

Part A. PERSONAL INFORMATION		CV date	01/07/2021
First and Family name	Elena Cartea González		
Social Security, Passport, ID number	36091683Z	Age	53
Researcher numbers	Researcher ID	I-1028-2015	
	Orcid code	0000-0003-4168-2389	

A.1. Current position

Name of University/Institution	Consejo Superior de Investigaciones Científicas		
Department	Genética y Mejora Vegetal/ Misión Biológica de Galicia		
Address and Country	Palacio de Salcedo. Carballeira, 8 (Salcedo) 36143 Pontevedra		
Phone number	+34986854800	E-mail	ecartea@mbg.csic.es
Current position	Investigadora Científica	From	13/08/2000
Espec. cód. UNESCO	240903 - Population genetics; 241714 –Plant genetics; 241793 - Plant genetic resources		
Palabras clave	Brassica, glucosinolatos, genética, metabolitos, estrés biótico		

A.2. Education

PhD	University	Year
PhD	University of Santiago de Compostela	1995
Bachelor in Forestry Engineer	University of Santiago de Compostela	1990

A.3. JCR articles, h Index, thesis supervised...

Scopus database Accessed January 14th, 2020

H index = 26; total ISI manuscripts = 99; Sum of cites = 2933; average citation per year (last five years) = 283; Q1 manuscripts = 47 (49%); PhD thesis as advisor: 5 (four defended and one in progress).

Number of research sexenios = 4 (Last sexenio period 2010-2015) and one Technological sexenio (2020)

Part B. CV SUMMARY (max. 3500 characters, including spaces)

My research career focuses on the genetic improvement of horticultural brassicas. It begins with my PhD at the MBG-CSIC. After a postdoctoral stay, I joined in 1997 as a Contracted Researcher and as a Senior Scientist in 2000.

In 2000, I founded a new research group at MBG focused on brassica genetics and improvement. My particular contribution has consisted in the launching of new lines of research and in the creation of the current Group of Genetics, Improvement and Biochemistry of Brassicas. I started two lines of research, one related to resistance to biotic stresses and a second related to nutritional quality based on the identification of relevant bioactive compounds due to their beneficial properties for health. Within the current lines that are being carried out, highlight the genetic studies involved in the synthesis of glucosinolates and the study of the anticancer properties of glucosinolates in types of cancer.

Over my career I have published 98 SCI articles, most of them in journals ranked within the first quartile and present an index h = 26. In addition, I have published 11 non-SCI scientific articles, 17 book chapters, 3 books or monographs and more than 50 publications in conferences and dissemination Journals. I have participated in 43 research projects, of which I have been PI in 20 projects and in 12 contracts with companies and public entities, being PI in 11 of them.

I have actively participated in outreach programs and in staff training, teaching Master's degrees at the Universities of Vigo and Santiago de Compostela. During my research career, I had the privilege to supervise undergraduate thesis and six Doctoral Theses in aspects related to plant breeding and the role of secondary metabolites on plant defense and cancer properties.



I have made a notable effort in international collaboration with foreign groups and participating in three European projects, including a Marie-Curie project, of which I was the PI. He currently coordinates the scientific part of an Erasmus + project of the European Union during the 2020-2023 period and in which several countries are participating. I have notably increased the impact index of my publications, as well as the interaction and collaboration with international and national groups and with the private sector. I have developed six patents and carried out research management functions as a member of the evaluation commission in the ANEP (Genetics area) and DEVA of the Junta de Andalucía. I have assumed administrative responsibilities, I was the Deputy Director of the MBG and from 2011-2015 and I am the Director of the MBG since 2015.

Part C. RELEVANT MERITS

C.1. Publications (only the 10 most relevant)

1. **Cartea ME**, Di Bella MC, Velasco P, Soengas P, Toscano S, Branca F. 2021. Evaluation of Italian and Spanish Accessions of *Brassica rapa* L.: Effect of Flowering Earliness on Fresh Yield and Biological Value. *Agronomy* 2021, 11, 29 <https://doi.org/10.3390/> Q1
2. Francisco M, Kliebenstein DJ, Rodríguez VM, Soengas P, Abilleira R, **Cartea ME**. 2021. Fine mapping identifies NAD-ME1 as a candidate underlying a major locus controlling temporal variation in primary and specialized metabolism in Arabidopsis. *Plant Journal* 106: 454-467. doi: 10.1111/tbj.15178. **D1**
3. **Cartea ME**, De Haro A, Padilla G, Obregón S, Del Río-Celestino M, Ordás A. 2019. Seed oil quality of *Brassica napus* and *Brassica rapa* germplasm from northwestern Spain. *Foods* 8, 292. doi:10.3390/foods8080292 Q1
4. Soengas, P, **ME Cartea**, P Velasco, M Francisco. 2018. Endogenous circadian rhythms in polyphenolic composition induce changes in antioxidant properties in brassica cultivars. *J. Agric. Food Chem.*, 66: 5984-5991 (2018) **D1**
5. Santolamazza-Carbone, S. Velasco P, **Cartea ME**. 2017. Resistance to the cabbage root fly, *Delia radicum* (Diptera, Anthomyiidae), in cultivated varieties of *Brassica rapa* subsp. *rapa*. *Euphytica* 213:274 DOI 10.1007/s10681-017-2069. Q1
6. Sotelo T, Velasco P, Soengas P, Rodríguez VM, **Cartea ME**. 2016. Modification of leaf glucosinolate contents in Brassica oleracea by divergent selection and effect on expression of genes controlling glucosinolate pathway. *Frontiers Plant Science* 7 **D1**
7. Santolamazza-Carbone S, Sotelo T, Velasco P, **Cartea ME**. 2016. Antibiotic properties of the glucosinolates of *Brassica oleracea* var. *acephala* similarly affect generalist and specialist larvae of two lepidopteran pests. *J. Pest Science* 89:195-206 **D1**
8. **Cartea ME**, P Soengas, Sotelo T, Abilleira R, P Velasco. 2014. Determining the Host-Plant resistance mechanisms for *Mamestra brassicae* (Lepidoptera: Noctuidae) pest in cabbage. *Annals of Applied Biology* 164:270- 285 **D1**
9. Sotelo T, P Soengas, P Velasco, VM Rodríguez, **Cartea ME**. 2014. Identification of metabolic QTLs and candidate genes for glucosinolate synthesis in *Brassica oleracea* leaves, seeds and flower buds. *PlosOne* 9:e91428 **D1**
10. **Cartea ME**, A de Haro, P Soengas, S Obregón, P Velasco. 2012. Glucosinolate variation in leaves of *Brassica rapa* crops. *Plant Foods for Human Nutrition*, 67:283-28 **Q1**

C.2. Research projects and grants (only the most relevant)

National

1. **2019-2021: RTI2018-096591-B-I00**. 'Metabolitos secundarios en Brassicaceae: implicaciones en la mejora genética y resistencia a estreses'. Spanish Ministry of Science, Innovation and Universities. PI: Elena Cartea and P. Soengas; 211,750 €
2. **AGL2015-66256-C2-1-R**. 'Metabolitos secundarios en Brassicaceae: implicaciones en la mejora genética y resistencia vegetal de brásicas hortícolas'. Spanish Ministry of Economy and Competitiveness. PI: Elena Cartea and P. Soengas; 165,000 €

3. **2021-2023 IN607A 2021/23.** 'Sostenibilidad y Productividad de cultivos agroforestales'.
Xunta de Galicia. Agencia Gallega de Innovación. Consolidación y estructuración de unidades de investigación competitivas.
PI: Elena Cartea; 399,882 €
4. **2016-2017 CSIC15-DE-3103.** 'Equipo de procesado y conservación de muestras vegetales'
Spanish Ministry of Economy and Competitiveness.
PI: Elena Cartea; 117,153€
5. **2013-2015 AGL2012-35539.** 'Genética y Mejora de Brásicas hortícolas: papel de los metabolitos secundarios'.
Spanish Ministry of Economy and Competitiveness.
PI: Elena Cartea; 200,000 €

International

- **2020-2023: UE: 2020-1-ES01-KA201-083131)** European project Botanic Program of Participatory Varietal Selection in the E.U.'Funding institution: European Union. Program: ERASMUS+ (PBSMPUE). Participation bodies: Misión Biológica de Galicia (CSIC), CPI Mosteiro-Meis (Pontevedra), Escola Secundária Armando Côrtes (Azores, Portugal), Serviço de Desenvolvimento Agrário, Azores, Portugal, Instituto Coláiste Iognáid (Ireland) and University of Galway (Ireland).
PI at MBG: Elena Cartea; 353,195 € (MBG: 36,150€)
- **2011-2014: FP7-PEOPLE-2010-IOF.** Network QTL mapping of circadian clock. European Union. University of California, Davis, USA and MBG (CSIC). PI at MBG: Elena Cartea; 223,669.60 €
- **2011-2012: AEGIS Grant Scheme.** Brassica selection criteria for the identification of the Most Appropriate Accessions (MAAs): Relate to the *Brassica oleracea* of Iberian Collection ECPGR Programme. PI at MBG: Elena Cartea; 3,250€.

C.3. Participation in R&D&I contracts or agreements with private and public bodies

- **2020-2021.** Diputación Provincial de Pontevedra. "Estudio sobre la conservación, manejo y uso de la biodiversidad de variedades locales de cultivos gallegos en la provincia de Pontevedra". PI: Elena Cartea González. 50,000€
- **2019-2021:** WANESTRADA S.L.L. Contrato de Apoyo Tecnológico. "Programa de multiplicación de especies hortícolas". PI: Elena Cartea González. 3,600€
- **2019-2020.** Xunta de Galicia. Axencia Galega de Innovación (GAIN)
PI: Elena Cartea González. 36,428.60 €
- **2016-2017:** Natural Functional Foods company. "Análisis del contenido en glucosinolatos en variedades de brécol". PI: Elena Cartea González. 2,200€
- **2015 2017:** CDTI- companies agreement (A Rosaleira, Bodegas Terras Gauda S.A., Innolact). "Potenciación de biomoléculas funcionales en productos alimentarios de origen gallego a través de la investigación agrobiotecnológica" (BIOFUNCIOGAL 2015)" ITC-20151009. PI: Elena Cartea; 51,975.31 €

C.4. International meetings (only the most relevant)

- Tortosa, M, P Velasco, **ME Cartea**, V Rodriguez.2016. Effector-triggered immunity (ETI) of Brassica oleracea to the infection of *Xanthomonas campestris* pv. *campestris* 12th Annual Conference of the Metabolomics Society. Dublin, Ireland
- **Cartea ME**, R Salcido, S Jardón, R Abilleira, P Soengas. 2017. Turnip tops derived by-products: a promising source of bioactive compounds. 7th Symposium on Brassica crops. Pontevedra, Spain
- Nuñez MJ, S Novío, P Soengas, M Freire-Garabal, **ME Cartea**. 2017. Effects of 3-butenyl isothiocyanate on phenotypically different prostate cancer cells. 7th Symposium on Brassica crops. Pontevedra, Spain.
- Francisco, M, VM Rodríguez, **ME Cartea**, DJ Kliebenstein. 2018. Fine mapping and



candidate gene analysis for a major locus controlling circadian clock and secondary metabolism in Arabidopsis. 21st Crucifer Genetics Conference. Brassica 2018. Saint-Malo, France.

C.5. Patents

- Variedad de Col forrajera o berza (*Brassica oleracea*). "Coella de la Mariña". 20080281 BOE 262/2011
- Variedad de col repollo (*Brassica oleracea*). "Bergantiños". 20080282 BOE 262/2011
- Variedad de col repollo (*Brassica oleracea*). "Coube de Ourense" 20080285 BOE 262/2011
- Variedad de nabicol (*Brassica napus*). "Condado". 20080287 BOE 73/2013
- Variedad de grelo (*Brassica rapa*). "Cimos de Miño". 20080283 BOE 216/2017
- Variedad de nabiza (*Brassica rapa*). "Ordes". 20080284 BOE 216/2017

C.6 PhD Student mentoring

Supervisor of PhD students:

- Guillermo Padilla Alonso (2002-2006). PhD dissertation at University of Vigo: "Potencial de los recursos genéticos del género Brassica para su mejora en Galicia".
- Marta Francisco Candeira (2007-2011). PhD dissertation at University of Vigo: "Compuestos bioactivos y producción de grelos y nabizas: variación fenotípica y ambiental".
- Tamara Sotelo Pérez (2011-2015). PhD dissertation at University of Vigo: "Brassica oleracea como fuente de compuestos biosaludables: aproximación genética".
- María Tortosa Viqueira (2014-2018). PhD dissertation at University of Vigo: "Multi-omics response to *Xanthomonas campestris* pv. *campestris* in *Brassica oleracea*".
- Elena Pérez-Muñuzuri (2018-2021). PhD dissertation at University of Santiago de Compostela "Effects of Brassicaceae on Breast Cancer".

Supervisor of undergraduate students (Trabajos Fin de Master y Grado):

- Sonia Coves (2021). Master thesis at University of Santiago de Compostela. "Aplicación de la mejora genética en la modificación de compuestos bioactivos en brásicas". Sobresaliente (9,16)
- Andrea Losada González (2016). Bachelor thesis at University of Santiago de Compostela. "Evaluación de la resistencia de brásicas a *Mamestra brassicae*".
- Hélder Renato Castro Neves Barbosa da Cunha (2014). Bachelor thesis at University of Santiago de Compostela. "Evaluación de la actividad antitumoral in vitro de compuestos naturales en el cáncer de próstata"
- Nuno Filipe Neves Craveiro (2014). Bachelor thesis at University of Santiago de Compostela. "Evaluación de la actividad antitumoral in vitro de compuestos naturales en el cáncer de próstata".
- Marta Gómez Ramiro (2014). Bachelor thesis at University of Santiago de Compostela. "Evaluación de la actividad antitumoral in vitro de compuestos naturales en el cáncer de próstata".
- Fátima Nogueira Míguez (2012). Bachelor thesis at University of Vigo.
- Marta Vilar Iglesias (2006). Bachelor thesis at University of Vigo. "El cultivo de berzas en Galicia: valor agronómico y nutricional".
- Víctor Manuel Rodríguez Graña (2004). Bachelor thesis at University of Vigo. "El nabicol: un recurso fitogenético de interés para Galicia".
- Ana Picoaga Mountoussé (2000). Bachelor thesis at University of Vigo. "Incidencia de las plagas de Lepidópteros en el cultivo de *Brassica oleracea* en Galicia".

C7. R&D Management Experience (Management of R&D Programs, Plans and Actions)

- Member of the Expert Group of Ministry of Education and Science (Spain)
- Evaluation of research projects and human resources calls. Agencia Nacional de Evaluación y Prospectiva (ANEP, Spain), Agencia para la Calidad del Sistema Universitario de Castilla y León (ACSUCYL), Junta de Andalucía, and The Executive Board of the Austrian Science Fund (Austria).