



Part A. Personal Information

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|-------------|------------|
| DATE | 15/11/2019 |
|-------------|------------|

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|--------------------------------------|--|---------------------|
| First and Family name | Ana María Butrón Gómez | |
| Social Security, Passport, ID number | 03097716F | |
| Sex | Female | |
| Age | 50 | |
| Researcher codes | WoS Researcher ID (*) | M-3407-2018 |
| | SCOPUS Author ID(*) | 6701582937 |
| | Open Researcher and Contributor ID (ORCID) | 0000-0003-4202-5065 |

(*) At least one of these is mandatory

A.1. Current position

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|---------------------------------------|---|---|
| Post/ Professional Category | Científica Titular | |
| UNESCO Code | 3103 | |
| Key Words | Maize Genetics, Plant Breeding, Resistance, Plant-Parasite Interactions | |
| Name of the University/Institution | CSIC | |
| | Department/Centre | Misión Biológica de Galicia |
| | Full Address | Misión Biológica de Galicia (CSIC), El palacio – Salcedo 36143 Pontevedra |
| | Email Address | abutron@mbg.csic.es |
| | Phone Number | 34 986854800 |
| Start date | June 2003 | |

A.2. Education (title, institution, date)

| Year | University | Degree | Title |
|------|---------------------------------------|---------------------------------|----------------------------|
| 1993 | Universidad Politécnica de Madrid | First degree | Ingeniera Agrónoma |
| | | <i>Masters (if appropriate)</i> | |
| 1997 | Universidad de Santiago de Compostela | PhD | Doctora Ingeniera Agrónoma |

A.3. Indicators of Quality in Scientific Production (See the instructions)

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| Number of “Sexenios”: 4 |
| Date of the last “Sexenio”: 2013-2018 |
| PhD Thesis supervised: 3 |
| Number of citations (WoS): 1452 |
| Average number of citations during the last five years (WoS): 129.6 |
| Total number of publications (WoS): 108 |
| Total number of publications in the first decile (D1) (WoS): 26 |
| Total number of publications in the first quartile (Q1) (WoS): 33 |
| Total number of publications in the second quartile (Q2) (WoS): 39 |
| H-index (WoS): 21 H-index (Scopus): 22 |

Part B. Free Summary of CV (Max. of 3.500 characters, including spaces)

In 1994 I started my research career at the Misión Biológica de Galicia (MBG, CSIC) thanks to a pre-doctoral fellowship from the CSIC and in 1997 I presented the doctoral thesis entitled "Identification and inheritance of corn defense mechanisms against the attack of *Sesamia nonagrioides*". My postdoctoral training continued with a grant from the Ministry of Education and Culture that covered a two-year stay at the "Insect Biology and Population Management Research Lab" (USDA, Tifton, USA) to study genetic factors that confer resistance to *Helicoverpa* and reduce contamination of corn grain with aflatoxins. In October 2001, I returned to the MBG and since June 2003 I am a tenure scientist of the CSIC. In 2008, I enjoyed a one year sabbatical stay at the University of Missouri



(USA) studying maize functional diversity. During these approximately 25 years, my research activity has focused on genetics and improvement of corn resistance to various biotic stresses caused by insect attack and fungal infections and my main contributions have been the implementation of QTL studies for resistance to *Sesamia nonagrioides*, as well as the establishment of a new line of research focused on the study of maize resistance to mycotoxin contamination. I have also generated knowledge in other topics such as the search for sources of resistance; the study of the components of the genetic variance of resistance; the development and evaluation of different improvement programs to increase resistance; the study of genotype x environment interaction for resistance characters; the search for genes and metabolites involved in resistance and the study of maize response induced by the attack. These works and others, on related topics, have led to 107 SCI articles; 9 chapters of books and 40 communications in national and international congresses. During these years I have supervised 3 doctoral theses and I have participated in 19 research projects: 10 projects of the non-oriented fundamental research subprogram of the National R + D + i Plan (in three of them as IP or co-IP), 2 projects of Plant Genetic Resources of the National Plan of R + D + i, 4 projects of applied investigation and 2 of consolidation of groups of investigation financed by the Xunta de Galicia and an action of the National Program of Internationalization of the I + D. Finally, it should be noted that the scientific objectives that I have pursued up to now, the generation of new knowledge about the plant-parasite interaction and the development of resistant varieties to biotic stresses in order to increase the sustainability of our agriculture, will still be the basis of my future work.

Part C. Relevant accomplishments (in the last 10 years)

C.1. Publications

- Butrón, A., R. Santiago, A. Cao, L.F. Samayoa, R.A. Malvar.** 2019. QTLs for resistance to Fusarium ear rot in a multi-parent advanced inter-cross (MAGIC) maize population. *Plant Disease* 103:897-904.
- Samayoa, L.F., A. Cao, R. Santiago, R.A. Malvar, A. **Butrón.** 2019. Genome-wide association analysis for fumonisin content in maize kernel. *BMC Plant Biology* 19:166.
- Rodríguez, V.M, G. Padilla, R.A. Malvar, M. Kallenbach, R. Santiago, A. **Butrón.** 2018. Maize stem response to long-term attack by *Sesamia nonagrioides*. *Frontiers in Plant Science* 9: 522.
- Samayoa, L.F., R.A. Malvar, A. **Butrón.** 2017. QTL for maize midparent heterosis under infestation with the Mediterranean corn borer (*Sesamia nonagrioides*). *Frontiers in Plant Science* 8:573.
- Santiago, R., R.A. Malvar, J. Barros-Ríos, L.F. Samayoa, A. **Butrón.** 2016. Hydroxycinnamate synthesis and association with Mediterranean corn borer resistance. *Journal of Agricultural and Food Chemistry* 64:539-551.
- Samayoa, L.F., R. A. Malvar, B.A. Olukolu, J.B. Holland, A. **Butrón.** 2015. Genome-wide association study reveals a set of genes associated with resistance to the Mediterranean corn borer (*Sesamia nonagrioides* L.) in a maize diversity panel. *BMC Plant Biology* 15:35.
- Santiago, R., A. Cao, A. **Butrón.** 2015. Genetic factors involved in fumonisin accumulation in maize kernels and their implications in maize agronomic management and breeding. *Toxins* 7: 3267-3296.
- Samayoa, L.F., R.A. Malvar, M.D. McMullen, A. **Butrón.** 2015. Identification of QTL for resistance to Mediterranean corn borer in a maize tropical line to improve temperate germplasm. *BMC Plant Biology* 15:265.
- Cao, A., R. Santiago, A.J. Ramos, X.C. Souto, O. Agüín, R.A. Malvar, A. **Butrón.** 2014. Critical environmental and genotypic factors for *Fusarium verticillioides* infection, fungal growth and fumonisin contamination in maize grown in northwestern Spain. *International Journal of Food Microbiology* 177:63-71.
- Cao, A., R. Santiago, A.J. Ramos, S. Marín, L.M. Reid, A. **Butrón.** 2013. Environmental factors related to fungal infection and fumonisin accumulation during the development and drying of white maize kernels. *International Journal of Food Microbiology* 164:15-22.
- Rodríguez, V.M, R. Santiago, R.A. Malvar, A. **Butrón.** 2012. Inducible maize defense mechanisms against the corn borer *Sesamia nonagrioides*: a transcriptome and biochemical approach. *Molecular Plant-Microbe Interactions* 25: 61-68.
- Butrón A., Y.C. Chen, G.E. Rottinghaus, M.D. McMullen.** 2010. Genetic Variation at *Bx1* Controls DIMBOA Content in Maize. *Theor. Appl. Genet.* 120: 721-734.

C.2. Research Projects and Grants



Reference: RTI2018-096776-B-C21

Title of the Project: Mejora genética de la resistencia y mecanismos de defensa del maíz frente a factores bióticos

Funded by: Plan Nacional de I+D+i de 2018

Name of the principal researcher: Rosa Ana Malvar Pintos and Ana María Butrón Gómez

Affiliation of the principal researcher: CSIC

Date of the Start date: 2019

Date of the End: 2021

Amount of funding: 181500 €

Type of participation: Principal Researcher

Reference: AGL2015-67313-C2-1-R

Title of the Project: Mejora genética de la resistencia y mecanismos de defensa del maíz frente a factores bióticos

Funded by: Plan Nacional de I+D+i de 2015, subprograma de investigación fundamental no orientada (BOE 23/06/2015)

Name of the principal researcher: Rosa Ana Malvar Pintos and Ana María Butrón Gómez

Affiliation of the principal researcher: CSIC

Date of the Start date: 2015

Date of the End: 2018

Amount of funding: 157300 €

Type of participation: Principal Researcher

Reference: AGL2012-33415

Title of the Project: Mejora genética de la resistencia del maíz a los taladros

Funded by: Plan Nacional de I+D+i de 2012, subprograma de investigación fundamental no orientada (BOE 31/12/2011)

Name of the principal researcher: Rosa Ana Malvar Pintos

Affiliation of the principal researcher: CSIC

Date of the Start date: 2012

Date of the End: 2015

Amount of funding: 175500 €

Type of participation: Researcher

Reference: AGL2009-12770

Title of the Project: Mejora genética de la resistencia a hongos del género *Fusarium* productores de micotoxinas

Funded by: Plan Nacional de I+D+i de 2008, subprograma de investigación fundamental no orientada (BOE 31/12/2008)

Name of the principal researcher: Ana María Butrón Gómez

Affiliation of the principal researcher: CSIC

Date of the Start date: 2009

Date of the End: 2012

Amount of funding: 145200 €

Type of participation: Principal Researcher

Reference: PGIDIT06TAL40301PR

Title of the project: Prevención de la contaminación con fumonisinas en productos derivados del maíz

Funded by: Programas sectoriais de recursos naturais, tecnoloxías para a innovación e servicios ao cidadán (DOG 29/05/2006) da XUNTA de Galicia

Name of the principal researcher: Ana María Butrón Gómez

Affiliation of the principal researcher: CSIC

Date of the Start date: November 2006

Date of the End: November 2009

Amount of funding: 94576 €

Type of participation: Principal researcher

C.3. Contracts

1. Enterprise: Semillas Fitó



Principal ResearcherL: Amando Ordás Pérez

Affiliation of the principal researcher: CSIC

Date of the Start date: 1/01/2012

Date of the End: 31/12/2016

Amount of funding: 33592 € + IVA

2. Enterprise: Semillas Fitó

Principal ResearcherL: Amando Ordás Pérez

Affiliation of the principal researcher: CSIC

Date of the Start date: 1/03/2012

Date of the End: 28/02/2017

Amount of funding: 33576 € + IVA

C.4. Patents and other IPR

Varieties registered:

Ribadumia. Register number: 20080244

Rebordanes. Register number: 20080245

Tuy. Register number: 20080246

Sarreaus. Register number: 20080248

Bibei. Register number: 20080247

Authors: Ordás A, Malvar RA, Revilla P, Butrón A, Ordás B, Santiago R.

Publication: BOE, 2009, February 24th and November 30th

Registered as: Commercial varieties

C.5 PhD Theses supervised

Title of the dissertation: Localización de QTLs e identificación de genes de resistencia y tolerancia a la plaga del taladro en maíz

PhD student: Luis Fernando Samayoa López

University: Santiago de Compostela

Date of the dissertation: 27 de noviembre de 2014

Score: Sobresaliente *cum laude*

Title of the dissertation: Prevención de la contaminación con fumonisinas en el maíz

PhD student: Ana Cao Caamaño

University: Vigo

Date of the dissertation: 23 de abril de 2013

Score: Sobresaliente *cum laude*

Title of the dissertation: Mejora de la resistencia natural del maíz al taladro

PhD student: Germán Valentín Sandoya Miranda

University: Vigo

Date of the dissertation: 20 de diciembre de 2007

Score: Sobresaliente *cum laude*

C.6 Formation of undergraduated students

1. University: Universidad de Vigo (Departamento de Biología Vegetal y Ciencias del Suelo)

Title of the graduation work and (year): Evaluación de los cambios en la composición de la pared decular de la caña de maíz tras el ataque de *Sesamia nonagrioides* Lef. (2018/2019)

Student: Iván Blanco Alonso

2. University: Universidad de Vigo (Departamento de Biología Vegetal y Ciencias del Suelo)

Title of the graduation work and (year): Búsqueda de compuestos de defensa en el maíz frente al hongo *Fusarium verticillioides* (2017/2018)

Student: Noemí Gesteiro Portas

3. University: Universidad de Vigo (Departamento de Biología Vegetal y Ciencias del Suelo)

Title of the graduation work and (year): Intervención de los fenilpropanoides de pared celular del maíz en la resistencia frente a *Sesamia nonagrioides* (2016/2017)

Student: Sara Estévez González