

CURRICULUM VITAE ABREVIADO (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages.

Part A. PERSONAL INFORMATION

First name	F. Xavier		
Family name	Picó Mercader		
Gender	Male	Birth date (dd/mm/yyyy)	13/03/1971
ID number	45466118V		
E-mail	xpico@ebd.csic.es	https://orcid.org/0000-0003-2849-4922	
Open Researcher and Contributor ID (ORCID)	0000-0003-2849-4922		

A.1. Current position

Position	Senior Researcher (Científico Titular)		
Initial date	12/07/2006		
Institution	The Spanish National Research Council (CSIC)		
Department/Center	Evolutionary Biology	Doñana Biological Station (EBD)	
Country	Spain	Phone	+34 954 232 340
Keywords	Adaptive variation, Biogeography, Demography, Experimental ecology, Experimental evolution, Population ecology, Population genetics, Plants		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position / Institution / Country
2000-2003	Postdoc / Radboud University / The Netherlands
2003-2004	Postdoc / National Centre for Biotechnology (CNB-CSIC) / Spain
2004-2006	Postdoc / Centre for Ecol. Res. and For. Appl. (CREAF-UAB) / Spain
2006-present	Senior Researcher / Doñana Biological Station (EBD-CSIC) / Spain

A.3. Education

PhD, Graduate Degree	University / Country	Year
PhD in Biological Sciences	CREAF-UAB / Spain	2000
Bachelor's degree in Biology	Autonomous University of Barcelona / Spain	1996

Part B. CV SUMMARY

As a population biologist, I am interested in understanding the **processes that govern the performance, dynamics and adaptive variation of plant populations**. I conduct multidisciplinary research integrating data from field studies (e.g. demographic surveys), experiments (e.g. greenhouse, common garden and reciprocal transplant experiments) and molecular work (e.g. microsatellites, genome-wide markers, whole-genome sequences and gene expression). I mostly work with **natural populations of the annual plant *Arabidopsis thaliana* across the SW Mediterranean Basin**, which is the area of the species' distribution harbouring the greatest environmental, phenotypic and genomic diversity. Besides, *A. thaliana* is the only plant system that also allows a thorough study of the **genetic basis of ecologically and evolutionarily important life-history traits**, opening the door to the mechanistic understanding of trait variation in nature.

My scientific contributions reflect my interest, which began to emerge at the end of my PhD studies, in **merging ecology and genetics to understand evolutionary change** in plants. In fact, I consider the development of purely ecological studies of the model system for plant genetics, *A. thaliana*, as one of my most prominent contributions to the discipline and to the plant biology community. When I decided to adopt *A. thaliana* as my only study system, the ecology of *A. thaliana* was limited to a few classical traits and erroneous conceptions about the species. Today, the situation has changed completely and the knowledge that we have on the ecological complexity of environments occupied by *A. thaliana* and the extent of variation in life-history traits as adaptations to such environments has increased considerably. That better ecological knowledge of *A. thaliana* allows the development of studies **testing**



hypothesis in natural settings instead of controlled environments (greenhouses and growth chambers), which represents a very important change in the way in which we put hypothesis to the test.

Since I had the opportunity back in 2006, I am the **principal investigator of my research projects**, which I consider as a very important factor to develop my own ideas. So far and in projects with *A. thaliana* as the study system, I obtained funding from **6 research projects from competitive calls**, totalling 815 k€ (CGL2006-09792/BOS, CGL2009-07847/BOS, CGL2012-332207BOS, CGL2016-77720-P, P18-FR-3307 and PID2019-104135GB-I00). These projects produced up to **30 publications in known scientific journals** by the plant community (see <https://orcid.org/0000-0003-2849-4922>). During this time entirely focused on *A. thaliana*, I developed and **consolidated several national and international research collaborations** mostly in Europe, USA and Africa (Egypt). I have (co)supervised **3 Master theses** and **6 PhD theses** (1 in progress) as a result of this scientific activity. In the last few years, however, I have also collaborated with other research groups on related questions involving other species, such as *Diptotaxis acris*, the *Anacyclus* species complex, *Chamaerops humilis*, *Pyrus bourgaeana* and the *Sonchus* species complex.

Beyond my regular participation in scientific meetings with oral communications and posters, I also want to highlight my active role in the **organization** of workshops (5), congress sessions or symposia (8) and entire congresses (6) since 2009. It is very rewarding to create opportunities to gather members of the ecological, genetic and evolutionary communities to discuss on particular subject matters. These activities create synergies that end up in collaborations and better science, particularly for early career researchers. Since 2018, I have started organizing **round tables** (2) in scientific meetings as another way to create interactions within the community, but this time in topics at the interaction between science and society. Another important part of my time deals with the regular participation in **evaluation panels** of research projects and grants from national and international funding agencies. Finally, since 2005, I have been involved in **editorial boards** of different scientific journals. At present, I serve as Section Chief Editor in AoB Plants, which requires all my time in this task. Since 2000, I usually review several manuscripts a year for various scientific journals.

Part C. RELEVANT MERITS

C.1. Publications (selected from 5 last years; 2019-present)

- Martínez-Minaya J, Conesa D, Fortin MJ, Alonso-Blanco C, **Picó FX (CA)**, Marcer A. 2019. A hierarchical Bayesian Beta regression approach to study the effects of geographic genetic structure and spatial autocorrelation on species distribution range shifts. **Molecular Ecology Resources** 19:929-943. Doi: [10.1111/1755-0998.13024](https://doi.org/10.1111/1755-0998.13024).
- Toledo B, Marcer A, Méndez-Vigo B, Alonso-Blanco C, **Picó FX**. 2020. An ecological history of the relict genetic lineage of *Arabidopsis thaliana*. **Environmental and Experimental Botany** 170:103800. Doi: [10.1016/j.envexpbot.2019.103800](https://doi.org/10.1016/j.envexpbot.2019.103800).
- Castilla AR, Méndez-Vigo B, Marcer A, Martínez-Minaya J, Conesa D, **Picó FX (CA)**, Alonso-Blanco C. 2020. Ecological, genetic and evolutionary drivers of regional genetic differentiation in *Arabidopsis thaliana*. **BMC Evolutionary Biology** 20:71. Doi: [10.1186/s12862-020-01635-2](https://doi.org/10.1186/s12862-020-01635-2).
- Arteaga N, Savic M, Méndez-Vigo B, Fuster-Pons A, Torres-Pérez R, Oliveros JC, **Picó FX**, Alonso-Blanco C. 2021. MYB transcription factors drive Evolutionary innovations in *Arabidopsis* fruit trichome patterning. **Plant Cell** 33:548-565. Doi: [10.1093/plcell/koaa041](https://doi.org/10.1093/plcell/koaa041).
- Marcer A, Chapman AD, Wiczorek JR, **Picó FX**, Uribe F, Waller J, Ariño AH. 2022. Uncertainty matters: ascertaining where specimens in natural history collections come from and its implications for predicting species distributions. **Ecography** 2022:e06025. Doi: [10.1111/ecog.06025](https://doi.org/10.1111/ecog.06025).
- Picó FX**, Abdelaziz M, Castilla AR. 2021. Introduction to the Special Issue: The ecology and genetics of population differentiation in plants. **AoB Plants** 13:plab057. Doi: [10.1093/aobpla/plab057](https://doi.org/10.1093/aobpla/plab057).
- Méndez-Vigo B, Castilla AR, Gómez R, Marcer A, Alonso-Blanco C, **Picó FX**. 2022. Spatiotemporal dynamics of genetic variation at the quantitative and molecular levels within a natural *Arabidopsis thaliana* population. **Journal of Ecology** 110:2701-2716. Doi: [10.1111/1365-2745.13981](https://doi.org/10.1111/1365-2745.13981).



- Picó FX**, Abbott R, Llambí LD, Rajakaruna N, Papadopulos A, Nagy L. 2022. Introduction to special issue: the ecology and evolution of plants in extreme environments. **Plant Ecology and Diversity** 15:179-182. Doi: [10.1080/17550874.2022.2164703](https://doi.org/10.1080/17550874.2022.2164703).
- Garrote PJ, Castilla AR, **Picó FX**, Fedriani JM. 2023. Examining the spatiotemporal variation of genetic diversity and genetic rarity in the natural plant recolonization of human-altered areas. **Conservation Genetics** 24:315-330. Doi: [10.1007/s10592-023-01503-8](https://doi.org/10.1007/s10592-023-01503-8).
- Agudo AB, **Picó FX**, Mateo RG, Marcer A, Torices R, Álvarez I. 2023. Unravelling plant diversification: Intraspecific genetic differentiation in hybridizing *Anacyclus* species in the western Mediterranean Basin. **American Journal of Botany** 110:e16121. Doi: [10.1002/ajb2.16121](https://doi.org/10.1002/ajb2.16121).

C.2. Congress (selected from 5 last years; 2019-present)

Authors: **Picó FX**, Abdelaziz M, Castilla AR.

Congress: I congress of Sociedad Ibérica de Ecología (SIBECOL).

Contribution: **Principal coordinator** of session TS.07 (Evolutionary ecology in terrestrial, aquatic and marine environments).

Venue and date: Barcelona (Spain), 06-07/02/2019.

Authors: **Picó FX**, Marcer A, Alonso-Blanco C.

Congress: IV International Brachypodium Conference.

Contribution: **Oral presentation** (The value of regional collections of natural populations to unravel the ecological and genetic basis of adaptive variation in *Arabidopsis thaliana*).

Venue and date: Huesca (Spain), 25-28/06/2019.

Authors: Multiple members from Universidad de Sevilla, Estación Biológica de Doñana (EBD) and Centro Andaluz de Biología del Desarrollo (CABD-CSIC-UPO).

Congress: XIV MEDECOS & XIII AEET meeting.

Contribution: **Member of the organizing committee.**

Venue and date: Sevilla (Spain), 05-07/02/2020.

Authors: **Picó FX**.

Congress: Plant Biology Europe (PBE2021).

Contribution: **Invited speaker** (The life-history spectrum in natural *Arabidopsis thaliana* along wide environmental gradients).

Venue and date: Turin (Italy), 28/06-01/07/2021.

Authors: Multiple members from Universidad de Sevilla, Estación Biológica de Doñana, Gregor Mendel Institute of Molecular Plant Biology (AU), University of Tübingen (DE), Philips University of Marburg (DE) and Netherlands Institute of Ecology (NL).

Congress: Linking Ecology, Molecular Biology and Bioinformatics in Plant Epigenetics.

Contribution: **Member of the organizing committee.**

Venue and date: Sevilla (Spain), 29/09-01/10/2021.

Authors: **Picó FX**, Abdelaziz M, Castilla AR.

Congress: XV congress of the Asociación Española de Ecología Terrestre (AEET).

Contribution: **Principal coordinator** of session ST.05 (Ecología Evolutiva).

Venue and date: Plasencia (Spain), 18-21/10/2021.

Authors: Martínez-Pérez A, de la Mata R, Gómez R, Romero JM, Romero-Campero FJ, Ruiz MT, Calonje M, Valverde-Albacete F, **Picó FX**.

Congress: XVI Reunión de Biología Molecular de Plantas.

Contribution: **Poster** (Ecology meets functional genomics: temporal variation in transcriptomic profiles over the life cycle of locally adapted *Arabidopsis thaliana* in Spain).

Venue and date: Sevilla (Spain), 14-16/09/2022.

Authors: **Picó FX**.

Congress: I TRR-341 Meeting in Plant Ecological Genetics.



Contribution: Invited speaker (The ecology of *Arabidopsis thaliana*: understanding the environment where genes evolve).

Venue and date: Cologne (Germany), 01-02/12/2022.

C.3. Research projects (5 last years; 2019-present)

Title: Looking into the evolutionary black box: processes and mechanisms accounting for adaptive evolution in *Arabidopsis thaliana* (BLACKBOX).

Reference: CGL2016-77720-P.

Funding agency: Ministerio de Economía, Industria y Competitividad, Spain.

Duration: From 29/12/2016 to 29/06/2020.

Funded amount: 131.890 EUR.

Role: **Principal Investigator.**

Title: Ecology meets functional genomics: understanding the genetic basis of adaptive plant development in rapidly changing environments (EXPRESSION).

Reference: P18-FR-3307.

Funding agency: Junta de Andalucía, Spain.

Duration: From 01/01/2020 to 31/12/2022.

Funded amount: 99.800 EUR.

Role: **Principal Investigator.**

Title: Merging ecology, genomics and modelling to parameterise the effect of warming on plants based on a resurrection approach in *Arabidopsis thaliana* (RESURRECT).

Reference: PID2019-104135GB-I00.

Funding agency: Agencia Estatal de Investigación, Spain.

Duration: From 01/06/2020 to 31/05/2023.

Funded amount: 133.100 EUR.

Role: **Principal Investigator.**

C.4. Contracts, technological or transfer merits (5 last years; 2019-present)

Regular evaluation panellist for research grants in national (AGAUR, MINECO, AEI, ANEP) and international (DFG; Germany, ANR; France) funding agencies.

Reviewer in SCI journals: 40+ manuscripts (Oikos, Functional Ecology, Journal of Experimental Botany, Molecular Ecology, AoB Plants, Global Ecology and Biogeography, Biological Invasions, Applications in Plant Sciences, BMC Evolutionary Biology, Plant Ecology, PNAS, New Phytologist, eLife, American Journal of Botany, Scientific Reports, Molecular Biology and Evolution, Ecology and Evolution, Molecular Ecology Resources, American Journal of Botany, Annals of Botany, Ecology Letters, Journal of Applied Ecology).

Editorial Boards: Section Chief Editor (Natural History and Conservation) in AoB Plants (since 2021), Subject Editor (Biogeography) in Plant Ecology and Diversity (2020-2023).

Teaching: Scientific writing (Escuela AEET; 8 editions: 2017-present; 20 hours), Evolutionary Genetics (Universidad de Sevilla; Máster Universitario en Biología Avanzada; 2017-2022; 10 hours), Conceptual and methodological aspects of scientific writing for articles and project proposals (Universidad Pablo de Olavide, Sevilla; Programa de Doctorado de Medio Ambiente y Sociedad; 5 editions: 2019-present; 12 hours).

Principal coordinator of special issues in scientific journals: The Ecology and Genetics of Population Differentiation in Plants (<https://academic.oup.com/aobpla/pages/population-differentiation>), The Ecology and Evolution of Plants in Extreme Environments (Plant Ecology and Diversity; <https://www.tandfonline.com/toc/tped20/current>).

Committee member of Laboratorio de Experimentación en Organismos Vivos (LEO) of EBD-CSIC. We coordinate all technical and scientific aspects of all experimental facilities (growth chambers, greenhouse, aviary and animal facility) at EBD-CSIC.