]):	III	

# CURRICULUM VITAE *in extenso*

## 1. PERSONAL INFORMATION

Name: Martín Ramón Aluja Schuneman Hofer  
Place and date of birth: Mexico, D.F. November 8, 1957  
Nationality: Mexican  
Private address: Cinco de Mayo 65, Col. Centro, 91500 Coatepec, Veracruz  
Email: [anastrepha.sylvicola@prodigy.net.mx](mailto:anastrepha.sylvicola@prodigy.net.mx);

## 2. EMPLOYMENT INFORMATION

Current employer: Instituto de Ecología, A.C. - INECOL  
No. of employee: 203  
Tabular level: Senior Scientist "E"  
Years affiliated to INECOL: 30.9 years  
Department: Biorational Pest and Vector Management Network

## 3. PROFESSIONAL TRAINING

### 3.1. BACHELOR'S DEGREE

Agronomy in area of Parasitology  
Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM), 1977-1979; -1980-1981 (Honorable Mention). Cornell University, USA 1979-1980 (Exchange Student).  
Title of the Thesis: Study on Behavior and Possible Application as a Biological Control Agent for the Fire Ant, *Solenopsis geminata* (in Spanish).

Advisors: Dr. Dieter Enkerlin Schallenmüller  
Dr. William Brown Jr.

### 3.2. DOCTORATE DEGREE

Ph.D. in Entomology  
University of Massachusetts  
1984-1990  
Title of the Dissertation: Interaction of Visual and Chemical Stimuli during the Host Finding Process of *Rhagoletis pomonella* (in English).

Advisor: Dr. Ronald Prokopy

## 4. NATIONAL SYSTEM OF RESEARCHERS (Sistema Nacional de Investigadores – SNI)

Level III (highest level)  
Area II (Biology and Chemistry)  
2019-2028

## 5. LANGUAGES

German (writes, reads and speaks fluently)  
English (writes, reads and speaks fluently)  
Spanish (writes, reads and speaks fluently)

## 6. SCHOLARSHIPS OBTAINED FOR PROFESSIONAL TRAINING

1. Scholarship from the International Atomic Energy Agency for a two-year training program at the University of Massachusetts. From January 1, 1984 to January 1, 1986. USD \$ 18,500.
2. Scholarship supplement from the National Science and Technology Council (CONACYT). From September 1, 1986 to December 31, 1987. USD \$ 5,859.
3. Scholarship from the National Council of Science and Technology (CONACYT) within the Sabbatical Year Program in Foreign Institutions 1999 (Ref. 990243) to partially fund Sabbatical Year at the U.S. Center for Medical, Agricultural and Veterinary Entomology Department of Agriculture - Agricultural Research Service. Gainesville, Florida, USA. From April 1, 2000 to March 31, 2001. USD \$ 17,000.
4. Scholarship from the National Council of Science and Technology (CONACYT) within the Program of Postdoctoral and Sabbatical Stays Abroad for the Consolidation of Research Groups 2008 (Ref. 79449) to partially fund Sabbatical Year at the Forschungsanstalt Agroscope Changins-Wädenswil ACW, Wädenswil, Switzerland. From August 1, 2008 to July 31, 2009. USD \$ 26,000.

## 7. PROFESSIONAL EXPERIENCE

1. Head of the Fruit Fly Research Department, Mediterranean Fly Program, General Directorate of Plant Health, Ministry of Agriculture and Hydraulic Resources, Mexico. January to July, 1982.
2. National Coordinator, Emerging Campaign against Citrus Bacteriosis, General Directorate of Plant Health, Ministry of Agriculture and Hydraulic Resources, Mexico. August to November, 1982.
3. Technical Coordinator, Mediterranean Fly Program and National Coordinator National Program for Integrated Management of Fruit Flies, General Directorate of Plant Health, Ministry of Agriculture and Hydraulic Resources, Mexico, in collaboration with the International Atomic Energy Agency. January to December 1983.
4. Full time Scientist, Instituto de Ecología, A.C. – INECOL - January 1990, to date.
5. Director General, Instituto de Ecología, A.C. – INECOL - January 2010 - May 2017. **NOTE:** while being Director General of INECOL I remained active in science. Therefore, my tenure as a scientist at INECOL reached 30 continuous years in January of 2020. The number of employees at INECOL, including temporary staff, fluctuates between 350 and 400, not including ca. 100 graduate students. INECOL has a central unit in Xalapa/Coatepec, Veracruz, México (Campus I, II, III), an external unit in Pátzcuaro, Michoacán, México and three research stations in the states of Durango (desert station in Mapimi and pine/oak forest in Michilía) and Veracruz (coastal station in La Mancha).

## 8. COURSES AND TRAINING WORKSHOPS

1. Course "Managing Yourself". Tapachula, Chiapas, Mexico. May 1982.
2. Training Course on the Use of the Sterile Insect Technique (TIE) for the Control of Fruit Flies in Latin America. Tapachula, Chiapas, Mexico. September 1982.
3. Seminar / Shelter "Sustainable Solutions to the Problem of Deforestation in Central America and Mexico". Coolidge Retreat Center. Ipswich, Massachusetts, USA. October 30 to November 1, 1987.
4. International Workshop "Patent Application Drafting in the Biotechnology Area". Mexican Institute of Industrial Property, World Intellectual Property Organization, and the European Patent Office. June 3 - 6, 1997.
5. Innovation and Socialization Workshop. 4 hours. Institute of Ecology A.C., Xalapa, Veracruz. April 27, 2011.
6. Course "Effective Negotiation and Conflict Management", Talent and Innovation Business S.C., Institute of Ecology A.C., Xalapa, Veracruz. August 20, 2013.

## 9. RESEARCH EXPERIENCE

1. Research Assistant, Arbor Acres Farm (Poultry Company), Maine, USA. Various studies on poultry production. Summer of 1972
2. Research Assistant, Wild Animal Disease Center (WADC), University of Colorado, Fort Collins, Colorado, USA under the direction of Dr. C.P. Hibler, WADC director. Study on diseases of deer. 1976 summer.
3. Research Assistant, General Directorate of Plant Health, Ministry of Agriculture and Hydraulic Resources, Tapachula, Chiapas under the direction of Dr. L.O. Tejada. Study on wild host plants of the Mediterranean Fly (*Ceratitis capitata*, Diptera: Tephritidae) in southeastern Mexico. Summer 1979.
4. Research Assistant, Department of Entomology, Institute of Technology and Higher Education of Monterrey, Monterrey, Mexico under the direction of Dr. Dieter Enkerlin. Study on the life cycle of the Grilleta (*Pterophyla beltrani*, Orthoptera: Tettigoniidae). Summer 1981.
5. Research Assistant, Smithsonian Tropical Research Institute (STRI), Island of Barro Colorado, Panama under the direction of Dr. David W. Roubik. Study on the foraging behavior of three local species of stingless bees (Hymenoptera: Apidae). September to September - December, 1981.
6. Researcher, Mediterranean Fly Program (Department of Research in Fruit Flies), General Directorate of Plant Health, Secretary of Agriculture and Hydraulic Resources. Various studies on the biology, ecology, behavior and integrated management of fruit flies (Diptera: Tephritidae). January, 1982 to December, 1983.



7. Research training trip to Greece, Israel (Israel Cohen Institute for Biological Control), Austria (International Atomic Energy Agency), Switzerland (Swiss Federal Research Station for Fruit Growing, Viticulture and Horticulture). November 1982
8. Research Assistant, University of Massachusetts, Amherst, Massachusetts, USA under the direction of Dr. R. Prokopy. Various studies on the ecology and behavior of the Apple Fly (*Rhagoletis pomonella*, Diptera: Tephritidae). January, 1984 to February, 1989.
9. Travel to Hawaii, USA to conduct research on the ecology of Mediterranean fruit fly behavior under the guidance of Dr. Ronald Prokopy. March 1987.
10. Postdoctoral Researcher, Swiss Federal Research Station for Fruit Growing, Viticulture and Horticulture, Wädenswil, Switzerland in collaboration with Dr. E. Boller. Behavior of the Cherry Fly (*Rhagoletis cerasi*, Diptera: Tephritidae) in response to host marking pheromones (natural and synthetic isomers). March, 1989 to September, 1989.
11. Research stay at the Insect Attractants, Basic Biology and Behavior Research Laboratory, United States Department of Agriculture (Gainesville, Florida) to work in collaboration with Dr. Patrick Greany on various research papers on the Application of Gibberellic Acid as an Alternative Method of Caribbean Fly Management. January and February 1991.
12. Research stay at the "Swiss Federal Research Station" (Wädenswil, Switzerland) to coordinate and participate (as a researcher) in a project on Chemical Ecology of *Anastrepha* (Diptera: Tephritidae) (in collaboration with Drs. Ernst F. Boller and Jacob Hurter) October, 1993 to March, 1994.
13. Research stay at the Insect Attractants, Basic Biology and Behavior Research Laboratory, United States Department of Agriculture (Gainesville, Florida) to work in collaboration with Dr. John Sivinski on various research papers on Fruit Fly Parasitoids. February 23 to March 12, 1995.
14. Sabbatical year at the U.S. Center for Medical, Agricultural and Veterinary Entomology Department of Agriculture - Agricultural Research Service. Gainesville, Florida, USA. April 1, 2000 to March 31, 2001.
15. Sabbatical year at the Experimental Station "Agroscope Station Changins Wädenswil" in Wädenswil, Switzerland. August 1, 2008 to August 1, 2009.
16. Research stay at the Department of Integrative Systems Biology at the University of Valencia with Dr. Andrés Moya Simarro in Valencia, Spain. April 17 - July 30, 2018. Received a "Distinguished Scientist" Fellowship.
17. Full Time Researcher. Institute of Ecology, A.C. Research Lines: I. Basic Research - Behavioral Ecology (Sexual, Food and Oviposition Behavior), Chemical Ecology, Population Ecology, Natural History and Basic Biology and Evolution of Fruit Flies Behavior (Diptera: Tephritidae) and their parasites (Hymenoptera). II. Applied Research - Development of Biorrational Mechanisms for Fruit Flies Management (Biological Control, Use of Oviposition Pheromones, Habitat Handling and Trap Crops). January **1990 - present.**

## 10. EXPERIENCE IN AGRICULTURAL EXTENSIONISM/OUTREACH

He has participated in more than 50 sessions of Agricultural Outreach with fruit growers throughout Mexico (talks, organization of workshops and field demonstrations).

## 11. REFEREED PUBLICATIONS

### 11.1. BOOKS

#### 11.1.1. Books as single author

1. Aluja, M. 1993. Integrated Fruit Fly Management. Editorial Trillas. 241 p. (in Spanish).

#### 11.1.2. Books as editor

1. Aluja, M. & P. Liedo (EDITORS). 1993. Fruit Flies: Biology and Management. Springer, New York. 492 p.
2. Aluja, M. & A. L. Norrbom (EDITORS). 2000. Fruit Flies (Tephritidae): Phylogeny and Evolution of Behavior. CRC Press, Boca Raton, Florida. 944 p.
3. Aluja, M. & A. Birke (EDITORS). 2003. The Role of Ethics in Scientific Research and Higher Education. Mexican Academy of Sciences, Mexico, D.F. 247 p. (in Spanish)

3.1 Second edition of the same book:

Aluja, M. & A. Birke (EDITORS). 2004. The Role of Ethics in Scientific Research and Higher Education. Fund of Economic Culture. Mexico DF. 366 p. (in Spanish)

4. Aluja, M., T. Leskey & Ch. Vincent (EDITORS). 2009. Biorational Tree-Fruit Pest Management. CAB International, Wallingford, UK. 295 pp.

### 11.2. CHAPTERS IN BOOKS

#### 11.2.1. National

1. Aluja, M., P. Montoya, J. Cancino, L. Guillén & R. Ramírez-Romero. 2008. Fruit Flies, *Anastrepha* spp. (Diptera: Tephritidae). In: Cases of Biological Control in Mexico (H. C. Arredondo-Bernal & L. A. Rodríguez-del-Bosque, eds.), Pp. 193-222 (Chapter 16). Editorial Mundiprensa, Mexico-Spain. (in Spanish)
2. Balvanera, P., H. Cotler, O. Aburto Oropeza, A. Aguilar Contreras, M. Aguilera Peña, M. Aluja, A. Andrade Cetto, I. Arroyo Quiroz, L. Ashworth, M. Astier, P. Ávila, D. Bitrán Bitrán, T. Camargo, J. Campo, B. Cárdenas González, A. Casas, F. Díaz-Fleischer, JD Etchevers, A. Ghillardí, E. González-Padilla, A. Guevara, E. Lazos, C. López, Sagástegui, R. López Sagástegui, J. Martínez, O. Masera, M. Mazari, A. Nadal, D. Pérez-Salicrup, R. Pérez-Gil Salcido, M. Quesada, J. Ramos-Elorduy, A. Robles González, H. Rodríguez, J. Rull, G. Susan, CH Vergara, S. Xolalpa Molina, L. Zambrano, A. Zarco, A. Andrade Cetto, M. Mazzari & J. Campo. 2009. Status and

trends of ecosystem services. In: Capital Natural de México, vol. II: Conservation Status and Trends in Change (Sarukhán, J., R. Dirzo, R. González & I. J. March), pp. 185-245. Conabio, Mexico. (in Spanish).

3. Aluja, M., Altúzar-Molina, A.R., Birke, A., Guillén, L., Lasa, R., Pascacio-Villafán, C. 2016. Chemical Ecology of Fruit Flies (Diptera: Tephritidae). Chemical Ecology and Allelopathy: Advances and Perspectives. Anaya, A.L., Espinosa-García, F.J., Reigosa-Roger, M.J. Coordinators Institute of Ecology, National Autonomous University of Mexico. Plaza and Valdés Editores. Mexico City. pp. 471-529. ISBN (2016): 978-607-402-912-3. **In press.** (in Spanish)
4. Aluja, M., D. Desgarnes-Valido, M. Vázquez-Rosas-Landa, D. Barrón-Pastor, C. Pascacio-Villafán, A. Birke, A. Altúzar-Molina, V. Piedra, E. Enciso, I. León, C. Pérez-Martínez, L. Guillén. 2020. El futuro del control biológico en México. En: Hugo C. Arredondo Bernal, Fernando Tamayo Mejía, Luis A. Rodríguez del Bosque (Eds.) Fundamento y práctica del Control Biológico de plagas y enfermedades. Biblioteca Básica de Agricultura, Colegio de Postgraduados, México. pp. 631-670. ISBN: 978-607-715-398-6. In press. (in Spanish)

#### 11.2.2. International

1. Aluja, M, J. Hendrichs & M. Cabrera. 1983. Behavior and interactions between *Anastrepha ludens* and *A. obliqua* on a field caged mango tree. I. Lekking behavior and male territoriality. In: *Fruit Flies of Economic Importance* (R. Cavalloro ed.) pp. 122-133. A. A. Balkema, Rotterdam.
2. Aluja, M., H. Celedonio-Hurtado, P. Liedo & J. Guillen. 1986. Some results of general interest for the control of *Anastrepha* spp. (Diptera: Tephritidae). In: *Fruit Flies of Economic Importance 84* (R. Cavalloro ed.) pp. 209-216. A. A. Balkema, Rotterdam.
3. Aluja, M. R. & P. F. Liedo. 1986. Perspectives on future integrated management of fruit flies in Mexico. In: NATO ASI Series, Vol. G11, *Pest Control: Operations and Systems Analysis in Fruit Fly Management* (M. Mangel, J. R. Carey & R. E. Plant, eds.), pp. 9-42. Springer-Verlag, Berlin.
4. Prokopy, R. J., M. Aluja & T. A. Green. 1987. Dynamics of host odor and visual stimulus interaction in host finding behavior of apple maggot flies. In: *Insects and Plants* (V. Labeyrie, G. Fabres & D. Lachaise eds.) pp. 161-166. W. Junk Publishers, Dordrecht, The Netherlands.
5. Aluja, M. 1993. The study of movement in tephritid flies: Review of concepts and recent advances. In: *Fruit Flies: Biology and Management* (M. Aluja & P. Liedo, eds.), pp. 105-113. Springer-Verlag, New York, Inc.
6. Greany, P. D., R. E. McDonald, W. J. Schroeder, P. E. Shaw, M. Aluja & A. Malavasi. 1994. Use of gibberellic acid to reduce citrus fruit susceptibility to fruit flies. In: *Bioregulators for Crop Protection and Pest Control* (P.A. Hedin, ed.), pp. 39-48. American Chemical Society (ACS Symposium Series No. 557), Washington, USA.

7. Aluja, M. 1996. Future trends in fruit fly management. In: *Economic Fruit Fly Pests: A World Assessment of their Biology and Management* (B.A. McPherson & G.J. Steck, eds.), pp. 309-320. St. Lucie Press, DelRay Beach, Florida, USA.
8. Díaz-Fleischer, F. & M. Aluja. 2000. Behavior of tephritid flies: a historical perspective. In: *Fruit Flies (Tephritidae): Phylogeny and Evolution of Behavior* (M. Aluja & A. Norrbom, eds.), pp. 39-69 (Capítulo 3). CRC Press, Boca Raton, Florida, USA.
9. Aluja, M., J. Piñero, I. Jácome, F. Díaz-Fleischer & J. Sivinski. 2000. Behavior of flies in the genus *Anastrepha* (Trypetinae: Toxotrypanini). In: *Fruit Flies (Tephritidae): Phylogeny and Evolution of Behavior* (M. Aluja & A. Norrbom, eds.), pp. 375-406 (Capítulo 15). CRC Press, Boca Raton, Florida, USA.
10. Sivinski, J., M. Aluja, G. Dodson, A. Freidberg, D. Headrick, K. Kaneshiro & P. Landolt. 2000. Topics in the evolution of sexual behavior in the tephritidae. In: *Fruit Flies (Tephritidae): Phylogeny and Evolution of Behavior* (M. Aluja & A. Norrbom, eds.), pp. 751-792 (Capítulo 28). CRC Press, Boca Raton, Florida, USA.
11. Díaz-Fleischer, F., D. R. Papaj, R. J. Prokopy, A. L. Norrbom & M. Aluja. 2000. Evolution of fruit fly oviposition behavior. In: *Fruit Flies (Tephritidae): Phylogeny and Evolution of Behavior* (M. Aluja & A. Norrbom, eds.), pp. 811-841 (Capítulo 30). CRC Press, Boca Raton, Florida, USA.
12. Peña, J. E., M. Aluja & M. Wysoki. 2009. Pests. In: *The Mango: Botany, Production and Uses* (R.E Litz, ed.), pp. 317-366. CAB International, Wallingford, UK.
13. Aluja, M. & J. Rull. 2009. Managing pestiferous fruit flies (Diptera: Tephritidae) through environmental manipulation. In: *Biorational Tree Fruit Pest Management* (Aluja, M., T. Leskey & C. Vincent, eds.), (Capítulo 7), pp. 171-213. CAB International, Wallingford, UK.
14. Peña, J. E., M.S. Hoddle, M. Aluja, E. Palevsky, R. Ripa & M.W. Wysoki. 2013. Insects and Mites Pests. In: *The Avocado: Botany, Production and Uses* (B. Schaffer, B.N. Wolstenholme & A.W. Whiley, eds.), (Capítulo 14), pp. 423-488. CAB International, Wallingford, UK.
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163. Guillén, L., R. Adaime, A. Birke, O. Velázquez, G. Angeles, F. Ortega, E. Ruiz & M. Aluja. 2017. Effect of resin ducts and sap content on infestation and development of immature stages of *Anastrepha obliqua* and *Anastrepha ludens* (Diptera: Tephritidae) in four mango (Sapindales: Anacardiaceae) cultivars. **Journal of Economic Entomology** **110**: 719-730. IF = 1.609/(2015)
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165. Tadeo E., E- Muñiz, J. Rull, Yee W.L., M. Aluja & R. Lasa. 2017. Development of a low-cost and effective trapping device for apple maggot fly (Diptera: Tephritidae) monitoring and control in mexican commercial hawthorn groves". **Journal of Economic Entomology** **110**: 1658-1667. IF = 1.824/(2015)
166. Rull, J., Tadeo E., Lasa R. & Aluja M. 2018. The effect of winter length on duration of dormancy and survival of specialized herbivorous *Rhagoletis* fruit flies from high elevation environments with acyclic climatic variability. **Bulletin of Entomological Research** **108**: 461-470. IF = 1.758/(2015)
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- plants with different fruiting phenology. **Neotropical Entomology 48: 757-763. FI = 0.886/(2017)**
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181. Birke, A., S. López-Ramírez, R. Jiménez-Mendoza, E. Acosta, R. Ortega, A. Edmunds & M. Aluja. 2019. Host marking pheromone and GF120TM applied in a push-pull scheme reduce grapefruit infestation by *Anastrepha ludens* in field-cage studies. **Journal of Pest Science 93: 507-518. FI = 5.133/(2019)**
182. Doellman M.M., H. Schuler, G. Saint Jean, G.R. Hood, S.P. Egan, T.H.Q. Powel, M.M. Glover, D.J. Bruzese, J.J. Smith, W.L. Yee, R.B. Goughnour, J. Rull, M. Aluja & J. L. Feder. 2019. Geographic and ecological dimensions of host plant associated genetic differentiation and speciation in the *Rhagoletis cingulata* (Diptera: Tephritidae) sibling species group. **Insects 10: 1-19. FI = 2.139/(2019)**
183. Aluja M., L. Guillén, A. Castro, M.L. Cárdenas, M. Hurtado, O. Durán & E. Arévalo-Peñaranda. 2019. *Physalis peruviana* L. (Solanaceae) is not a host of *Ceratitis capitata* (Diptera: Tephritidae): Evidence from multi-year field and laboratory studies in Colombia. **Insects 10, 434. FI = 2.139/(2018)**
184. Rull, J., R. Lasa & M. Aluja. 2019. The effect of seasonal humidity on survival and duration of dormancy on diverging Mexican *Rhagoletis pomonella* (Diptera: Tephritidae) populations inhabiting different environments. **Environmental Entomology 48: 1121-1128. FI = 1.45/(2018)**
185. Pascacio-Villafán, C., L. Guillén & M. Aluja. 2020. Agar and carrageenan as cost-effective gelling agents in yeast-reduced artificial diets for mass-rearing fruit flies and their parasitoids. **Insects 11, 131. FI = 2.139/(2019).**
186. Aluja, M., C. Pascacio-Villafán, A. Altúzar-Molina, J. L. Monribot-Villanueva, J. A. Guerrero-Analco, E. Enciso, R. Ortega, E. Acosta & L. Guillén. 2020. Insights into the Interaction between the monophagous tephritid fly *Anastrepha acris* and its highly toxic host *Hippomane mancinella* (Euphorbiaceae). **Journal of Chemical Ecology 46: 430-441. FI = 2.45/(2019).**



187. Aluja, M., G. Cabagne, A. Altúzar-Molina, C. Pascacio-Villafán, E. Enciso & L. Guillén. 2020. Host plant and antibiotic effects on scent bouquet composition of *Anastrepha ludens* and *Anastrepha obliqua* calling males, two polyphagous tephritid pests. **Insects 11, 309. FI = 2.22/(2019)**
188. Ruiz-May, E., A. Altúzar-Molina, J.M. Elizalde-Contreras, J.A. Santos, J. Monribot-Villanueva, L. Guillén, M. Vázquez-Rosas-Landa, E. Ibarra-Laclette, M. Ramírez-Vázquez, R. Ortega & M. Aluja. 2020. A first glimpse of the mexican fruit fly *Anastrepha ludens* (Diptera: Tephritidae) antenna morphology and proteome in response to a proteinaceous attractant. **International Journal of Molecular Sciences 21, 8086. FI = 4.556/(2019)**
189. Doellman M.M., G. Saint Jean, S.P. Egan, T.H. Powell, G.R. Hood, H. Schuler, D.J. Bruzzese, M.M. Glover, J.J. Smith, W.L. Yee, R. Goughnour, J. Rull, M. Aluja & J.L. Feder. 2020. Evidence for spatial clines and mixed geographic modes of speciation for North American cherry-infesting *Rhagoletis* (Diptera: Tephritidae) flies. **Ecology and Evolution 10: 12727-12744. FI = 2.39/(2019)**
190. Williams, T., G. Mercado & M. Aluja. 2020. Can spinosad be effective for the integrated management of *Anastrepha ludens* (Tephritidae) in soil and fallen fruit, and be compatible with the parasitoid *Diachasmimorpha longicaudata* (Braconidae)? **Phytoparasitica 49: 73-82. FI = 1.137/(2019)**
191. Limon T., A. Birke, J.L. Monribot-Villanueva, J.A. Guerrero-Analco, A. Altúzar-Molina, G. Carrión, F.M. Goycoolea, B.M. Moerschbacher & M. Aluja. 2020. Chitosan coatings reduce fruit fly (*Anastrepha obliqua*) infestation and development of the fungus *Colletotrichum gloeosporioides* in Manila mangoes. **Journal of the Science of Food and Agriculture 101: 2756-2766. FI = 2.614/(2019)**
192. Pascacio-Villafán, C., L. Quintero-Fong, L. Guillén, J. P. Rivera-Ciprian, R. Aguilar & M. Aluja. 2021. Pupation substrate type and volume affect pupation, quality parameters and production costs of a reproductive colony of *Ceratitis capitata* (Diptera: Tephritidae) VIENNA 8 genetic sexing strain. **Insects 12, 337. FI = 2.220/(2019)**

### 11.3.2. Articles in Mexican journals included in the index of Mexican research journals of CONACYT

1. Baker, P. S., M. Aluja & P. E. Howse. 1992. Trap improvement for the Mediterranean fruit fly sterile release program in Chiapas, Mexico. **Folia Entomológica Mexicana 85: 107-118.**
2. Hernández-Ortíz, V. & M. Aluja. 1993. Listado de especies del género neotropical *Anastrepha* (Diptera: Tephritidae) con notas sobre su distribución y plantas hospederas. **Folia Entomológica Mexicana 88: 89-105.**

3. Enkerlin H., W., J. Reyes F., A. Bernabé A., J. Sánchez P., J. Toledo A. & M. Aluja S. 1993. El aguacate "Hass" como hospedante de tres especies de *Anastrepha* (Diptera: Tephritidae), en condiciones forzadas y naturales. **Agrociencia (Serie Protección Vegetal) 4: 329-348. FI = 0.383/(2013).**
4. Aluja, M., A. Jiménez, M. Camino, L. Aldana, V. Castrejón & M. E. Valdés. 1994. Determinación de la susceptibilidad de tres variedades de papaya (*Carica papaya*) al ataque de *Toxotrypana curvicauda* (Diptera: Tephritidae). **Folia Entomológica Mexicana 90: 33-42.**
5. Piñero, J., M. Aluja, M. Equihua & M. M. Ojeda. 2002. Feeding history, age and sex influence the response of four economically important *Anastrepha* species (Diptera: Tephritidae) to human urine and hydrolyzed protein. **Folia Entomológica Mexicana 41: 283-298.**
6. Díaz-Fleischer, F., M. Aluja, J. Hurter, W. Enkerlin & E. Boller. 2004. Propiedades físico-químicas de la feromona marcadora de hospedero (FMH) de tres especies de moscas de la fruta del género *Anastrepha* (Diptera: Tephritidae). **Folia Entomológica Mexicana 43: 43-53.**
7. Pecina Quintero, V., J. I. López Arroyo, J. Loera Gallardo, J. Rull, E. Rosales Robles, E. Cortez Mondaca, S. Hernández Delgado, N. Mayek Perez & M. Aluja Schuneman. 2009. Genetic differences between *Anastrepha ludens* (Loew) populations stemming from a native and an exotic host in NE Mexico – Diferencias genéticas entre poblaciones de *Anastrepha ludens* (Loew) de hospederos nativos y exóticos en el NE México. **Agricultura Técnica en México 35: 320-328.**
8. Aluja, M., E. Bigurra, A. Birke, P. Greany & R. McDonald. 2011. Delaying senescence of "ruby red" grapefruit and "valencia" oranges by gibberellic acid applications. **Revista Mexicana de Ciencias Agrícolas 2: 41-55.**

### 11.3.3. Refereed publications without impact factor

1. Aluja, M., M. Cabrera, J. Guillén, H. Celedonio & F. Ayora. 1989. Behaviour of *Anastrepha ludens*, *A. obliqua* and *A. serpentina* (Diptera: Tephritidae) on a wild mango tree (*Mangifera indica*) harbouring three McPhail traps. **Insect Science and its Application 10: 309-318.**
2. Hendrichs, J., J. Reyes & M. Aluja. 1989. Behaviour of female and male Mediterranean fruit flies, *Ceratitis capitata* in and around Jackson traps placed on fruiting host trees. **Insect Science and its Application 10: 285-294.**
3. Prokopy, R. J., M. Aluja & T. T. Y. Wong. 1989. Foraging behavior of laboratory cultured Mediterranean fruit flies on field-caged host trees. **Proceedings of the Hawaiian Entomological Society 29: 103-109.**
4. Prokopy, R. J., M. Aluja, D. R. Papaj, B. D. Roitberg & T. T. Y. Wong. 1989. Influence of previous experience with host plant foliage on behavior of Mediterranean fruit fly females. **Proceedings of the Hawaiian Entomological Society 29: 97-101.**

5. Aluja, M. 1999. Fruit fly (Diptera: Tephritidae) research in Latin America: myths, realities and dreams. **Anais da Sociedade Entomologica do Brasil (actualmente Neotropical Entomology) 28: 565-594. FI = 0.842/(2013).**
6. Ovruski, S., M. Aluja, J. Sivinski & R. Wharton. 2000. Hymenopteran parasitoids on fruit-infesting Tephritidae (Diptera) in Latin America and the southern United States: diversity, distribution, taxonomic status and their use in fruit fly biological control. **Integrated Pest Management Reviews 5: 81-107.**
7. González, J.M., M. Aluja, A. Cusumano, S. Colazza & S.B. Vinson. 2013. Evaluating the quality of the Mexican fruit-fly, *Anastrepha ludens*, as host for the parasitoid *Melittobia digitata*. **Entomologia 1: e3.**
8. Glover, M.M., S.P. Egan, G. Hood, J. Rull, M. Aluja & J.L Feder. 2019. Phylogeography of walnut-infesting *Rhagoletis suavis* (Diptera: Tephritidae) flies. **Insect Systematics and Diversity 2: 1-9.**

#### **11.3.4. Non-refereed outreach and popular science articles in journals and newspapers**

1. Aluja, M. 1981. The essence of things. "Panorama" newspaper. Monterrey, Nuevo Leon, Mexico. (in Spanish).
2. Aluja, M. 1983. Soconusco agriculture in danger! "El Sol del Soconusco" newspaper. Tapachula, Chiapas, Mexico. (In Spanish).
3. Aluja, M., R. Macías & P. Bosh. 1999. Why should the bachelor thesis NOT disappear. *Science* 50: 45-49. (in Spanish).
4. Williams, T. & M. Aluja. 2010. Contrasting views on Mexico's National System of Researchers. *Interciencia* 35: 157-158. FI = 0.343 / (2013).
5. Samietz, J., T. Schwizer, H. Höhn, M. Aluja & L. Guillén. 2011. Schwarze Nüsse nicht wegen Walnuss-fruchtfliegen - Sortenwahl wichtig. *Schweizer Zeitschrift für Obst- und Weinbau* 16: 10-14.
6. Aluja M. 2015. BioMimic® Scientific and Technological Cluster: a new model of doing science in Mexico. *The Innovator* 16: 38-4. (in Spanish).
7. Aluja, M., A. Moya, L. Guillen, M. Ochoa, C. Pascacio-Villafán, A. Birke, A. Altúzar-Molina, A. Lamelas, V. Pérez-Brocal, A. Latorre. 2019. The revindication of bacteria. *Science and Development* 299, <http://www.cyd.conacyt.gob.mx/?p=articulo&id=440>. (in Spanish).
8. Aluja, M. 2020. The BioMimic® Scientific and Technological Cluster at the Instituto de Ecología, A.C. – INECOL in Coatepec/Xalapa, Veracruz, México. **Fruit Fly News 40: 1-4.**  
**[https://nucleus.iaea.org/sites/naipc/twd/Newsletters/FFN40\\_APR2020.pdf](https://nucleus.iaea.org/sites/naipc/twd/Newsletters/FFN40_APR2020.pdf)**

9. Aluja M. 2020. Trusts and the need to act wisely in times of crisis. **Nexus**. <https://educacion.nexos.com.mx/?p=2251>. (in Spanish).
10. Birke A. & M. Aluja. 2020. Do insects have personality? **Communication Portal of Veracruz**. <https://elportal.mx/tienen-personalidad-los-insectos/>. (in Spanish).
9. Pascacio-Villafán C. & M. Aluja. 2020. The interesting and productive sex life of a Male Sterile Fruit Fly. **The chronic**. <https://www.cronica.com.mx/notas-la-interesante-y-productiva-vida-sexual-de-una-mosca-de-la-fruta-macho-esteril-1172166-2020>. (in Spanish).

#### 11.4 SCIENTIFIC NOTES in Journals with Impact Factor in the Journal Citation Reports (JCR Thomson Reuters®)

1. Piedra, E., A. Zuñiga & M. Aluja. 1993. New host plant and parasitoid record in Mexico for *Anastrepha alveata* Stone (Diptera: Tephritidae). **Proceedings of the Entomological Society of Washington 95: 127. FI = 0.385/(2013)**.
2. Aluja, M. 1993. Unusual calling behavior of *Anastrepha robusta* flies (Diptera: Tephritidae) in nature. **Florida Entomologist 76: 391-395. FI = 1.271/(2013)**.
3. Menezes, E., J. Sivinski, T. Holler, M. Aluja, F. Jerónimo & E. Ramírez. 1998. Development of *Coptera haywardi* (Hymenoptera: Diapriidae) in irradiated and unirradiated pupae of the Caribbean fruit fly and the Mediterranean fruit fly (Diptera: Tephritidae). **Florida Entomologist 81: 567-569. FI = 1.271/(2013)**.
4. Aluja, M., E. Herrera, M. López & J. Sivinski. 2000. First host plant and parasitoid record for *Anastrepha spatulata* Stone (Diptera: Tephritidae). **Proceedings of the Entomological Society of Washington 102: 1072-1073. FI = 0.385/(2013)**.
5. Ovruski, S. M. & M. Aluja. 2002. Mating behavior of *Aganaspis pelleranoi* (Brethes) (Hymenoptera: Figitidae, Eucoilinae), a fruit fly (Diptera: Tephritidae) larval parasitoid. **Journal of Insect Behavior 15: 139-151. FI = 1.123/(2013)**.
6. Schliserman, P., S. Ovruski, C. Colin, A. Norrbom & M. Aluja. 2004. First report of *Juglans australis* (Juglandaceae) as a natural host plant for *Anastrepha schultzi* (Diptera: Tephritidae) with notes on probable parasitism by *Doryctobracon areolatus*, *D. brasiliensis*, *Opius bellus* (Braconidae) and *Aganaspis pelleranoi* (Figitidae). **Florida Entomologist 87: 597-599. FI = 1.271/(2013)**.

#### 11.5 TECHNICAL REPORTS

At least one technical report has been submitted for each funded project (see section 11 on funded projects).

### 11.5.1. MANUALS

1. Prácticas Agrícolas actualizadas y Manejo de Plagas y Enfermedades para Incrementar la producción de Mango Manila en Veracruz y Optimizar el manejo de los Huertos. Andrea Birke, Maribel Cantoral-Castro, Alma Altúzar- Molina, Jorge Peña, Yuncog Li, Thomas Davenport y Martín Aluja. Instituto de Ecología. Instituto de Ecología, A.C. – INECOL Clúster Científico y Tecnológico BioMimic® Red de Manejo Biorracional de Plagas y Vectores, octubre, 2019.
2. Manejo Ambientalmente Amigable de las Moscas de la Fruta (Diptera: Tephritidae) con énfasis en Mango y Cítricos. Martí Aluja, Larissa Guillén, Rodrigo Lasa, Andrea Birke, Carlos Pascacio-Villafán, Erick Enciso, Alma Altúzar-Molina, Emilio Acosta, Rafael Ortega, Jovita Martínez-Tlapa. Instituto de Ecología. Instituto de Ecología, A.C. – INECOL Clúster Científico y Tecnológico BioMimic® Red de Manejo Biorracional de Plagas y Vectores, octubre, 2019.

## 12. PROJECTS/GRANTS/EXTERNAL FUNDING

### 12.1. RESEARCH PROJECTS WITH EXTERNAL FINANCING

#### 12.1.1. As a responsible researcher

#### I. MEXICO

1. Financing of the Project "Basic Behavior of Fruit Flies of the Genus *Anastrepha* and *Toxotrypana* (Diptera: Tephritidae) in Mexico". CONACYT October, 1990 to October, 1991. **\$ 39,000.00.**
2. Financing of the Project "Ecoethology of Fruit Flies (Diptera: Tephritidae) in Native Vegetation and Surrounding Orchards (Parts I & II). Secretariat of Public Education (SEP). January, 1990 to December, 1991.

**2.1 \$ 91,500.00 (1990)**

**2.2 \$ 50,000.00 (1991)**

3. Financing of the Project "Application of Gibberellic Acid to Reduce the Susceptibility of Citrus Fruits to Damage Caused by Pathogens and Fruit Flies (Diptera: Tephritidae). Ricardo J. Zevada Research and Research Fund. October, 1991 to September, 1992. **\$ 15,000.00.**
4. Financing of the Project "Application of Gibberellic Acid to Reduce the Susceptibility of Citrus Fruits to Damage Caused by Pathogens and Fruit Flies (Diptera: Tephritidae). Abbott Laboratories de México, S.A. de C.V. August, 1992 to January, 1993.

**4.1 \$ 16,500.00 (1992)**

**4.2 \$ 9,450.00 (1993)**

5. Financing of the Projects "Basic Behavior of Fruit Flies of the *Anastrepha* Genus of Economic Importance in Mexico" and "Ecoethology and Ecology of Native Parasitoid Populations with Potential for Control of Fruit Flies in Disturbed Environments (Agroecosystems) and Little Disturbed Areas with Native Vegetation Surrounding Agroecosystems". SAGARPA - IICA (Inter-American Institute for Cooperation on Agriculture), SAGARPA - SENASICA - CONACOFI (National Phytosanitary Advisory Council) and SADER - SENASICA - CONACOFI. 1993 - to date

**5.1 \$ 101,200.00 (1993)**  
**5.2 \$ 177,000.00 (1994)**  
**5.3 \$ 187,000.00 (1995)**  
**5.4 \$ 207,000.00 (1996)**  
**5.5 \$ 257,000.00 (1997)**  
**5.6 \$ 1'500,000.00 (1998-2000)**  
**5.7 \$ 1,000,000.00 (2002)**  
**5.8 \$ 1'000,000.00 (2003)**  
**5.9 \$ 1,000,000.00 (2004)**  
**5.10 \$ 1'000,000.00 (2005)**  
**5.11 \$ 1,000,000.00 (2006)**  
**5.12 \$ 1'250,000.00 (2007)**  
**5.13 \$ 1'250,000.00 (2008)**  
**5.14 \$ 1'250,000.00 (2009)**  
**5.15 \$ 1'250,000.00 (2010)**  
**5.16 \$ 1'250,000.00 (2012)**  
**5.17 \$ 1'500,000.00 (2013)**  
**5.18 \$ 1'500,000.00 (2014)**  
**5.19 \$ 1'500,000.00 (2015)**  
**5.20 \$ 1'500,000.00 (2016)**  
**5.21 \$ 2'760,000.00 (2017)**  
**5.22 \$ 5'520,000.00 (2018)**  
**5.23 \$ 1'300,000.00 (2019)**  
**5.24 \$ 1'500,000.00 (2020)**

6. Financing of the Project "Factors that Regulate the Dynamics of the Sexual Behavior of Fruit Flies of the Genus *Anastrepha* (Diptera: Tephritidae) and its Application in Integrated Management Systems of this Pest". CONACYT January, 1996 to December, 1997. **\$ 457,411.00.**

7. Financing of the Project "Inventory and Identification of Reservoirs of Native Fruit Fly (Diptera: Tephritidae) Parasitoids in the State of Veracruz". CONABIO July, 1996 to July, 1997. **\$ 96,757.57.**

8. Financing of the Project "Native Enemies of Fruit Flies (Diptera: Tephritidae) in the State of Veracruz: Studies to Evaluate their Potential Use as Biological Control Agents". CONACYT-PHOSIGOLPH. January, 1997 to January, 1998. **\$ 379,997.00.**

9. Financing of the Project "Determination of the Status of Avocado, *Persea americana* cv. Hass as a Potential Host Plant for Fruit Flies (Diptera: Tephritidae) of the *Anastrepha* Genus (i.e., *A. ludens*, *A. obliqua*, *A. serpentina* and *A. striata*) at Different Altitudinal Levels and Harvest Periods in Michoacán, Mexico." APEAM 2002 - 2004.

**9.1 \$ 250,000.00 (2002)**

**9.2 \$ 350,000.00 (2003)**

**9.3 \$ 3'000,000.00 (2004)**

10. Financing of the Project "Step Number Three in Our Effort to Assemble the Puzzle on the Reproductive Biology of Fruit Flies and their Natural Enemies". CONACYT (Key 46846-Q). June, 2005 to December, 2007. **\$ 1,799,957.00.**

11. Financing of the Project "Oviposition Repellents as Alternative Products to the Use of Organophosphorus Agrochemicals Restricted by the Environmental Protection Agency (EPA) for Control of Fruit Flies of the *Anastrepha* Genus" - Sectorial Innovation Fund (FIINOVA), CONACYT-Secretariat of Economy. July, 2012 to December 2015. **\$ 3'500,000.00.**
10. Funding for the project "Multidisciplinary Studies Aimed at Better Understanding the Biology of Fruit Flies (Diptera: Tephritidae) of the *Anastrepha* Genus". Association of Producers and Packers Exporters of Avocado in Mexico (project No. 41010). April 2016 to April 2018. **\$ 3'000,000.00.**
11. Financing of the project "Comprehensive study of cultivated and wild fruits for the optimization of the Biorrational Management of Fruit Flies (Diptera: Tephritidae) and the strengthening of the fruit, food and pharmaceutical industries of Veracruz". CONACyT Mixed Fund - Government of the State of Veracruz de Ignacio de la Llave (Key VER-2017-01-292397). April 12, 2018 to October 15, 2019. **\$ 8'999,936.00.**
12. Financing for the Project "Elucidate the potential effect of climate change on the growing problem of altitude expansion and of hosts in agricultural pests" CONACYT Ciencia de Frontera (Key 848296). November 18, 2020 to November 18, 2023. **\$ 3,150,000.00.**

## II. FOREIGN

1. Support from the Exxon Foundation to carry out research at the Biological Station of the Island of Barro Colorado (Smithsonian Tropical Research Institute) for a period of 4 months (September 15 to December 15, 1981). **USD \$ 1,680.**
2. Financing of the Project "Management and Control of Fruit Flies through Habitat Management" (original in English). International Foundation for Science. July, 1990 to December, 1995.
  - 2.1 **\$ 85,400.00 Swedish Crowns (1990)**
  - 2.2 **USD \$ 3,000.00 (1995).**
3. Financing of the Project "Ecology of Natural Enemies of Fruit Flies in Southern Mexico. US Department of Agriculture (USDA-ARS). 1993 -. NOTE: Project submitted jointly with Dr. John Sivinski (USDA- ARS, Gainesville, Florida, USA).
  - 3.1 **\$ 36,665.48 (USD \$ 5,000.00) (1993)**
  - 3.2 **\$ 60,200.00 (USD \$ 8,600.00) (1995)**
  - 3.3 **\$ 154,710.99 (USD \$ 20,000.00) (1996)**
  - 3.4 **\$ 400,000.00 (USD \$ 40,000.00) (1998)**
  - 3.5 **\$ 67,244.78 (USD \$ 7,500.00) (2000)**
  - 3.6 **\$ 108,747.72 (USD \$ 12,000.00) (2001)**
  - 3.7 **\$ 150,733.44 (USD \$ 15,000.00) (2003)**
  - 3.8 **\$ 113,880.20 (USD \$ 10,000.00) (2004)**
  - 3.9 **\$ 106,994.20 (USD \$ 10,000.00) (2005)**
  - 3.10 **\$ 108,344.00 (USD \$ 10,000.00) (2006)**
  - 3.11 **\$ 104,042.00 (USD \$ 10,000.00) (2007)**
  - 3.12 **\$ 104,042.00 (USD \$ 10,000.00) (2008)**

### 3.13 \$ 112,425.00 (USD \$ 10,000.00) (2009)

4. Financing of the "Chemical Ecology of *Anastrepha*" Project. Sandoz Agro Ltd. August 1994. \$ 25,000.00 (**SFr \$ 10,000.00**). NOTE: Project submitted jointly with Dr. Ernst Boller (Swiss Federal Research Station, Wädenswil, Switzerland).
5. Funding for the Project "Application of Gibberellic Acid to Reduce the Susceptibility of Citrus Fruits to Damage Caused by Pathogens and Fruit Flies (Diptera: Tephritidae). Th. Goldschmidt A.G. January 1995. \$ 32,900 (**USD \$ 7,000.00**).
6. Financing for the "Establishment of a Biological Control Program for *Anastrepha obliqua* Fruit Fly through the *Doryctobracon areolatus* Parasitoid in St. Kitts, St. Christopher and Nevis". 2002. IICA (Inter-American Institute for Cooperation on Agriculture) \$ 40,515.07 (USD \$ 4,000.00) & USDA-ARS \$ 148,711.68 (**USD \$ 15,000.00**).
7. Financing for the "Establishment of a Biological Control Program for *Anastrepha obliqua* Fruit Fly through the *Doryctobracon areolatus* Parasitoid in the Dominican Republic". USDA-ARS. 2005. **USD \$ 36,000.00**.

### III. BINATIONAL

1. Financing of the "The Natural Enemies of *Rhagoletis* spp. (Diptera: Tephritidae) in Mexico with Emphasis on the Apple Maggot, *Rhagoletis pomonella*. Texas A&M University-CONACYT. 2004. **USD \$ 9,300.00**.
2. Financing of the Project "Bioecology of Three Neotropical Species of Hymenopteran Parasitoid with Potential for Biological Control of Fruit Flies in Mexico-Argentina". CONACYT-CONICET. 2006 - 2007. **\$ 91,300.00**.
3. Financing of the "Studies on the Biology of *Melittobia* Parasitoid Wasps in Mexico, a Possible Emerging Control of Mexican Fruit Flies and / or Mushroom Flies" project. Texas A&M University - CONACYT. **USD \$ 24,000.00**.

#### 12.1.2. As a collaborator

1. Financing of the Project "Ecology of Populations of Fruit Flies in Relation to Control" - Part I. CONACYT. October 1992. \$ 90,312.00. NOTE: Dr. Pablo Liedo (CIES, Tapachula, Chiapas) was the Principal Investigator and the total funding for the project was **\$ 190,960.00**.
2. Financing of the Project "Ecology of Populations of Fruit Flies in Relation to Control" - Part II. CONACYT February 1995. \$ 200,000.00. NOTE: Dr. Pablo Liedo (CIES, Tapachula, Chiapas) was the Principal Investigator and the total funding for the project was **\$ 400,000.00**.
3. Financing of the Project "Application of Gibberellic Acid to Reduce the Susceptibility of Citrus Fruits to Damage Caused by Pathogens and Fruit Flies (Diptera: Tephritidae). US Department of Agriculture (USDA-ARS). October 1992 to October, 1995 **USD \$ 90,000.00** NOTE: Dr. Patrick Greany (USDA-ARS Gainesville, Florida, USA) was the Principal Investigator and the total funding for the project was USD \$ 300,000.00.



4. Project "Generation of scientific-technological strategies with a multidisciplinary and inter-institutional approach to face the threat posed by ambrosial complexes in the agricultural and forestry sectors of Mexico". FORDECYT 2017. Financing \$ **100 million pesos**. Project Manager: Dr. Diana Sánchez Rangel.

#### **IV. AS GENERAL DIRECTOR OF THE INSTITUTE OF ECOLOGY, A.C. - INECOL**

During the period 2010 – 2017, in my role as General Director of the Instituto de Ecología, A.C. – INECOL, I led fundraising efforts that yielded ca. 35 million US dollars on top of the yearly operating budget of ca. 15 million US dollars. Part of the extra money was invested in renovations/maintenance of existing buildings/facilities, but most was invested in the construction/equipping of the 17,000 m<sup>2</sup> BioMimic<sup>®</sup> Scientific and Technological Cluster (in Coatepec, Veracruz, Mexico), and in building a welcome center, a business unit, new facilities in our Patzcuaro (Michoacán) Unit (including a 150% expansion of the herbarium), and in new facilities in Campy I & II in our central unit in Xalapa, Veracruz, Mexico. I mention "ca." as the exact amount in US dollars depends on the exchange rate which fluctuated a lot between 2010 and 2017. I was also able to negotiate increases in our operating budget in some of the seven years I led the institution, but unfortunately in 2016 all research centers coordinated by the National Science and Technology Council suffered a budget cut close to 20%.

### **13. TEACHING EXPERIENCE**

#### **13. 1. COURSES AS RESPONSIBLE PROFESSOR OR COORDINATOR**

1. Responsible Professor, graduate Course "Animal Behavior". Graduate School (Masters & Doctorates Programs), Instituto de Ecología, A.C., Xalapa, Veracruz, Mexico. September - October 1995, 1997, 1999, 2001 and 2003.
2. Field Instructor in the Course on "Fruit Pests and Diseases" of the Graduate College (Plant Health Institute). Topic: Integrated Management of the Mexican Fruit Fly. Veracruz, Veracruz. June 1997.

#### **13. 2. INVITED TEACHER/PROFESSOR**

1. Teaching Assistant, Entomology Department, Monterrey Institute of Technology and Higher Education (ITESM) - Monterrey Campus. Graduate Course in Insect Taxonomy. 1981.
2. Taught lessons on Cultural Pest Control and laboratory on Predator / Pest Interactions. Part of the Graduate Course on Integrated Pest Management, University of Massachusetts, Amherst, Massachusetts, USA. Fall, 1985 and fall, 1987 (in English).
3. Responsible Instructor, Scientific Writing Workshop. Area: Applied Sciences. Duration: 20 hours Autonomous University of Yucatán, Mérida, Yucatán. March 23-25, 2000.

4. Professor (together with Drs. John Sivinski & Howard Frank) of the Course / Seminar "Biodiversity and Biological Control". Spring semester, 1 hour per week. University of Florida - Department of Entomology & Nematology. January - March, 2001.
5. Guest Professor in Course "Introduction to Research": Research Ethics/Scientific Integrity, Writing Scientific Texts and Grants, Innovation. 30 hours, Instituto de Ecología, A.C., Xalapa, Veracruz, Mexico. 2005, 2006, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2018 and 2019. In 2020 the course will be taught between September 07 and 10<sup>th</sup>.
6. Guest Professor in the Workshop "Behavioral Biology". Assigned topic: Biological Control, 2.0 hours. Faculty of Sciences, UNAM. Tlaxcala of Xicohtécatl. October 22, 2012.
7. Guest Professor of the Course "Diploma in Senior Management of CPI 2016." Ethical issues, values, conflicts of interest ", 3.5 hours. Economic Research and Teaching Center, A.C. April 20, 2016.
8. Guest Professor of the Course "Diploma in Senior Management" of CPI 2016. How to stimulate innovative research? 3.5 hours Economic Research and Teaching Center, A.C. June 20, 2016.
9. Guest Professor of the Course "Diploma in Senior Management" of CPI 2016. How to stimulate teaching activity and cutting-edge research? 3.5 hours Economic Research and Teaching Center, A.C. October 17, 2016.
10. Guest Professor of the Course "Diploma in Senior Management of CPI 2016." Ethical issues, values, conflicts of interest, "3.5 hours. Economic Research and Teaching Center, A.C. November 30, 2016.
11. Guest Professor in Course "Ecology and Behavior of Populations of Fruit Flies" organized by the National Phytosanitary Consultative Council at the facilities of SENASICA, Mexico City. October 8-12, 2018 (40 hours).
12. Guest Professor - Intensive Course on Ethics and Scientific Integrity at the University of Valencia, Spain. April 2018 (20 hours).

## **14. TRAINING OF HUMAN RESOURCES**

### **14.1. THESES / DISSERTATIONS**

#### **14.1.1. Bachelor's degree**

Concluded:

1. Piedra R., Enrique & Alberto Zúñiga. 1992. "Ecology of Fruit Flies of the Genus *Anastrepha* (Diptera: Tephritidae) in Llano Grande and Monte Blanco, Veracruz". Universidad Veracruzana, Xalapa Campus.
2. Dávila, Ana Bel. 1995. "Study of Some Demographic Parameters of the Mexican Fruit Fly (*Anastrepha ludens* [Loew]) and its Relationship with Different Diets". Universidad Veracruzana, Xalapa Campus.

3. Birke Biewendt, Andrea B. 1995. "Oviposition Behavior of Mexican Fruit Fly *Anastrepha ludens* (Loew) and Use of Gibberelic Acid to Reduce Susceptibility of Grapefruit Citrus paradisi to the Attack of this Pest." Universidad Veracruzana, Xalapa Campus.
4. Jácome Álvarez, Ma. Isabel. 1995. "Feeding Behavior of *Anastrepha serpentina*, Zapote Fly (Wiedemann) (Diptera: Tephritidae)". Universidad Veracruzana, Xalapa Campus.
5. Piñero Ramírez, Jaime C. 1995. "Response of *Anastrepha ludens* (Loew), *A. obliqua* (MacQuart), *A. serpentina* (Wiedemann) and *A. striata* (Schiner) (Diptera: Tephritidae) to Various Volatile Substances". Universidad Veracruzana, Xalapa Campus.
6. Bigurra, Everardo. 1995. "Optimal Dosage of Gibberellic Acid to Extend the Harvest Period of Valencia Oranges in Martínez de la Torre, Veracruz". Universidad Veracruzana, Xalapa Campus.
7. Vázquez Vargas, Alejandro G. 1995. "Behavior of *Anastrepha ludens* (Loew), *A. serpentina* (Wiedemann), *A. striata* (Schiner) and *A. obliqua* (MacQuart) (Diptera: Tephritidae) in Response to Various Food Baits". Universidad Veracruzana, Xalapa Campus.
8. López Ortega, Maurilio. 1996. "Patterns of Parasitism in Fruit Flies of the Genus *Anastrepha* (Diptera: Tephritidae), in Native and Exotic Fruits". Universidad Veracruzana, Xalapa Campus.
9. Lozada Gutiérrez, Ma. Norma A. 1997. "Basic Behavior of *Rhagoletis turpiniae* Hernández (Diptera: Tephritidae) under Natural Conditions". Universidad Veracruzana, Xalapa Campus.
10. Sánchez Martínez, Anita. 1998. "Effect of the Diet and Size of Males of *Anastrepha ludens* (Loew) and *A. striata* (Schiner) (Diptera: Tephritidae) on their Sexual Competitiveness". Universidad Veracruzana, Xalapa Campus.
11. Lagunes Hernández, Gloria de los Ángeles. 1998. "Effect of the Social Context, Prior Diet, and the Presence of Artificial Host in the Development of the Ovaries of Two Species of *Anastrepha* (Diptera; Tephritidae) with Different Oviposition Strategies". Universidad Veracruzana, Xalapa Campus.
12. Trujillo Rodríguez, Zoila Guadalupe. 1998. "Effect of Diet, Adult Size, Host Presence and Fertile or Sterile Condition of Males on the Number of Mating and Refractory Period of *Anastrepha ludens* (Loew) and *Anastrepha obliqua* (MacQuart) (Diptera: Tephritidae)". Universidad Veracruzana, Xalapa Campus.
13. Córdova Suárez, Braulio H. 1999. "Effect of Parasitism Exercised by *Doryctobracon crawfordi* (Viereck), *Diachasmimorpha longicaudata* (Ashmead) (Hymenoptera: Braconidae) and *Aganaspis pelleranoi* (Bretes) (Hymenoptera: Eucolliidae) of Velocity and Pupa Speed of *Anastrepha ludens* (Loew) larvae (Diptera: Tephritidae)". Universidad Veracruzana, Xalapa Campus.
14. Gallegos Chan, Guadalupe de Jesús. 1999. "Optimal Age of Parasitism, Longevity, Fertility and Daily Oviposition Patterns of 6 Native and 2 Exotic Parasitoid Species of the *Anastrepha* (Schiner) Fruit Flies (Diptera: Tephritidae)". Universidad Veracruzana, Xalapa Campus.

15. Miguel Mejía, Clementina. 2001. "Sexual Behavior and Partial Demography of *Anastrepha acris*, *A. distincta* and *A. hamata* (Diptera: Tephritidae) under Seminatural and Laboratory Conditions. National Autonomous University of Mexico (UNAM).
16. García Medel, Darío Israel. 2004. "Foraging Behavior of Six Parasitoid Species of Fruit Flies (Diptera: Tephritidae) of the Family Braconidae (Hymenoptera)". Universidad Veracruzana, Xalapa Campus.
17. Mena Correa, Jackeline. 2005. "Basic Biology of *Eurytoma sivinskii* (Hymenoptera: Chalcidoidea: Eurytomidae)". National Autonomous University of Mexico (UNAM).
18. Martínez Hernández, Ma. Guadalupe. 2006. "Effect of Age and Reproductive Experience of Males on Female Election and their Reproductive Consequences in *Anastrepha ludens* (Loew) (Diptera: Tephritidae)". Universidad Veracruzana, Xalapa Campus.
19. Robledo Ruiz, Alezandra. 2007. "Basic study on the sexual behavior of the parasitoid *Dirhinus* sp. (Hymenoptera: Chalcididae). National Autonomous University of Mexico (UNAM).
20. Martínez Ramírez, Alejandro. 2008. "Effect of the Host Species on Adult Size, Ovarian Load and Oocyte Size of *Diachasmimorpha longicaudata* (Hymenoptera: Braconidae): A Fruit Fly Parasitoid of the Genus *Anastrepha* (Diptera: Tephritidae)". National Autonomous University of Mexico (UNAM).
21. Garibay Benítez, Delia. 2008. "Female Preference to Virgin Males of Four Species of Fruit Flies (Diptera: Tephritidae)". Universidad Veracruzana, Xalapa Campus.
22. Morató Sánchez de Tagle, Santiago. 2010. "Sexual Competitiveness of Males of *Anastrepha ludens* Loew (Diptera: Tephritidae) by Exposing them to the Essential Oil Aroma of Two Preferential Hosts". National Autonomous University of Mexico (UNAM).
23. Ruiz Guzmán, Gloria Imelda. 2010. "Overcrowding Effect on Longevity, Fertility and Fertility of the Mexican Fruit Fly *Anastrepha ludens* Loew (Diptera: Tephritidae). Benemérita Autonomous University of Puebla.
24. Jimarez, Nicolás Antonio. 2012. "The Effect of Interspecific Competition in the Use of Guayaba (*Psidium guajava* cv 'Creole Veracruz') As a Host Plant of *Anastrepha ludens* Loew (Diptera: Tephritidae)". Universidad Veracruzana. In Co-direction with Dr. Andrea Birke.
25. Xilot, Iván Luna & Antonio Hernández Ortega. 2012. "Effect of Attractant Type and Trap Type on the Response of *Anastrepha Ludens* Loew (Diptera: Tephritidae) of Different Sex, Age and Nutritional Condition". Universidad Veracruzana. In Co-Direction with Dr. Rodrigo Lasas.
26. Martínez Tlapa, Jovita. 2013. "Effect of Four Host Species of *Anastrepha* on the Parasitoid *Eurytoma sivinskii* Gates & Grisell (Hymenoptera: Eurytomidae)". Universidad Veracruzana.
27. Jimenez Mendoza, Ricardo. 2015. Effect of the host marking pheromone (syn546298 ec100) applied to 'Tommy Atkins' mangoes (*Mangifera indica* L.) for the control of *Anastrepha ludens* Loew and *Anastrepha obliqua* Macquart in Veracruz. Technological Institute of the Valley of Oaxaca. Agronomy. Co-directors: M. Aluja & A. Birke

28. López Ramírez, Silvia. 2015. Effect of the host marking pheromone (syn546298 ec100) applied to Marsh grapefruit (*Citrus x paradisi* Macfad.) for the control of *Anastrepha ludens* (Loew) in Veracruz. Technological Institute of the Valley of Oaxaca. Agronomy. Co-directors: M. Aluja & A. Birke
29. González-Cobos, Lizbeth. 2016. "Effect of the biological insecticide GF120™ Naturalyte on the survival, foraging capacity and oviposition rate of females of *Anastrepha obliqua* and *Anastrepha ludens* (Diptera: Tephritidae) in the laboratory and in semi-natural conditions". Universidad Veracruzana. Faculty of Biology. Co-directors: M. Aluja & A. Birke.
30. Cabagne Celis, Gabriela. 2017. "Effect of antibiotic treatment on the quality of the male sex pheromone of *Anastrepha ludens*". Universidad Veracruzana. Faculty of Biological Pharmaceutical Chemistry.
31. Jiménez Acosta, Kevin Fernando. 2020. "Conditioning of fruit fly pupae parasitoids with pupae odors". Universidad del Bosque, Bogotá, Colombia.

**In progress:**

1. Márquez Estévez, Miryam. "Analysis of the Amount of Spermatozoa Present in the Ejaculate of Sterile Males Subjected to Different Nutritional Treatments and Transferred to the Female". National Autonomous University of Mexico (UNAM).
2. Arellano Chávez, Fernando. "Obtaining secondary metabolites from a solanaceae plant of the genus *Physallis* as a potential insecticidal or repellent agent". Polytechnic University of Pénjamo, Guanajuato. Co-directors: Dr. M. Aluja y Dr. J. A. Guerrero A.
3. Reyes Escobar, Leonel. "Búsqueda de marcadores distintivos en mango y guayaba". Technological Institute of Xalapa. Co-directors: Dr. M. Aluja y Dr. J. L. Monribot V.

**14.1.2. Master's degree**

Concluded:

1. Jiménez Pérez, Alfredo. 1997. "Management of the Papaya Fruit Fly *Toxotrypana curvicauda* (Diptera: Tephritidae), in relation to the Design of a Monitoring and Biorrational Management System against this Pest". Faculty of Sciences, National Autonomous University of Mexico (UNAM).
2. Birke Biewendt, Andrea B. 2008. "Are there Limits to the Polyphagy of the Mexican Fruit Fly, *Anastrepha ludens* Loew (Diptera: Tephritidae? The Case of Guava (*Psidium guajava* L).". Institute of Neuroetology, Universidad Veracruzana.

3. Córdova García, Guadalupe. 2008. "Study of Encapsulation as a Defense Mechanism for Fruit Flies *Ceratitis capitata* (Mediterranean Fly) and *Anastrepha obliqua* (Mango Fly) to the Attack of Native Parasitoid Species". Institute of Neuroetology, Universidad Veracruzana.
4. Pascacio Villafán, Carlos Andrés. 2012. "An Experimental Mix-Quantity Approach to Evaluate the Effect of Three Flavonoids and Two Phenolic Acids on the Development of the Mexican Fruit Fly, *Anastrepha ludens* (Diptera: Tephritidae)". Institute of Ecology, A.C.
5. Ochoa Sánchez, Manuel Alejandro. 2020. "Comparative study of the intestinal microbiota of larvae of three species of the genus *Anastrepha* (Diptera: Tephritidae) developing in fruits of *Psidium guajava* (Myrtaceae)". Master of Science, Institute of Ecology, A.C.

#### 14.1.3. Doctorate

##### Concluded:

1. Díaz-Fleischer, Francisco. 2002. "Ecology of the Oviposition Behavior of *Anastrepha ludens* and *A. obliqua* (Diptera: Tephritidae)". Institute of Ecology, A.C.
2. Miranda Salcedo, Mario A. 2002. "Demographic and Behavioral Patterns of two Endoparasitoids (Hymenoptera: Braconidae) of Fruit Flies of the Genus *Anastrepha* (Diptera: Tephritidae)". Institute of Ecology, National Autonomous University of Mexico (UNAM).
3. Pérez-Staples, Diana F. 2005. "Evaluation of Spermatic Exhaustion in Fruit Flies (Diptera: Tephritidae) and its Consequences on Females". Institute of Ecology, A.C.
4. Oroño, Luis Eduardo. 2011. "Ecoethology of *Anastrepha fraterculus* (Diptera: Tephritidae) in the Subtropical Mountain Forest (Yungas) of the Province of Tucumán". National University of Tucumán. National University of Tucumán.
5. Birke Biewendt, Andrea B. 2011. "Host Use in *Anastrepha ludens* Loew (Diptera: Tephritidae): Effect on Fitness Parameters and Plant Resistance Mechanisms". Institute of Neuroetology, Universidad Veracruzana.
6. Cicero Jurado, Lizette. 2011. "Effect of Host Quality on Ovarian Dynamics and Nutritional Content of Four Parasitoids (Hymenoptera: Braconidae) of *Anastrepha ludens* (Diptera: Tephritidae)". Institute of Ecology, A.C.
7. Van Nieuwenhove, Guido Alejandro. 2013. "Influence of Temperature Variation on the Reproductive and Population Parameters of Seven Species of Parasitoid Hymenoptera of Fruit Flies of the Genus *Anastrepha* (Diptera: Tephritidae)" National University of Tucumán. In co-direction with Dr. Sergio M. Ovruski Alderete.

8. Pascacio Villafán, Carlos Andrés. 2016. "Nutritional biology of a frugivorous fly (Diptera: Tephritidae): applications and theory related to rearing with artificial diets. Institute of Ecology, A.C.

**In progress:**

- 1) García Saldaña, Essicka Andrea. 2020. Molecular study applying diverse "omic" tools on the interactions between fruit flies (Diptera: Tephritidae) and their host plants. Institute of Ecology, A.C.

**NOTE:** The student is currently registered as a master's student but has committed to pursuing a doctoral degree. Therefore she is listed here.

**14.2. DIRECTOR OF SOCIAL SERVICE PROVIDERS, RESIDENCES AND ACADEMIC STAYS**

Has directed 41 Social Service providers of the Universidad Veracruzana, Campus Xalapa. Functions performed related to various research activities on biology, ecology, behavior, biological control, and integrated management of Fruit Flies.

**15. PARTICIPATION IN ACADEMIC EVENTS**

**15.1. INVITED LECTURES**

**15.1.1. National (Mexico)**

1. Fruit Flies: their Importance and Control Methods. Cycle of three conferences given in San José del Valle, Tepic and Tecuala, Nayarit, Mexico. June 1982.
2. Integrated Management of Fruit Flies in Mexico. Oaxaca, Mexico July 1982.
3. Integrated Management of Fruit Flies in Soconusco Mango Orchards, Chiapas. Mango Producers Association, Tapachula, Chiapas, Mexico. March 1983.
4. General Behavior and Interactions between *Anastrepha ludens* and *A. obliqua* under Seminatural Conditions. II. Patterns of Behavior, Female-Male Interactions and Mating Behavior. Symposium on Insect Behavior. XVIII National Entomology Congress, Tapachula, Chiapas, Mexico. April 1983.
5. Integrated Management of Fruit Flies in Mexico. III Agronomy Symposium. Monterrey Institute of Technology and Higher Education, Querétaro Unit. Queretaro, Mexico. April 1983.
6. Fruit Flies: the Insect Pest of Greater Quarantine Importance in some Fresh Fruit Producing Regions in Mexico. Martínez de la Torre, Veracruz, Mexico. June, 1983.

7. Integrated Management of Fruit Flies. Ministry of Agriculture, Government of the State of Chiapas. Tuxtla Gutierrez, Chiapas, Mexico. November 1983.
8. Novel Aspects on the Behavior of Fruit Flies (Diptera: Tephritidae). Instituto de Ecología, A.C .. Xalapa, Veracruz, Mexico. April, 1990.
9. Ecology and Behavior of Fruit Flies. Moscamed Program. Tapachula, Chiapas, Mexico. July, 1990.
10. Ecology and Behavior of Pest Insect Pests. Durango, Durango, Mexico. November, 1990.
11. Behavioral Ecology of Fruit Flies (Diptera: Tephritidae). Ecology Center, UNAM. Mexico, D.F., Mexico. September, 1991.
12. 12.1) Ecology of Fruit Flies and 12.2) Behavior of Fruit Flies. Regional Course on Fruit Flies with Emphasis on Sterile Insect Technique sponsored by the International Atomic Energy Agency, the National Campaign against Fruit Flies, and the Moscamed Program. Metapa de Domínguez, Chiapas, Mexico. October, 1991.
13. Cultural Control and Habitat Management of Fruit Flies. Regional Course on Fruit Flies with Emphasis on Sterile Insect Technique sponsored by the International Atomic Energy Agency, the National Campaign against Fruit Flies, and the Moscamed Program. Metapa de Domínguez, Chiapas, Mexico. October, 1994.
14. Cultural Control and Habitat Management in the Control of Agricultural Pests. IV Course-Workshop on Agroecology "Agroecology and Pest Management". South Border College. Tapachula, Chiapas, Mexico. October, 1994.
15. Cultural Control and Habitat Management of Fruit Flies and 2) Behavior of Fruit Flies. Regional Course on Fruit Flies with Emphasis on Sterile Insect Technique sponsored by the International Atomic Energy Agency, the National Campaign against Fruit Flies, and the Moscamed Program. Metapa de Domínguez, Chiapas, Mexico. October, 1995.
16. Writing Research Projects to Obtain Financial Support (sponsored by the Gulf of Mexico Research System). Universidad Juárez Autónoma de Tabasco. Villahermosa tabasco. May, 1997.
17. Management of Fruit Flies. IX Symposium of the Mexican Association of Directors of Applied Research and Technological Development (ADIAT). Veracruz City, Veracruz. August, 1997.
18. Fruit Flies (Diptera: Tephritidae): An Ideal Model to Link Basic and Applied Research. Inaugural Conference - XIX National Entomology Congress. Acapulco Guerrero. May, 1998.
21. Grant Writing. U.N.A.M., Faculty of Veterinary Medicine and Zootechnics. Mexico DF. August, 1998.



19. Scientist: What is that? V National Week of Science and Technology. SEP-CONACYT / UNCADER / SEC / H. Coatepec City Hall, Veracruz, Municipal Palace, Coatepec, Ver. October, 1998.
20. Interaction of Chemical and Visual Stimuli in the Process of Locating a Host Plant by a Fruit Fly. Institute of Neuroethology, Universidad Veracruzana, Xalapa, Veracruz. January 1999
21. Recent Advances in the Development of Biorrational Methods of Management of Fruit Flies (Diptera: Tephritidae). Keynote Conference – 12<sup>th</sup> Scientific / Technological Meeting on Forestry and Agriculture Veracruz '99. Veracruz, Veracruz. December, 1999.
22. Experience in the Formation of Research Groups. Autonomous University of Yucatán, Mérida, Yucatán. March, 2000.
23. Fruit Fly Communities (Diptera: Tephritidae): From the Use of Resources with a Spatial and Geographical Perspective to a Patent. Instituto de Ecología, A.C., Xalapa, Veracruz. April 2000
24. Research on Regulated Pests of Avocado. Interaction between the Scientific / Government Sector and the Hass Avocado Producers / Exporters of Michoacán. XXVIII National Congress of the Mexican Society of Phytopathology, A.C. and the XXXVI National Congress of the Mexican Society of Entomology, A.C. Querétaro, Querétaro. July, 2001.
25. Invasive species in Mexico: Perspectives of the National Phytosanitary Consultative Council (CONACOFI). Mexico City. April, 2002.
26. The Bachelor Thesis, Integrity and Choice of a Viable Study Model as Pillars of a Successful Research Career. II Student Scholarship-Thesis Congress. Yucatan University Merida Yucatan. May, 2004.
27. Scientific Integrity and its Branches in Our Life as Researchers. 1<sup>st</sup> Colloquium in Agroecosystems and Sustainability. Graduate College, Veracruz Campus. October 2004
28. Profile of the Expert. Diploma on Expertise in Anthropological Sciences. CONACULTA-INAH, Mexico, D.F. June, 2005.
29. General Overview on the Ethical Principles Applicable to Scientific Research and Higher Education. CINVESTAV. Mexico City. February 2006
30. Overview of Basic Principles of Scientific Integrity Applicable to Research and Training of Human Resources. CINVESTAV Campus Guanajuato. Irapuato, Guanajuato. September 2006
31. The Fascinating World of Fruit Flies and their Parasitoids: 16 Years of Research at INECOL. CINVESTAV Campus Guanajuato, Irapuato, Guanajuato. September 2006
32. Fruit Flies Behavior (Diptera: Tephritidae) and its Natural Enemies: Link between Evolution and Market. Symposium: Insects as Models of Study in Ecology and Evolution. Mexican Congress of Ecology. Morelia, Michoacán. November 2006

33. Ethical Principles Applicable to Scientific Research and Student Training. Autonomous University of Aguascalientes. Aguascalientes, Aguascalientes. May, 2007.
34. Bioethics. Ethical Principles Applicable to Scientific Research and Student Training. CINVESTAV Campus Guanajuato. Irapuato, Guanajuato. February, 2008
35. Examples of How the Results on Fruit Fly Behavior (Diptera: Tephritidae) Research can be used to solve specific problems of society. Potosino Institute of Scientific and Technological Research. San Luis Potosí, San Luis Potosí. February, 2008
36. The Food of the Future in Mexico: Innovation in Agrociences. General Meeting of the AMC in Science and Humanism. Mexico DF. January 2012
37. Keynote Motivational Conference. Scientific Research Center of Yucatán, A.C. Merida Yucatan. January 2012
38. Dare to be a Scientist or Technologist to Transform your Country into a World Leader. Hayas Science and Technology Meeting. Las Hayas School. Xalapa, Veracruz. February 2014.
39. Innovation and Sustainability. Entrepreneur Week 2014, Leaders Transforming Veracruz. Secretariat of Economic and Port Development. July 2014
40. "Ethics of Scientific Research", within the framework of the 2<sup>nd</sup> International Congress on Professional Ethics and University Social Responsibility, which was held from May 11 to 13 at the facilities of IISUE, UNAM. May 2016
41. "Reflections of a researcher repatriated by CONACYT on how to enjoy science and contribute to the development of Mexico". Welcoming Ceremony for Young Researchers hired by CONACYT . Mexico City, September 21, 2016.
42. Link of Fruit Flies (Diptera: Tephritidae) with its host fruits (natural products chemistry) and possibilities for collaboration in the new BioMimic<sup>®</sup> Scientific and Technological Cluster at INECOL. 13<sup>th</sup> International Meeting of Research in Natural Products. Universidad Michoacana de San Nicolás de Hidalgo and the Mexican Association of Natural Products Research. Morelia, Michoacán, Mexico, May 17-20, 2017.
43. How to transform the country through science and technology by applying, along the way, values, principles, and much congruence? Scientific Cultural "Travesía 2017 Workshop", University of Tourism. Xalapa, Veracruz, March 9, 2017.
44. Do you want to be happy, never get bored, reinvent yourself every so often and help your country: Be a scientist! 6<sup>th</sup> Meeting of youngsters and aspiring researchers in the State of Sinaloa, organized by the National Council of Science and Technology and the Polytechnic University of Sinaloa. Mazatlán, Sinaloa, September 12, 2018.
45. Fruit flies (Diptera: Tephritidae), an ideal model to study the interface between neuroethology and behavioral ecology, as well as to apply scientific knowledge to solve problems that afflict society. 6<sup>th</sup> International Neuroethology Symposium "Integrating Behavior". Institute of Neuroethology, Universidad Veracruzana, Xalapa, Veracruz, October 28, 2019.

46. "The value of scientific / ethical integrity at a time when our credibility and honor is being questioned" within the framework of the CIMAV academic conferences, on its 2 anniversary, organized by the Center for Research in Advanced Materials. Chihuahua, Chih, November 7, 2019.

### 15.1.2. Foreign

1. Control and Eradication Program for the Mediterranean Fly in Mexico. Department of Entomology, University of Massachusetts. Amherst, Massachusetts, USA. April, 1984 (in English).
2. Some Aspects of Natural History, Behavioral Ecology and Control of Fruit Flies (Diptera: Tephritidae) of Economic Importance in Mexico. Cambridge Entomological Society, Harvard University. Cambridge, Massachusetts, USA. October, 1986 (in English).
3. Pest Management and Policy: Future Directions. Perspectives of a Developing Country. New England Environment Workshop. Boston, Massachusetts, USA. March, 1988 (in English).
4. Patterns of Movement in Tephritids: Impact on Orchard Management. American Entomology Society. East Section Meeting. Syracuse, New York, USA. October, 1988 (in English).
5. Chemical / Visual Stimulus Interaction during the Discovery Process of a Host Plant by the Apple Fly (*Rhagoletis pomonella*). Neuro- und Verhaltensbiologisches Kolloquium, University of Zurich. Irchel, Zürich, Switzerland. May, 1989 (in German).
6. *Rhagoletis pomonella* Foraging Behavior: How to Discover Important Resources. Swiss Federal Research Station for Fruit Growing, Viticulture and Horticulture. Wädenswil, Switzerland. May, 1989 (in German).
7. Minicourse: Behavior, Biology and Control of Fruit Flies. University of Costa Rica, San José, Costa Rica. August 1989
8. Application of Synthetic Oviposition Deterring Pheromone to Control the Cherry Fly (*Rhagoletis cerasi*): Summary of Research Activities during 1989. Swiss Federal Research Station for Fruit Growing, Viticulture and Horticulture. Wädenswil, Switzerland. October, 1989 (in German).
9. Habitat Management: an Area with Potential within Innovative Schemes of Integrated Pest Management. Swiss Federal Research Station for Fruit Growing, Viticulture and Horticulture. Wädenswil, Switzerland. October, 1989 (in German).
10. Novel Aspects on the Behavior of Fruit Flies (Diptera: Tephritidae) and their Biological Control. Christian-Albrechts University. Kiel, Federal Germany. November, 1989 (in German).
11. Mechanisms of Orientation of Apple Maggot Flies to Apple Volatiles. University of London. London England. November, 1989 (in English).

12. Behavior of the Cherry Fly (*Rhagoletis cerasi*). Southampton University. Southampton, England November, 1989 (in English).
13. Foraging Behavior of *Rhagoletis pomonella*. Imperial College (Silwood Park). Ascot, England November, 1989 (in English).
14. Fruit Production Systems in Mexico and the Pest Control Problem. University of Reading Reading, England November, 1989 (in English).
15. Behavior Related to the Response of Fruit Flies to Synthetic Host Marking Pheromones and Host Volatiles. Gainesville, Florida, USA. January, 1991 (in English).
16. Habitat use by *Anastrepha obliqua* (Diptera: Tephritidae) in a Mixed Mango (*Mangifera indica*) and Tropical Plum (*Spondias purpurea*) Orchard in Veracruz, Mexico. Swiss Federal Research Station for Fruit Growing, Viticulture and Horticulture. Wädenswil, Switzerland. November, 1991 (in German).
17. Responses of Fruit Flies to Host Marking Pheromones and Host Plant Volatiles. University of Arizona (Dept. of Ecology and Evolutionary Biology & Division of Neurobiology, ARL). Tucson, Arizona, USA. December, 1991 (in English).
18. Application of Gibberellic Acid to Reduce the Susceptibility of Citrus Fruits to the Infestation of the Mexican Fruit Fly, *Anastrepha ludens*. USDA- IABBRL. Gainesville, Florida, USA. June, 1993 (in English).
19. Studies on Ecoetology of Fruit Flies at the Instituto de Ecología, A.C. Swiss Federal Research Station. Wädenswil, Switzerland. March, 1994 (in German).
20. Ecology and Behavior of Fly Species within the *Anastrepha* Genus. Metropolitan University of Education Sciences, Entomology Institute. Santiago, Chile. November, 1996.
21. Contributions of Studies on Insect Behavioral Ecology to Small-scale Agriculture in Developing Countries. Symposium on Behavioral Ecology. Annual Congress of the Entomological Society of Florida. Daytona Beach, Florida. August, 1997 (in English).
22. Biodiversity Conservation and Fruit Pest Control. Series of three Conferences related to the Conference Cycle on Sciences and Arts organized by the Mexican Ministry of Foreign Affairs through its Embassies in Bogotá, Colombia; Santiago, Chile; Montevideo, Uruguay. Rosa María Rubalcava and Ma. Elena Cardero, both Scientists, Architects Luis Ortíz Macedo and Agustín Arteaga, and the poet Víctor Sandoval were all part of the entourage I belonged to. November, 1998.
23. Biodiversity Conservation and Control of Fruit Flies in Mexico through Biorational Methods. CIRPON, San Miguel de Tucumán, Argentina. November, 1998.
24. Oviposition Behavior of Fruit Flies (Tephritidae): A Basic and Applied Perspective. Department of Entomology & Nematology, University of Florida (UF), Gainesville, Florida, USA. March, 2001 (in English).
25. Biological Control by Conservation and Ecological Control Methods of Fruit Flies in Mexico. Center for Biological Control, Florida State University (FSU), Tallahassee, Florida, USA. March, 2001 (in English).

26. A Decade of Collaboration between the Institute of Ecology, A.C. and the Center for Medical, Agricultural and Veterinary Entomology. Center for Medical, Agricultural and Veterinary Entomology, U.S. Department of Agriculture, Gainesville, Florida, USA. March, 2001 (in English).
27. Promotion of Research on Fruit Flies Through Collaboration between Scientists from Mexico and the USA: 15 years of Experience at the Institute of Ecology, A.C. in Xalapa, Veracruz. Kika de la Garza, Subtropical Agricultural Research Center, Weslaco, Texas. May, 2005 (in English).
28. Oviposition behavior in Fruit Flies (Diptera: Tephritidae): The Long Road from the Tertiary to Free Trade in the 21st Century. Institute of Plant Sciences Applied Entomology (ETH) Zurich, Switzerland. August 2006 (in English).
29. Parasitoids (Hymenoptera) Native to Fruit Flies (Diptera: Tephritidae) in Latin America: Recent Discoveries about their Natural History, Ecology and Behavior. Swiss Federal Research Station for Agroecology and Agriculture, Agroscope Reckenholz-Tänikon, Zürich, Switzerland. August 2006 (in English).
30. Ethics in Scientific Research. Pilot Plant for Microbiological Industrial Processes, San Miguel de Tucumán, Tucumán, Argentina. December 2006 (in Spanish).
31. Research Lines on Fruit Flies and their Natural Enemies in Mexico. Pilot Plant for Microbiological Industrial Processes, San Miguel de Tucumán, Tucumán, Argentina. December 2006 (in Spanish).
32. Evolutionary Underpinnings of Host Plant Use in Fruit Flies (Tephritidae). Faculty of Sciences of the Institute of Biology, University of Neuchatel, Switzerland. November, 2008.
33. Fruchtfliiegen (Tephritidae) und deren Parasitoiden in Mexiko: Biologie / Ökologie, Verhalten und angewandte Aspekte. ACW Colloquium 2008-2009, Forschungsanstalt Agroscope Changins-Wädenswil, Switzerland. December, 2008.
34. Neuigkeiten über die Walnussfliege, *Rhagoletis*, in der Schweiz: aktuelle Verbreitung und Walnuss-Sortenpräferenzen. 30th Meeting of the Swiss Dipterological Society, Universidad de Zürich. Febrero, 2009.
35. Das faszinierende Paarungs-und Eiablageverhalten von Fruchtfliiegen (Tephritidae). ACW Colloquium 2008-2009, Forschungsanstalt Agroscope Changins-Wädenswil, Switzerland. April, 2009
36. Vortrag Abschluss Sabbatical. ACW Colloquium 2008-2009, Forschungsanstalt Agroscope Changins-Wädenswil, Switzerland. June, 2009
37. Pest Management Alternatives Based on Behavior: the Case of Pestiferous Fruit Flies (Diptera: Tephritidae). Syngenta Crop Protection AG, Basel, Switzerland. June, 2009.
38. Interactions of Fruit Flies (Diptera: Tephritidae) with their host plants with emphasis on the role of the microbiota in them". University of Valencia, Spain. May 2018.

39. Fruit Fly (Diptera: Tephritidae) - Host Plant Interactions: Overview of Key 30-Year Research and Exciting Recent Findings. Center for Medical, Agricultural and Veterinary Entomology, U.S. Department of Agriculture, Gainesville, Florida, USA. February, 2020

### 15.1.3. International

1. Future Perspectives for the Integrated Management of Fruit Flies in Mexico. Advanced Workshop on Operations and Systems Analysis in the Management of Fruit Flies (funded by NATO). Bad Windsheim, Federal Germany. August, 1985 (in English).
2. Migration Behavior and Trivial Movement in Fruit Flies (Diptera: Tephritidae). International Symposium on Fruit Flies of Economic Importance, Antigua, Guatemala. October, 1990 (in English).
3. Application of Nuclear Science in Agriculture: Sterile Insect Technique and Development of Pest Free Areas. Fourth Conference on Technology and Nuclear Science (organized by the Office of Atomic Energy for Peace, Government of Thailand). Bangkok, Thailand October, 1992 (in English).
4. Behavior of Fruit Flies. First International Course on Citiculture (organized by FICARD). Port of Veracruz, Veracruz, Mexico. January 1992.
5. Future Trends in the Management of Fruit Flies. International Symposium on Fruit Flies of Economic Importance. Clearwater Beach, Florida, USA. June 1994 (in English).
6. Conservation of Biodiversity and Control of Agricultural Pests: The Case of Fruit Flies. I Iberoamerican Conference on Biological Diversity. Alicante, Spain October, 1997.
7. 1) Cultural Control and Habitat Management and 2) Marking Pheromones. XI International Course on Fruit Flies and their Control in Large Areas with Emphasis on Sterile Insect Technique, sponsored by the International Atomic Energy Agency, the National Campaign against Fruit Flies, and the Moscamed Program. Metapa de Domínguez, Chiapas. October, 1997.
8. Some Factors that Determine Reproductive Success in Fruit Flies (Diptera: Tephritidae). IV International Course "Neurobiological and Ecological Bases of Behavior". Autonomous University of Tlaxcala- Mexican Society of Physiological Sciences. Tlaxcala, Tlaxcala. March, 1999.
9. The Complex Interaction between Phylogenetic Restrictions, Physiology, Behavior, Economics and Politics in the Process of Fruit Fly Host Plant Determination - The Relevance of Decisions Based on Scientific Knowledge. 8<sup>th</sup> Annual Exotic Fruit Fly Research Symposium, Riverside, California, USA. March, 2005 (in English).
10. Trying to Know the Fruit Flies in Mexico and then Apply This Knowledge to Managing them through Behavioral Manipulation. Entomological Society of America Annual Meeting, Fort Lauderdale, Florida. December, 2005 (in English).
11. Link between Biology, Ecology and Behavior of *Anastrepha ludens* and the Management of this Citrus Pest through Biorrational Mechanisms. X International

Symposium on Citizenship "Innovation and Competitiveness". Victoria City, Tamaulipas. April 2006

12. Ecology and Behavior of Fruit Flies (Diptera: Tephritidae) and its Natural Enemies with Emphasis on the Development of Biorrational Management Mechanisms. XVII International Course on Fruit Flies, sponsored by the International Atomic Energy Agency and the National Campaign Against Fruit Flies (SAGARPA-DGSV). Metapa de Domínguez, Chiapas. August 2006
13. Insect Welfare: should we care? 41<sup>st</sup> Congress of the International Society for Applied Ethology. Merida Yucatan. August, 2007.
14. Ecology and Behavior of Fruit Flies (Diptera: Tephritidae) and its Natural Enemies with Emphasis on the Development of Biorrational Management Mechanisms. XVII International Course on Fruit Flies, sponsored by the International Atomic Energy Agency and the National Campaign Against Fruit Flies (SAGARPA-DGSV). Metapa de Domínguez, Chiapas. September, 2007.
15. Link between the Ecology and Behavior of Fruit Flies (Diptera: Tephritidae) and the Conservation of Natural Resources. Symposium: Animal Behavior and Conservation. XII International Course Biological Bases of Behavior. Tlaxcala, Tlaxcala. October, 2007.
16. Management of *Anastrepha ludens* from a Biorational and Region Perspective. 1<sup>st</sup>. International Citrus Week Veracruz / Mexico. Martínez de la Torre, Veracruz. November, 2007.
17. XIII International Course Biological Basis of Behavior. Tlaxcala, Tlaxcala. October, 2008.
18. *Rhagoletis completa* in der Schweiz: Verbreitung und Walnuss-Sorten Präferenzen. Colloquium "Kirschfruchtfliege", Julius Kühn-Institut, Dossenheim, Germany. April, 2009
19. Broad Interspecific and Intergeneric Recognition of a Host Marking Pheromone within *Anastrepha* and *Toxotrypana* Flies (Diptera: Tephritidae): Evolutionary and Practical Implications. 25<sup>th</sup> Annual Meeting of the International Society of Chemical Ecology, Neuchatel, Switzerland. August, 2009.
20. Biology, Ecology and Behavior of Fruit Flies and their Natural Enemies. Panel of Experts on Fruit Flies: Taxonomy, Ecology and Behavior of Fruit Flies of Quarantine Importance. Panama, Panama. June, 2010.
21. A Review of Recent Advances and Future Prospects in the Study of Fruit Fly (Diptera: Tephritidae) - Host Plant Relationships. 8<sup>th</sup> International Symposium on Fruit Flies of Economic Importance. Valencia (Spain). September 28, 2010. Plenary conference (in English).

22. Chemical Ecology of Fruit Flies (Diptera: Tephritidae) and Their Natural Enemies. First Latin American Meeting of Chemical Ecology. Colonia del Sacramento, Uruguay. October 2010.
23. A Tour Through the Wonderful Fruit Fly (Tephritidae) World; All the Way from Their Evolution to Their Environmentally-friendly Management. University of Massachusetts ("Alexander Speaker"). Amherst, Massachusetts, USA. April, 2012.
24. Recent Insights into Invasive Patterns of Fruit Flies (Diptera: Tephritidae) Considering Global Climate Change, Environmental Resilience and Key Biological Attributes of Flagship Species. 2<sup>nd</sup> International Symposium of Tephritid workers of Europe, Africa and the Middle East. Kolymbari, Greece. July 2012.
25. Global change and its impact on the distribution, ecology, behavior, and management of Fruit Flies (Diptera: Tephritidae). M. Aluja, A. Altúzar-Molina, L. Guillén and C. Pascacio-Villafán. 9<sup>th</sup> Meeting of the Tephritid Working Group of the Western Hemisphere. Buenos Aires, Argentina, 2016.

## 15.2. OTHERS (PARTICIPATION IN CONGRESSES, SYMPOSIES, ROUND TABLES, PAPERS, POSTERS, ETC.)

### **15.2.1. Nationals (Mexico)**

1. General Behavior and Interactions between *Anastrepha ludens* and *A. obliqua* under seminatural conditions. II. General activity, Female-Male Interactions and Mating. Symposium on Insect Behavior, XVIII National Entomology Congress. Tapachula, Chiapas, Mexico. April, 1983. Oral presentation.
2. Response of *Rhagoletis pomonella* (Diptera: Tephritidae) to Chemical / Visual Stimuli during the Orientation Process to Host Plant and a Trap. XXVI National Congress of Entomology. Veracruz, Veracruz, Mexico. May, 1991. Oral presentation.
3. Climate Change and Biology of Invasive Species: Recent Discoveries Linked to Fruit Flies (Diptera: Tephritidae) and their Parasitoids. Report on Sabbatical in Switzerland Instituto de Ecología, A.C. Xalapa, Veracruz. May, 2010.
4. Climate Change and Biology of Invasive Species: Recent Discoveries Linked to Fruit Flies (Diptera: Tephritidae) and their Parasitoids. Report on Sabbatical in Switzerland. National Council for Science and Technology. Mexico City. June, 2010
5. Panel discussion "Creative Minds Reshaping the World". Dr. Martín Aluja, Dr. German Escorcía, Dr. Enrique Calderón Alzati, M.C. Guadalupe González Godínez. Las Hayas School, Xalapa, Veracruz, Mexico. February 2014.
6. Sustainable Resource Management. National Meeting of Educational, Technological Research, Validation and Transfer of Knowledge. Undersecretary of Higher Education Media. General Directorate of Agricultural Technology Education. Secretary of Public Education. Mexico City. May 2014



7. Informative Forum to publicize the Action Plan against *Xyleborus glabratus* Ambrosial Beetle Complexes - *Raffaelea lauricola* and *Euwallacea* sp.- *Fusarium euwallaceae*. Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food, through the National Service of Health, Safety, and Agrifood Quality, in coordination with the Association of Producers, Packers and Exporters of Avocados of Mexico, A.C. Uruapan, Michoacán. March 2015. Oral presentation.
8. "Ecological management in the capital region". The Xalapa Cloud Forest Reserve, a Revolutionary Initiative. Institute of Ecology A. C., Xalapa, Veracruz. September 28 and 29, 2015. Oral presentation.
9. Why is science cool and scientist's happy beings? The Sinaloa College. Culiacán, Sinaloa. October, 2015. Oral presentation.
10. Biomimetism, innovation inspired by Nature and some reflections on a new model of doing science in Mexico". Lecture series generating synergies in the State of Querétaro "Towards a society based on knowledge" CIDESI, CONCYTEQ. Querétaro, Mexico. October 2015. Oral presentation.
11. National Science and Engineering Fair 2016, Deputy Postgraduate and Scholarship Department, CONACYT. Mexico City. November 2016. Oral presentation.
12. How to solve real problems in Mexico through Science and Technology, strengthening our sovereignty in passing? Labyrinth of Science Museum, Ministry of Culture, San Luis Potosí. February 2017. Oral presentation.
13. Building the future - Science Encounters - Morelia 2017. Mexican Academy of Sciences, Morelia, Michoacán. November 2017. Oral presentation.
14. Screening of proteins involved in odor signal perception / transduction in fruit flies (Diptera: Tephritidae). 7<sup>th</sup> Symposium of the Mexican Proteomics Society. Guadalajara, Jalisco, Mexico. November 6-9, 2017. Poster in English.
15. Use of chitosan to inhibit *Colletotrichum gloeosporioides* (Penz.) Penz & Sacc. (Anthracnose) and *Anastrepha ludens* Loew (Mexican fruit fly) developing on "Golden Delicious" apples. A. Birke, E. Rayón, G. Carrión, Z. Durán, A. Altúzar and M. Aluja. Proceedings of the 2<sup>nd</sup> International Meeting of Chitosan and its Applications in Agriculture. Cuernavaca, Morelos, Mexico. November 13-14, 2017. Poster in English.
16. Do you want to be happy in life and contribute to making Mexico a first world country? Taught to high school students and organized by the Motolinía Scientific Institute, Xalapa, Veracruz, April 11, 2018. Oral presentation.
17. Interaction between *Anastrepha acris* (Diptera: Tephritidae) and its highly toxic host *Hippomane mancinella* (Euphorbiaceae). Altuzar, A., Monribot-Villanueva, J., Guerrero-Analco, JA, Guillén, L., Gallardo, U., Acosta, E., Cabagne, G., Velázquez, O., Hernández, G., Pascació Villafán, C. & Aluja, M. 10<sup>th</sup> International Symposium on

Fruit Flies of Economic Importance, Tapachula, Chiapas, Mexico. April 2018. Cartel in English.

18. Contribution to the added value of chicozapote through the analysis of nutraceutical and nutritional compounds in two stages of maturation. Rivera-Reséndiz, FJ, Sánchez-Martínez DE, Monribot-Villanueva JL, Gutierrez-Jaimes ML, Pérez-Tirado DA, Ortega-Casas R., Acosta-Velasco E., Hernández-Velázquez GA, Altúzar-Molina AR, Guerrero- Analco JA, & Aluja, M. 15<sup>th</sup> International Meeting of Research in Natural Products. San Luis Potosí, S.L.P. May 22-25, 2019. Poster.
19. Study of nutraceutical and nutritional compounds in guavas grown in Veracruz in two stages of maturation. Sánchez-Martínez DE, Rivera-Reséndiz, FJ, Monribot-Villanueva JL, Gutierrez-Jaimes ML, Pérez-Tirado DA, Ortega-Casas R., Acosta-Velasco E., Hernández-Velázquez GA, Altúzar-Molina AR, Guerrero- Analco JA, & Aluja, M. 15<sup>th</sup> International Meeting of Research in Natural Products. San Luis Potosí, S.L.P. May 22-25, 2019. Poster.
20. Welcoming Conference - Inauguration of the Program for the Promotion of Interest for a Scientific and Technological Career in Children. 2019. Instituto de Ecología, A.C. June 2019.
21. Round table session for the generation of a situational diagnosis of citrus in the state of Veracruz. Tuxpan, Veracruz, February 18, 2019.
22. Round table session to generate a situational diagnosis of citrus in the state of Veracruz. Martínez de la Torre, Veracruz, February 19, 2019.
23. Round table session with representatives of the citrus production chain to generate a situational diagnosis of citrus in the State of Veracruz. Xalapa, Veracruz, February 21, 2019.
24. "Discerning the influence of biochemical and physical factors involved on oviposition site preference by *Anastrepha obliqua* through comparative metabolomic analysis in mango". J. Antonio Guerrero-Analco, Larissa Guillén, Juan L. Monribot-Villanueva, Alma R. Altúzar-Molina, Rafael Ortega, Victoria Mena, Eliel Ruiz-May, José A. Guerrero-Analco & Martín Aluja. XVIII National Congress of Biochemistry and Plant Molecular Biology XI Symposium México/USA & 1st ASPB México Section Meeting held in Mérida Yucatán México, October 28-31, 2019.
25. General informative meeting and accountability to society on the results of benefits to the Fruit sectors of the state of Veracruz obtained in the FOMIX project entitled "Comprehensive study of cultivated and wild fruits for the optimization of biorational management of Flies of the fruit (Diptera: Tephritidae) and the strengthening of the fruit, food and pharmaceutical industries of Veracruz VER-2017-01-292397. Xalapa Veracruz. September 24, 2019. Oral presentation.

26. Mango production and biorational management of Fruit Flies. Second International Congress of Mango producers and exporters. Puerto Vallarta Jalisco. November 20 - 22, 2019. Oral presentation.
27. Cost reduction of artificial diets for mass rearing fruit flies. Pascacio-Villafán, C., Quintero-Fong L., Orózco-Davila D., Guillén L. Altuzar-Molina A. & Aluja, M. 10th International Symposium on Fruit Flies of Economic Importance, Tapachula, Chiapas, México. Abril 2018. Oral presentation.
28. Challenges of science in phytosanitary matters at the national and international level. Forum: Plant health in Mexico, impacts through Science. 120th anniversary of Plant Health in Mexico 1900-2020. November 2020. Videoconference.
29. The fundamental role played by scientific and technological research in plant health. Case: Fruit Flies (Diptera: Tephritidae) and other pests of fruit trees. Dr. Martín R. Aluja Schuneman Hofer, Dr. Carlos Pascacio Villafán, M.C. Alma Rosa Altúzar Molina, M.C. Erick J. Enciso Ortíz. Forum: Plant health in Mexico, impacts through Science ". 120th anniversary of Plant Health in Mexico 1900-2020. November 2020. Videoconference.

### 15.2.2. Foreign

1. General Behavior and Interactions between *Anastrepha ludens* and *A. obliqua* under Seminatural Conditions. I. Lek Behavior and Territoriality in Males. International Symposium on Fruit Flies of Economic Importance. Athens, Greece. November, 1982 (in English). Oral presentation.
2. Future Perspectives on the Integrated Management of Fruit Flies in Tropical Ecosystems of Latin America. I Congress on Integrated Pest Management. Guatemala, Guatemala February, 1983. Oral presentation.
3. Interactions of Chemical / Visual Stimuli during the Host Plant Discovery Process of the Apple Fly (*Rhagoletis pomonella*). I. Intra-plant movements. National Congress of the American Entomology Society. Fort Lauderdale, Florida, USA. December, 1985 (in English). Oral presentation.
4. Chemical / Visual Stimulus Interactions during the Discovery Process of a Host Plant by the Apple Fly (*Rhagoletis pomonella*). II. Inter-plant movements. National Congress of the American Entomology Society. Reno, Nevada, USA. December, 1986 (in English). Oral presentation.
5. Chemical / Visual Stimulus Interactions during the Discovery Process of a Host Plant by the Apple Fly (*Rhagoletis pomonella*). Update on the Most Recent Discoveries. National Congress of the American Entomology Society. Boston, Massachusetts, USA. December, 1987 (in English). Oral presentation.
6. Lekking Behavior in three Sympatric Species of Fruit Flies of the *Anastrepha* genus. XVIII World Congress of Entomology. Vancouver, Canada July, 1988 (in English). Oral presentation

7. Resource Use Patterns by *Anastrepha obliqua* in a Mixed Mango and Tropical Plum Orchard. National Congress of the American Entomology Society. Reno, Nevada, USA. December, 1991 (in English). Oral presentation
8. Daily Activity Patterns and Distribution within a Papaya Fly Orchard of *Toxotrypana curvicauda* (Diptera: Tephritidae) in Morelos and Veracruz, Mexico. 2<sup>nd</sup> Meeting of the Working Group on Fruit Flies of the Western Hemisphere. Viña del Mar, Chile. November, 1996. Poster in English
9. Habitat Manipulation to Reduce the Damage Caused by the Papaya *Toxotrypana curvicauda* Fly (Diptera: Tephritidae): Orchard Design, Use of Traps and Peripheral Trapping. 2<sup>nd</sup> Meeting of the Working Group on Fruit Flies of the Western Hemisphere. Viña del Mar, Chile. November, 1996. Poster in English
10. Tactics on Integrated Management of Fruit Flies (Diptera: Tephritidae): Biological and Ecological Foundations for the Implementation of Biorational Schemes. XVII Brazilian Entomology Congress. Rio de Janeiro Brazil. August, 1998 (in Spanish).
11. Can individuals from *Anastrepha fraterculus* (Diptera: Tephritidae), belonging to Mexican populations, infest oranges and grapefruits? 3<sup>rd</sup> Meeting of the Working Group on Fruit Flies of the Western Hemisphere. Guatemala, Guatemala, 1999. Poster in English.
12. Does Fly Size and Diet in *Anastrepha ludens* and *A. striata* (Diptera: Tephritidae) Males influence their Sexual Competitiveness and Female Fitness? 4<sup>th</sup> Meeting of the Working Group of the Western Hemisphere on Fruit Flies. Mendoza Argentina. November, 2001. Poster in English.
13. Host Seraching and Oviposition Behavior of *Aganaspis pelleranoi* and *Odontosema anastrephae* (Hymenoptera: Eucolpidae) in Proximity of Infested and Non-Infested Fruit. 4<sup>th</sup> Meeting of the Working Group of the Western Hemisphere on Fruit Flies. Mendoza Argentina. November, 2001. Poster in English.
14. In Search of a Low Cost Bait for Fruit Flies of the Genus *Anastrepha* to Help Low-Income Fruit Growers in Latin America: the Case of Human Urine. 4<sup>th</sup> Meeting of the Working Group of the Western Hemisphere on Fruit Flies. Mendoza Argentina. November, 2001. Poster in English.
13. Nonhost Status of *Persea americana* cv. Hass to *Anastrepha ludens*, *A. obliqua*, *A. serpentina* and *A. striata* (Diptera Tephritidae). 5<sup>th</sup> Meeting of the Working Group on Fruit Flies of the Western Hemisphere. Fort Lauderdale, U.S.A. May, 2004. Poster in English.
14. Fruchtfliiegen (Tephritidae) un deren Parasitoide in Mexiko: Biologie/Ökologie, Verhalten und angewandte Aspekte. Coloquio ACW 2008-2009, Forschungsanstalt Agroscope Changins-Wädenswil, Suiza. Diciembre, 2008.
15. Neuigkeiten über die Walnussfliege, *Rhagoletis*, in der Schweiz: aktuelle Verbreitung und Walnuss-Sortenpräferenzen. 30<sup>th</sup> Meeting of the Swiss Dipterological Society, University of Zürich. February, 2009

16. Vortrag Abschluss Sabbatical. Coloquio ACW 2008-2009, Forschungsanstalt Agroscope Changins-Wädenswil, Suiza. Junio, 2009.
17. Pest management alternatives based on behavior: The case of pestiferous Fruit Flies (Diptera: Tephritidae). Syngenta Crop Protection Münchwilen AG, Basel, Suiza. Junio, 2009.
18. Biomimic<sup>®</sup> Scientific and Technological Cluster: Creating new opportunities for intense collaboration to solve common problems in Latin America through transdisciplinary science. 5<sup>th</sup> International Seminar on Nanoscience and Nanotechnology. Havana, Cuba, September, 2015. Oral presentation.
19. Experimental hybridization between Mexican *A. fraterculus* and *A. obliqua* populations. J. Rull, E. Tadeo, C. Rodriguez, R. Lasa & M. Aluja. 9th. Meeting of the Working Group of Fruit Flies of the Western Hemisphere. Buenos Aires, Argentina. October, 2016. Poster in English.
20. The effect of winter length on survival and duration of dormancy of four sympatric species of *Rhagoletis* exploiting plants with different fruiting phenologies. J. Rull, E. Tadeo, R. Lasa & M. Aluja. 9<sup>th</sup> Meeting of the Working Group of Fruit Flies of the Western Hemisphere. Buenos Aires, Argentina. October, 2016. Poster in English.
21. Interactions of the Fruit Flies (Diptera: Tephritidae) with their host plants with emphasis on the role of the microbiota in them. University of Valencia, Spain. May 2018. Spanish Oral presentation.
22. Do you want to be happy, never get bored, reinvent yourself all the time and help your country? Be a scientist? Pontificia Universidad Javeriana, Bogotá, Colombia. November 2019. Oral presentation.
23. Fruit Fly (Diptera: Tephritidae) - Host Plant Interactions: Overview of Key 30-Year Research and Exciting Recent Findings". Center for Medical, Agricultural and Veterinary Entomology, Agricultural Research Service of the U.S. Department of Agriculture CMAVE-USDA, Florida, USA. February de 2020. Conference.
24. Non host status of *Physalis peruviana* L. (Solanaceae) for the Medfly, *Ceratitis capitata* (Diptera: Tephritidae) determined via field surveys and field and laboratory experiments in Colombia. American Congress of Fruit Flies - 10th. meeting of the Working Group on Fruit Flies of the Western Hemisphere, held from Bogotá, Colombia. November 2020. Videoconference.

### **15.2.3. Participation in Workshops, Congresses and Symposia**

1. First Congress on Diseases in Wild Animals. National Autonomous University of Mexico (UNAM). Mexico DF. 1975

2. First, second, third, fourth and fifth Symposium on Agriculture and Agricultural Parasitology. Monterrey Institute of Technology and Higher Education (ITESM). Monterrey, Nuevo Leon, Mexico. 1977-1981.
3. XIV National Entomology Congress. Mexican Entomology Society. Monterrey, Nuevo Leon, Mexico. 1979.
4. Workshop on the Use of Toxic Baits for the Control of Fruit Flies in Mexico. Mexico-USA Cooperative Program. (SARH-USDA). Brownsville, Texas, USA. May 1982
5. Workshop on Taxonomy of Larvae of Fruit Flies to comply with the Quarantine Requirements of Mexico and the USA. Mexico-US Cooperative Program (SARH-USDA). Brownsville, Texas, USA. September 1982
6. International Symposium on Fruit Flies of Economic Importance. Athens, Greece. November 1982
7. I National Congress on Integrated Pest Management. Guatemala, Guatemala February 1983.
8. XVIII National Entomology Congress. Mexican Entomology Society. Tapachula, Chiapas. April 1983.
9. IV Meeting of the Regional Technical Committee for Plant Protection - Area I (IICA - DGSV). Cancun, Quintana Roo, Mexico. August 30 - September 2, 1983.
10. Population Biologists of New England. Meetings in Amherst, Cambridge and New Haven, USA. 1984-1985.
11. Advanced Workshop on Operations and Systems Analysis in the Management of Fruit Flies (funded by NATO). Bad Windsheim, Federal Germany. August 1985
12. National Congress. American Entomology Society. Hollywood, Florida, USA. December, 1985.
13. National Congress. American Entomology Society. Reno, Nevada, USA. December, 1986.
14. National Congress. American Entomology Society. Boston, Massachusetts, USA. December, 1987.
15. Symposium on Innovations in Integrated Pest Management. Sturbridge, Massachusetts, USA. March, 1988.
16. Symposium on the Environment. Tufts University. Boston, Massachusetts, USA. March, 1988.
17. XVIII International Entomology Congress. Vancouver, Canada July 1988
18. International Symposium on Fruit Flies of Economic Importance. Antigua, Guatemala October, 1990.

19. XXVI National Entomology Congress. Veracruz Mexico. May, 1991.
20. National Congress. American Entomology Society. Reno, Nevada, USA. December, 1991.
21. International Symposium on Fruit Flies of Economic Importance. Clearwater Beach, Florida, USA. June, 1994.
22. 2<sup>nd</sup> Meeting of the Working Group on Fruit Flies of the Western Hemisphere. Viña del Mar, Chile. November, 1996.
23. XVII Brazilian Entomology Congress. Rio de Janeiro Brazil. August, 1998.
24. Workshop (Workshop) to Develop a Regional Strategy for the Eradication of the Mediterranean Fly and Control of Fruit Flies of the *Anastrepha* genus. US Department of Agriculture (USDA-APHIS) and the Ministry of Agriculture, Livestock and Regional Development (SAGAR) - Directorate General for Plant Health (DGSV). Tapachula, Chiapas. March 23-25, 1999.
25. Workshop on Analysis and Evaluation of the Biodiversity Use Model. National Commission for the Knowledge and Use of Biodiversity (CONABIO). Mexico DF. November 29-30, 1999
26. 4th Meeting of the Working Group on Fruit Flies of the Western Hemisphere. Mendoza Argentina. November, 2001.
27. 5th Meeting of the Working Group on Fruit Flies of the Western Hemisphere. Fort Lauderdale, USA May, 2004.
28. 3rd. Tephritoid Taxonomist's Meeting. Geneva, Switzerland. July, 2004.
29. 8th Annual Exotic Fruit Fly Research Symposium. Riverside, California, USA. March, 2005.
30. INECOL 2014, 2015, 2016, 2017 and 2019 open house.
31. Promotion of Interest for the scientific career in children and young people 2014, 2015, 2016, 2017, 2019.

## **16. EXTERNAL FINANCING FOR RESEARCH STAYS AND ASSISTANCE TO SCIENTIFIC EVENTS**

1. Support provided by NATO to travel to Bad Windsheim, Federal Germany and attend an Advanced Workshop entitled: "Pest Control: Operations and Systems Analysis in Fruit Fly Management". USD \$ 950. 1985.
2. Support provided by the British Council (The British Council - Mexico) to travel to the United Kingdom, give lectures and visit colleagues at the universities of London, Reading, Oxford, Southampton, Manchester, and Imperial College. 800 British Pounds. 1989

3. Support provided by USDA / OICD / ITD-MIC to travel to Gainesville, Florida and participate in a collaborative project with Dr. Patrick Greany, Insect Attractants, Behavior & Basic Biology Research Laboratory. USD \$ 1035.00 (application in conjunction with Dr. Patrick Greany). January 1991.
4. Support (round trip plane ticket) provided by CONACYT (Deputy Directorate of International Affairs) to travel to Wädenswil, Switzerland and coordinate and participate in a collaborative project with Drs. Ernst F. Boller and Jacob Hurter of the Swiss Federal Research Station Mex \$ 6000.00. October, 1993 to March, 1994.
5. Support provided by USDA / OICD / ITD-MIC to travel to Gainesville, Florida and participate in a collaborative project with Dr. John Sivinski, Insect Attractants, Behavior & Basic Biology Research Laboratory. USD \$ 1135.00 and round-trip plane ticket (joint application with Dr. John Sivinski. February to March, 1995.
6. Support provided by Sandoz Agro LTD. (round trip ticket) to travel to Wädenswil, Switzerland, coordinate and participate in a collaborative project with Drs. Ernst F. Boller and Jacob Hurter of the Swiss Federal Research Station. Mex \$ 8,000.00. August, 1995.
7. Support provided by CONACYT / CONICIT-CHILE PROGRAM (round-trip ticket) to travel to Santiago, Chile, to attend the 2nd Meeting of the Working Group on Fruit Flies of the Western Hemisphere. \$ 7,220.00. November, 1996.
8. Understanding the chemical and biological basis for host plant defense against fruit flies of the Tephritidae Family. Financing for MIT-Mexico collaboration and research stays. Dr. Jing-Ke Weng and Dr. Martín Aluja. US \$ 29,997. December 16, 2015 - August 31, 2017.
9. Research Stay Grant for distinguished scholars to collaborate with Dr. Andrés Moya Simarro in the Department of Systems Integrative Biology at the University of Valencia, Spain. 2.5-month period during the 2017-2018 biennium. € 15,900.00.

## 17. PATENTS

### 17.1. NATIONALS (Mexican)

1. Aluja, M., Díaz-Fleischer, F., Edmunds, A. J. F. & Hagmann, L. 1998. Isolation, Structural Determination, Synthesis, Biological Activity and Application as a Control Agent for the Host Marker Pheromone and its Derivatives of the *Anastrepha* Fruit Flies (Diptera: Tephritidae). Registration Number before the Mexican Institute of Industrial Property (IMPI): 988732. Registration Date: October 21, 1998. Grant: 2004. Patent No. 224558.
2. Aluja, M., Birke, A. & Edmunds, A. 2016. System and process of repellency-attraction for the control of the Fruit Fly. Mexican Institute of Industrial Property. May 4, 2016. **Patent still pending.**

### 17.2. INTERNATIONAL



1. USA: Aluja, M., Díaz-Fleischer, F., Edmunds, A. J. F. & Hagmann, L. 2003. Isolation, Structural Determination, Synthesis, Biological Activity and Application as Control Agent of the Host Marking Pheromone (and Derivatives Thereof) of the Fruit Flies of the Type *Anastrepha* (Diptera: Tephritidae). Awarded by the United States Patent on April 29, 2003. Patent No. US 6,555,120 B1.
2. Colombia. Aluja, M., Díaz-Fleischer, F., Edmunds, A. J. F. & Hagmann, L. Process to Prepare 2- (2'14'-Dimethylpentadecanoylamino) -Pentanedioic Acid and Its Biologically Active Derivatives. Awarded by the Superintendence of Industry and Commerce of the Republic of Colombia on February 26, 2007. Patent No. 28719.

## **18. OTHER PROFESSIONAL ACTIVITIES:**

### **18.1. REFEREEING OF SCIENTIFIC ARTICLES**

1. Referee of the following national scientific journals: *Folia Entomológica Mexicana* and *Acta Zoológica Mexicana* 1991 -
2. Referee of the following international scientific journals (three are foreign \*): *Animal Behavior*, *Annals of the Entomological Society of America*, *Biological Control*, *Brazilian Journal of Morphological Sciences\**, *Bulletin of Venezuelan Entomology Society\**, *Bulletin of Entomological Research*, *Entomologia Experimentalis et Applicata*, *Entomophaga*, *Entomotropica*, *Environmental Entomology*, *European Journal of Entomology*, *Florida Entomologist*, *Journal of Applied Entomology*, *Journal of Chemical Ecology*, *Journal of Economic Entomology*, *Journal of Insect Behavior*, *Nature*, *Oikos*, *Insect Science*, *Journal of Food Biochemistry*, *PLoS One*, *Insects*, *Chemoecology*. 1993 – to date.

### **18.2. REFEREE / CONSULTANT FOR RESEARCH PROJECTS AND INSTITUTIONS / INTERNATIONAL PROJECTS**

1. Member. External Evaluation Committee of Scientific Projects of CONACYT (Deputy Directorate of Scientific Research and Deputy Directorate of International Affairs). 1991 – 1994.
2. Member. CONACYT External Evaluation Committee. Case: Academic Staff of the Southeast Ecological Research Center (CIES) - Colegio de la Frontera Sur (ECOSUR). 1991 - 2003, 2006.
3. Expert of the International Atomic Energy Agency (Vienna, Austria). Project: Establishment of "Fruit Fly Free Zones" in Thailand. September - October, 1992.
4. Member. CONACYT Committee "Retention in Mexico and Repatriation of Mexican Researchers". 1994 - 1997.

5. Referee of Scientific Projects of the United States - Israel Binational Agricultural Research and Development Fund (BARD). 1994.
6. Referee of Scientific Projects of "The Israel Science Foundation". 1996.
7. CONACYT Evaluator. Graduate Programs of Excellence. 1997 –
8. Member. Population Ecology Evaluation Committee, National Commission for the Knowledge and Use of Biodiversity (CONABIO). 1997
9. First Vocal. Selection Committee for the Designation of the Agronomist of the Year Award (1998). State College of Agricultural Engineers of Veracruz, A.C. February 1998.
10. Member. Prize Commission of the Mexican Academy of Sciences. 1999 - 2000.
11. Member of the Evaluation Committee of the 2017-07 Project call “Boosting the coconut palm value chain to increase its competitiveness and contribute to socio-economic development in the South Pacific region and other producing states”. Institutional Fund for Regional Development for Scientific, Technological and Innovation Development, CONACYT. November 2017
12. Invited to Colombia as an Expert Consultant of the International Atomic Energy Agency (Vienna, Austria) to advice and participate in the conduct of Field Trials for the determination of the host status of *Physalis peruviana* L. (Solanaceae) in Cécota and Chitagá, Colombia. November 18 to December 2, 2018.

### 18.3. ORGANIZATION OF SCIENTIFIC EVENTS AND COORDINATION OF FORUMS / TABLES IN SUCH EVENTS

1. Co-organizer (together with Dr. Allen Norrbom) of the International Symposium on Phylogeny and Evolution of Fruit Flies Behavior (Diptera: Tephritidae). Xalapa, Veracruz. February 1998.
2. Organizer of the Symposium “The Role of Ethics in Scientific Research and Higher Education” sponsored by the Mexican Academy of Sciences. Xalapa, Veracruz. February, 2003.
3. Organizer of the Symposium "Ethics in the Use of Animals for Research" as part of the VIII International Course "Biological Bases of Behavior". Tlaxcala, Tlaxcala. May, 2003.

### 18.4. EDITORIAL FUNCTIONS IN SCIENTIFIC JOURNAL

1. Associate Editor. Mexican Entomological Folia. 1986 - 1993.
2. Member. Editorial committee. Mexican Zoological Act. 1991 - 1998.
4. Member of the Editorial Committee of Current Opinion in Insect Science. 2015, 2016.
5. Associate Editor. Biological Control 2000 - 2019.
6. Member of the Editorial Board. Journal of Insect Behavior. 2019 – to date.

## 18.5. OTHERS

1. Representative. Agronomy Students Society, Monterrey Technological Institute of Higher Education, Monterrey, Mexico. 1979.
2. Co-Director. Film on Integrated Management of Fruit Flies. April, 1982 (credit as Technical Advisor).
3. Moderator. I Congress on Integrated Pest Management, Guatemala, Guatemala. Session: Basic Information on Integrated Management Programs in Mexico and Guatemala. February 1983.
4. President. Local Organizing Committee, XVIII National Entomology Congress, Tapachula, Chiapas, Mexico. April 1983.
5. Moderator. XVIII National Entomology Congress, Tapachula, Chiapas, Mexico. Session: Economic Entomology. April 1983
6. Co-Director. Movie about the Mediterranean Fly Program in Mexico. October, 1983 (credit as Technical Advisor).
7. Elected Representative of the Student Union, Department of Entomology, University of Massachusetts. September, 1984 to August, 1985.
8. President. Fernald Entomological Club. 1985-1986.
9. Member. Resolutions Committee, American Entomology Society. 1988
10. Representative of the Mexican Entomology Society in the USA. 1985-1989.
11. Vice-President (Co-Chairman) of the Working Group on Fruit Flies of the International Organization for Biological Control of Noxious Animals and Plants (IOBC). 1990-1994
12. Chairman (Chairman) of the Working Group on Fruit Flies of the International Organization for Biological Control of Noxious Animals and Plants (IOBC). 1994-1998
13. Member. Technical Advisory Committee. National Campaign against Fruit Flies. General Directorate of Plant Health-Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food. June 1993 -
14. Expert in Pest Risk Analysis. Invited by the Mexican Government to Participate and Support the Mexican Government in Public Hearings Held in Washington D.C., U.S.A., Regarding Proposal 7 CFR Part 319 "Importation of Fresh Hass Avocado Fruit Grown in Michoacán, Mexico". 1995.
15. Advisor and Coordinator of the Research Project "Determination of the Status of Avocado, *Persea americana* Cultivar 'Hass' as a Potential Host Plant for Fruit Flies (Diptera: Tephritidae) of the *Anastrepha* Genus (*A. ludens*, *A. obliqua*, *A. serpentina* and *A. striata*) at Different Altitudinal Levels and Harvest Periods in Michoacán, Mexico" for the Association of Producers, Packers Exporters of Avocado in Michoacán (APEAM). 2001 - 2004.

16. Member. Dictaminating Commission of the Institute of Ecology, UNAM. 2001 - 2003.
17. Expert in Pest Risk Analysis. Invited by the Mexican Government to Participate and Support the Mexican Government in the Public Hearing of Exportation of Mexican Avocado to the U.S., held in the City of Austin, Texas, U.S.A. 2001
18. Member. Award Commission, National Plant Health Award. 2001
19. Member of the Dictaminating Committee of the National System of Researchers Area II (Chemistry and Biology). 2002-2004.
20. Member of the External Academic Commission of the Potosino Institute of Scientific and Technological Research, A.C. (IPICYT). June, 2006 - 2018.
21. Full Member and Representative of the Academic Sector before the Board of Directors of the Veracruz Council of Scientific Research and Technological Development (COVEICyDET). 2007 - present.
22. Member of the Approval Council of the State System of Researchers (Veracruz), under the Veracruz Council of Science and Technology. June 2007
23. Pest Management Expert. Invited by the International Atomic Energy Agency. Commission of Phytosanitary Measures (CPM). Panel of Technicians in Areas and Systems Free of Fruit Fly. Vienna Austria. 04 to 08 October 2010. Only invitation.
24. Member of the Science Advisory Council of the Presidency of the Republic (CCC). Mexico City. January 2013 - present.

## **19. INSTITUTIONAL COMMITMENT**

### **19.1. ACADEMIC AND ADMINISTRATION DUTIES**

General Director, Instituto de Ecología, A.C. 2010 - 2017

### **19.2. PARTICIPATION IN COMMITTEES AND COMMISSIONS**

1. Member as Co-Chairman of the Postgraduate Restructuring Commission of the Institute of Ecology, A.C. 2003 - 2004.
2. Member of the Internal Council of the Institute of Ecology, A.C., as Representative of Research Units/Departments by open election among academic staff. 2007 - 2009.

## **20. PROFESSIONAL DISTINCTIONS**

### **20.1. AWARDS/PRIZES**

1. Research Award in Agricultural Entomology "Harry A. Rosenfeld". University of Massachusetts. 1985.

2. Prize for the Best Postgraduate Students. University of Massachusetts 1987.
3. Florida Entomological Society Award. 1987.
4. International Foundation for Science King Baudouin Award. 1994.
5. National Prize for Scientific Research. 1996. Mexican Academy of Sciences. Highest award bestowed to young/junior scientists in Mexico by the President.
6. Annual State Prize of the Agricultural Engineer. 1997. State College of Agricultural Engineers of Veracruz, A.C.
7. National Plant Health Prize. 2012. Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA-SENASICA).
8. National Science and Arts Prize of 2013, in the Area of Technology, Innovation and Design. Highest award bestowed to senior scientists in Mexico by the President.
9. Award for his contribution to protected innovation 2018, the Mexican Institute of Industrial Property in conjunction with the Institute of Ecology A.C., within the framework of the celebration of the Mexican Inventor's Day. Xalapa, Veracruz, February 16, 2018.

## 20.2. ACADEMIC DISTINCTIONS

1. Selected by CONACYT for the **REPATRIATION** Program of Mexican Researchers Abroad (Ref .: A128CCOE900015 (BI-1). 1990.
2. Distinguished as a National Investigator Level I 1990, Level II 1993, 1996, Level III 1999, 2003, 2008, 2018 by the National System of Researchers (SNI). In all cases it was evaluated in Area II (Biology & Chemistry).
3. Accepted as a Member of the Mexican Academy of Sciences in 1993.
4. President (Chairman). Working Group on Fruit Flies, International Organization for Biological Control of Noxious Animals and Plants (IOBC). 1994 - 1998.
5. Elected President of the Southeastern II Regional Section of the Mexican Academy of Sciences. 2001 - 2003.
6. Elected President of the National Phytosanitary Consultative Council (CONACOFI). 2000 - 2008.