

GEMA HERNAN MARTINEZ

Espagnole, née le 11 Novembre 1985

Ph.D. de l'Universitat de les Illes Balears - Ecologiste Marin -

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Langues

- **Espagnol** (langue maternelle)
- **Anglais** (fluent)
- **Français** (fluent)
- **Catalan** (fluent)

FORMATION

2012 - 2017

UNIVERSITAT DE LES ILLES BALEARS - Palma, SPAIN

Ph.D. Degree - Ecologie marine

Ph.D. thesis: "Defense Strategies against herbivory in seagrasses"

2010 - 2011

UNIVERSIDAD DE BARCELONA - IDAEA CSIC - Barcelona, SPAIN

Master - Sciences de la mer : océanographie and aménagement côtier

Thèse: "Persistent organic pollutants in marine environment"

2002 - 2008

UNIVERSIDAD DE COMPLUTENSE DE MADRID - Madrid, SPAIN

License - Biologie

Thèse: "Study of the intermareal benthonic fauna"

EXPERIENCES PROFESSIONNELLES

2012 - 2017 **Doctorant.** Institut Méditerranéen d'études avancées (IMEDEA-CSIC). Département d'Ecologie and de Ressources Marines. Groupe d'Ecologie of Marine Macrophytes.

2014 **Teaching assistant.** Cours sur l'utilisation d'outils pour l'aménagement du milieu marin. Cours d'été à l'Universidad Internacional del mar.

2012 **Research assistant.** Centre d'études marines (Universidad do Algarve)- Centro de Estudios Avanzados de Blanes (CEAB, CSIC)
Project : Effects of increased CO2 and nutrients on seagrass herbivory.
Grant from the *European Cooperation in Science and Technology (COST)*

2011 - 2012 **Research assistant.** Institute of environmental assessment and water research. (IDAEA-CSIC).
Sampling, chemical analysis and quantification (HRGC/HRMS) of persistent organic pollutants
Malaspina Expedition 2011 Hespérides Research vessel (45 days at sea)

2009 - 2010 **Research assistant** National institute for agricultural and food research and technology. Laboratory of Medicinal and Aromatic plants. Distillation, extraction of antioxidants and oils, analysis by HPLC and GC.

VISITES DE RECHERCHE

Juin-Septembre 2017: Oregon State University (Oregon, USA)

Herbiome: The unexplored link between herbivore diet and microbiome.

Funding: *Obra Social La Caixa*

Février-Mai 2016: Universidad Nacional Autónoma de México (Puerto Morelos, México)

Photobiology of the seagrass *Halodule wrightii*

Funding: *Banco Santander Foundation*

Juin-Septembre 2015: Oregon State University (Oregon, USA)

ZEN defense. Latitudinal effects of defense strategies against herbivory in the seagrass *Zostera marina*

Funding: *Universitat de les illes balears*

Juin-Juillet 2014: Stazione Zoologica Anton Dohrn (Ischia, Italy)

Fish herbivory under a gradient of ocean acidification

Funding: *Assemble EUFP7*

EXPEDITIONS SCIENTIFIQUES

2011: Malaspina Expedition; Hespérides Research vessel - **45 days**

Sampling of persistent organic pollutants: plankton nets, aerosol sampling, air sampling, water sampling

2011: Cornide de Saavedra - **3 days**

fishing nets, trawling, fish measurements, bottom sampling dredges

PUBLICATIONS

En préparation

[7] **Hernán G.**, M.J. Ortega, J. Henderson, J. Alos, K. Boyer, S. Cimon, V. Combes, M. Cusson, A. Dennert, C. Hereu, M. Hessian-Lewis, K. Hovel, P. Jorgensen, S. Kiriakopoulos, N. Kollars, M. O'Connor, J. Olsen, P.L. Reynolds, J. Ruesink, J. Terrados, E. Voigt and F. Tomas: Defense against herbivory: Latitudinal patterns in a marine habitat-forming species (*in preparation*)

[6] **Hernán G.**, I. Castejón, J. Terrados and F. Tomas: Resource availability and herbivory damage do not interact to modulate plant defense strategies (*in preparation*)

Articles publiés

[5] Galbán-Malagón, C., **G. Hernan**, E. Abad, J. Dachs, (2017): Persistent Organic Pollutants in Krill from the Bellingshausen, South Scotia, and Weddell Seas. *STOTEN* 610-611, 1487-1495

[4] **Hernan, G.**, M.J. Ortega, A.M. Gandara, I. Castejon, J. Terrados and F. Tomas, (2017): Future warmer seas: increased stress and susceptibility to grazing in seedlings of a marine habitat-forming species. *Glob. Chang. Biol.* 00:1-14. <https://doi.org/10.1111/gcb.13768>

[3] **Hernan, G.**, L. Ramajo, L. Basso, A. Delgado, J. Terrados, C.M. Duarte and F. Tomas, (2016): Seagrass (*Posidonia oceanica*) seedlings in a high-CO₂ world: from physiology to herbivory. *Scientific Reports* 6, doi:10.1038/srep38017

[2] Tomas, F., B. Martínez-Crego, **G. Hernan** and R. Santos, (2015): Responses of seagrass to anthropogenic and natural disturbances do not equally translate to its consumers. *Glob. Chang. Biol.*, 21(11), 4021-4030, doi:10.1111/gcb.13024

[1] Morales, L., J. Dachs, B. González-Gaya, **G. Hernan**, M. Abalos and E. Abad, (2014): Background Concentrations of Polychlorinated Dibenzo-p-Dioxins, Dibenzofurans, and Biphenyls in the Global Oceanic Atmosphere. *Environ. Sci. Technol.*, 48 (17), 10198–10207, doi:10.1021/es5023619

CONFERENCES & WORKSHOPS

Hernán G., Castejón, I., Terrados J, Tomas F. "Resistance and tolerance responses to herbivory under increased nutrient conditions and their effects on seagrass palatability". Ecological Society of America Annual meeting (Portland, OR, US, 2017) Oral presentation

- Hernan, G.**, Ramajo, L., Basso, L., Delgado, A., Terrados, J., Duarte, C.M., Tomas, F. "Seagrass (*Posidonia oceanica*) seedlings in a high CO₂ world: from physiology to herbivory". 12th International Seagrass Biology Workshop (Wales, UK., 2016) Oral presentation
- Hernan, G.**, Tomas, F., Buia, M.C. and Terrados, J. "Ocean acidification enhances fish herbivory on seagrass". American Fisheries Society Meeting (Portland, U.S., 2015) Oral presentation
- Tomas, F., **Hernán, G.**, Buia, M.C. and Terrados, J. "Seagrass herbivory patterns are altered under ocean acidification". Benthic Ecology Meeting (Quebec city, Canada, 2015). Oral presentation.
- Hernán, G.**, Martínez, A., Terrados, J. and Tomas, F. "Effects of temperature in seagrass seedlings and their trophic relations". Aquatic Science Meeting, Association for the sciences of Limnology and Oceanography (Granada, Spain, 2015). Oral presentation.
- Tomas, F., **Hernan, G.**, Buia, M.C. and Terrados, J. "Ocean acidification modifies within-plant herbivory patterns in the seagrass *Posidonia oceanica*". Aquatic Science Meeting, Association for the sciences of Limnology and Oceanography (Granada, Spain, 2015)
- Tomas, F., Martínez-Crego B., **Hernán G.**, Santos R. "Eutrophication and acidification impacts on seagrass do not equally translate to its consumers". 37th Annual Meeting Pacific Estuarine Research Society, (Newport, Oregon, USA, 2014). Oral presentation.
- Tomas, F., Martínez-Crego B., **Hernán G.**, Santos R. "Contrasting effects of ocean acidification, eutrophication and herbivory on seagrass - herbivore interactions". Ocean Sciences Meeting, (Hawaii, USA 2014). Oral presentation.
- Galbán-Malagón, C., **Hernán, G.**, Berrojálbiz, N., Ojeda, M.J. Abalos, M.J. Abad, E., Dachs, J. "Persistent organic pollutants in Antarctic Krill (*Euphasia Superba*)" SETAC 22nd Annual meeting/ 6th World Congress (Berlin, 2012). Poster
- Hernán, G.**, Varela, F., Navarrete, P., Pérez-Mao, D., López-Cepero, P., Marcos, M. F., Lorenzana, A., Campelo, P., Casquero, P. A., Calvo, R., Sánchez de Ron, D., Cases, A. "Chemical characterization of plant genetic resources of gentian (*Gentiana lutea* L.) in the counties of Laciana and Babia (Spain)" 28th International Horticultural Congress. ISHS Abstracts, Vol. I. (Lisboa, 2010).
- Herraiz, D., Usano-Aleman, J., Cuadrado, J., Cases, M.A., Navarrete, P., López-Mao, D., Lopez-Cepero, P., **Hernán, G.**, Varela, F. "Chemical characterization of *Rosmarinus officinalis* essential oil from Alcarria region (Spain) wild populations" 28th International Horticultural Congress. ISHS Abstracts, Vol. I. (Lisboa, 2010).
- Herraiz, D., Usano-Aleman, J., Cuadrado, J., Cases, M.A., Navarrete, P., López-Mao, D., Lopez-Cepero, P., **Hernán, G.**, Varela, F. "Phenolic fraction composition (phenolic acids and flavonoids) of *Salvia lavandulifolia* wild populations from Alcarria region (Spain)" 28th International Horticultural Congress. ISHS Abstracts, Vol. I. (Lisboa, 2010).
- Varela, F., Peluzzo, A., Berrio, F., De la Rosa, L., Ruano, A., Meana, A., Gómez, D., García, R.M., Larreina, J.R., Díaz, E., Marcos, T., **Hernán, G.**, Sánchez De Ron, D., Pascual, H. "El Centro de Recursos Fitogenéticos - INIA: Variedades tradicionales de plantas cultivadas recolectadas en Andalucía (1929-2009)" V Congreso de Mejora genética de plantas SECH (Julio 2010, Madrid).
- Cases, M.A., Navarrete, P., Pérez-Mao, D., **Hernán, G.**, López-Cepero, P., Sánchez, D., Varela, F. "Recursos genéticos y caracterización química de plantas aromáticas y medicinales en las Islas Pitiusas" V Congreso de Mejora genética de plantas SECH (Julio 2010, Madrid).
- Varela, F., **Hernán, G.**, Navarrete, P., Pérez, B., Pérez-Mao, D., López-Cepero, P., Cuadrado, J., Herraiz, D., Usano-Aleman, J., Sotomayor, J.A., Jordán, M.J., Cristobal, R., Fanlo, M., Melero, R., Moré, E., Cabot, P., Asensio S.-Manzanera, M.C., Asensio Vegas, C., Martín, H., Herrero, B., Fernández, M., Peluzzo, A., González Benito, M.E., Pérez, F., Sánchez, D., Cases, M.A. "Bioprospecting: genetic resources of medicinal and aromatic plants in Spain". 4th International Symposium Breeding Research on Medicinal and Aromatic Plants, ISHS (Ljubljana, Slovenia, 2009).

PROYETS FINANCES

I+D projects funded in public announcements.

Compresión holística del funcionamiento y resiliencia de una fanerógama marina a perturbaciones locales: de escalas moleculares a escalas biogeográficas.

Funded by: Spanish Ministry of Science and Innovation. **Duration 2011-2013**

P.I.: J. Terrados / F. Tomas (IMEDEA).

Funding amount: 153,670 € / 3yr.

Independent and interactive effects of increased CO₂ and nutrients on seagrass – herbivore interactions

Funded by: European Union FP7 research infrastructure program ASSEMBLE

P.I.: F. Tomas (IMEDEA).

Funding amount: 5,000 €.

Seagrass restoration through seedlings: effects of light, nutrients and herbivory.

Funded by: Spanish Ministry of Science and Innovation. **Duration 2011-2013**

P.I.: J. Terrados / F. Tomas (IMEDEA).

Funding amount: 148,000 € / 3yr.

Circumnavigation Expedition Malaspina 2010: Global Change and Biodiversity. Exploration of the Global Ocean.

Funded by: Spanish Ministry of Science and Innovation. Programa CONSOLIDER INGENIO 2010.

P.I.: Carlos M Duarte.

Selection and breeding for its agronomic behaviour and richness in active principles of spanish wild populations of Lavandula latifolia, Rosmarinus officinalis, Salvia lavandulifolia y Thymus mastichina.

Funded by: Spanish Ministry of Science and Innovation.

Participants: INIA, SIA CLM, ITACyL, UVa, CTCF, IRTA. **Duration: 2010-2012**

P.I.: M.A. Cases. Number of participant researchers: 19

Funding amount: 224,340€

R&D projects

Seagrass-herbivore interactions in an acidified and eutrophic ocean.

Funded by: Padi Foundation, US. **Duration: 2012-2013**

P.I.: B. Martínez- Crego and F. Tomas.

Funding amount 5,000\$

Gentian studies in the occidental mountains of Leon for a comprehensive gestión.

Funded by: Junta de Castilla y León. **Duration: 2008-2012**

Participants: Universidad de León, Universidad Politécnica de Madrid e INIA

P.I.: Pedro Casquero, Carlos Soriano y Federico Varela. Number of participant researchers: 10

Funding amount: 109,000€

Survey and cataloging of genetic resources of aromatic plants in Baleares, selection of mother plant for genera of commercial interest.

Funded by: Comunidad Autónoma de las Illes Balears. **Duration: 2008-2009**

Participants: INIA y Destilerías Marí Mayans C.B.

P.I.: M.A. Cases. Number of participant researchers: 3

Funding amount: 112.137,75€

CERTIFICATS

Coastal Skipper

PADI Advance Water Diver

Driving licence B

First Aid and CPR (Red Cross)

Discharge Book- General Directorate of maritime affairs. Ministry of development

COURS COMPLEMENTAIRES

Software:

Data analysis and statistical inference. MOOC-Duke university

Computing for data Analysis (R programming). MOOC- Johns Hopkins University.

Coastal photogrametry technician, GPS and GIS. Universidad Politécnica de Madrid.(188h)

Basic GIS techniques and georeference with GEOlocate. GBIF - CSIC (30h)

BIBMASTER. Databases for management of projects in biodiversity. National node of information in biodiversity (GBIF) and CSIC (12h.)

Course of advanced Access. Net Office for the INIA (20 h.)

Modelization and persistent organic pollutants dynamics. IDAEA-CSIC (24h)

Scientific:

Marine Evolution under Climate Change. University of Gothenburg.
Training School on Effects of increased CO₂ /OA on Seagrass Meadows. *COST*
Writing in the science. MOOC-Stanford University.
Opening science (Scientific divulgation). La Caixa Foundation
Project Management. *European Social Fund* (270h.)
Urban solid waste Management technician. Universidad Politécnica de Madrid (120 h.)
Environmental Management in the company. IFI Formation. Plan CEIM (80 h.)
Integral Management of quality and environment and Labour Risk Prevention (55 h.)
Theoretical and practical Course "Canary islands cetaceans". Society for the Study of the Canary Islands Cetaceans (SECAC).

Navigation and sailing

Maritime familiarization and Safety. General Directorate of maritime affairs and fisheries. Ministry of development.(74 h.)
Science and art of Navigation. Universidad internacional del mar (120h)

COMPETENCES PROFESSIONNELLES

Boat handling, nautical charts, GPS and DGPS.

Experience in fieldwork:

Diving sampling and surveys.
Coastal and off shore samplings.
Electrical fishing.
Mesocosm start up and maintenance.
Telemetry: installation of issuers' and receptors in fishes and analysis of information.
Sampling in scientific cruises: bottom sampling dredges, fishing and plankton nets, traps, CTD, radiometer, hydrophones...
Determination of age, sex and study of diet in fish and cephalopods.

Experience in laboratory:

Analysis of carbohydrates and phenolic compounds.
Analysis of seagrass physiology (photosynthetic measurements)
Extraction of active compounds and organic pollutants.
Purification and clean up, quantification for HPLC, HRGC/HRMS.
Analysis of stomach content on fishes.
Age determination in fishes.
Identification of benthic species.

Other:

Plants, Birds, invertebrates, seagrass and mammal surveys.
Radiotracking: installation of devices and follow-up in birds.
Analysis of bird's diet.
Handling of mammals, reptiles and birds of prey.

BENEVOLAT**2011 CRAM (Centro de recuperación de animales marinos)**

Assistant in a marine animal rehabilitation centre.

2010 Anse.

Research and monitoring programme of interaction between bottlenose Dolphin and fish farms Project. Marine birds survey and cetaceans monitoring on board.

2008 Global Nature Foundation.

Survey and study of birds' mortality in electrical wires of Fuerteventura's island. Sea shore bird surveys.

2007 WWF/Adena

Volunteering in National Parks in " Archipelago Chinijo " (Canary islands)

Vigilance of poaching, illegal activities in the marine environment, collection of residues from the sea shore.

Diagnosis, environmental assessment and study of the distribution of the introduced flora.

2007 GREFA (Recovering group of fauna)

Collaborating in the project Lesser Kestrel (Falco naumanni)

2006 SEO/Birdlife.(Spanish Ornithological Society)

Volunteering in National Parks in " Valsaín's Mounts ". Installation and repairment of nest boxes