

CURRICULUM VITAE ABREVIADO (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION

First name	M ^a Belén		
Family name	Huerta Lorenzo		
Gender (*)	Female	Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail	Sa2hulob@uco.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-1110-7722		

(*) Mandatory

A.1. Current position

Position	Associate Professor		
Initial date	24/07/2021		
Institution	University of Cordoba		
Department/Center	Animal Health Department	Faculty of Veterinary Medicine	
Country	Spain	Teleph. number	+34 957212635
Key words	Animal health, epidemiology, diagnosis, infectious diseases, antimicrobial resistance, essential oils		

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

Period	Position/Institution/Country/Interruption cause
1996-2000	Predocctoral fellow of University of Cordoba
2002-2007	Assistant Professor Ph.D
2007-2021	Associate Professor Ph.D

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Veterinary Medicine Degree	University of Cordoba	1995
PhD in Veterinary Medicine	University of Cordoba	2001
University Expert in Statistics applied to health sciences	National University of Distance Education of Spain	2012

Part B. CV SUMMARY

Publication of **32 articles in indexed journals** (JCR): 19 in T1 (**7 in D1**) and 11 in T2; 11 as PREFERRED AUTHOR, of which 5 in T1 journals; **88 communications** in national and international congresses, 9 seminars and training and research conferences; 43 scientific and professional dissemination works, **2 books, 7 book chapters** (Elsevier and Amazing Books) and 2 scientific dossier (MSD Animal Health) on zoonotic diseases of relevance to Public Health. Participation in **9 research projects in competitive calls** (total funding up to 300,000 €), highlighting: 1 international project (Seventh Framework Program) for the evaluation of vaccine candidates against *Streptococcus suis* (€ 33,018.00), in which a protein was identified of cell wall (SAT) that produces an increase in the survival rate (80%) in immunized mice (results published in 4 articles Q1), and 1 autonomic project (FEDER funds), for the study of new measures and control techniques of Bovine Tuberculosis in Andalusia (€ 99,881.02), through which a new real-time PCR protocol has been developed and validated that will increase the diagnostic sensitivity of this disease (results pending publication). Collaboration in **35 research contracts (art. 83)** (total financing € 444,587) with public administrations and agri-food companies (COVAP, BIOMEDAL S.L., CICAP, etc.); **IP in 5 contracts (total 90,750 euros)** for the development of Technologies for the optimization of health and production of goat milk, the implementation of an epidemiological surveillance system for the red partridge in Andalusia and the evaluation of the antimicrobial capacity of products natural. In the latter case, the contracts were made with the



pharmaceutical companies BEDSON ESPAÑA S.L. and LIDERVET S.L. and allowed the identification of essential oils with the greatest antimicrobial potential against enterobacteria in pigs for the development of new promoters of animal growth (Promofeed EE TM, Liderfeed TM, Liderfeed SW TM). These studies generated **2 research contracts** under a project for Veterinary Graduates (from 6/20/2016 to 3/31/2017). I have directed a total of **4 doctoral theses (1 more in progress), 6 Final Degree Projects and 12 TFM (3 more in progress)**. For 18 years I have **directed the research line** of the AGR256 group dedicated to the study of the antimicrobial activity of organic acids, essential oils and active principles of natural origin, in which I have tutored 2 Doctoral Theses (1 of them with an International Mention, carried out in collaboration with the Università Politecnica delle Marche, Ancona (Italy) and a PhD Scholarship from the Ministry of Education of Brazil), 9 Master's Final Thesis and 3 Final Degree Project, the results of which have given rise to 8 indexed articles, 23 communications and 2 invited papers at congresses and scientific conferences. In addition, I have participated in numerous studies on the diagnosis, epidemiology and control of communicable diseases in domestic animals (Tuberculosis, Paratuberculosis, Salmonellosis, Swine Streptococcus), actively collaborating with other research centers, such as the Laboratori de Microbiologia del Dipartimento di Scienze degli alimenti de the University of Bologna, DLO-Institute for Animal Production and Health in Lelystad, Infectious Diseases Research Group of the University of Warwick, the Veterinary Science Center (UCD, Dublin), DTU National Veterinary Institute-Lindholm (Denmark), Andalusian Animal Health Experimental Center (CEASA), or VISAVET. As I indicated previously, an important part of our research has arisen from the relationship with agri-food companies of relevance in our sector. Highlight the collaboration we maintain with the CICAP technology center and the DCOOP agri-food cooperative, whose R + D + i department currently has researchers who have been trained under our direction. Finally, highlight my participation in scientific committees, editorial team and reviewer of international journals, such as Foodborne Pathogens and Disease, Journal of Applied Microbiology and Zootechnical Archives, as well as my academic work and manager as **Director of the Master's Degree in Veterinary Public Health** of the University of Córdoba since 2019. **Diplomate in Veterinary Microbiology from the European College of Veterinary Microbiology.**

Part C. RELEVANT MERITS

C.1. Publications

- A Galán-Relaño, JM Sánchez-Carvajal, L Gómez-Gascón, E Vera, **B Huerta**, F Cardoso-Toset, J Gómez-Laguna, RJ Astorga. **2022**. Phenotypic and genotypic antibiotic resistance patterns in *Salmonella* Typhimurium and its monophasic variant from pigs in southern Spain. Research in Veterinary Science, 2022, 152, pp. 596–603. doi: [10.1016/j.rvsc.2022.09.028](https://doi.org/10.1016/j.rvsc.2022.09.028)
- de Aguiar, F.C., Solarte, A.L., Gómez-Gascón, L., Rodríguez-Ortega, M.J., **Huerta, B.** **2021**. Antimicrobial susceptibility of cinnamon and red and common thyme essential oils and their main constituent compounds against *Streptococcus suis*. *Letters in Applied Microbiology*. doi:[10.1111/lam.13582](https://doi.org/10.1111/lam.13582) 1 citation
- Solarte A, Astorga RJ, De Aguiar FC, Tarradas C, Luque I, Gómez-Gascón L and **Huerta B.** **2020**. Reduced Susceptibility of *Salmonella* Typhimurium Strains to Oregano Essential Oil and Enrofloxacin: An *in vitro* assay. Foodborne Pathogens and Disease, 17(1): 29-34. doi: [10.1089/fpd.2019.2635](https://doi.org/10.1089/fpd.2019.2635) 1 citation
- Rafael J. Astorga, Héctor Argüello, **Belén Huerta**, Jaime Gómez, Santiago Vega. **2020**. Capítulo de libro: “Lucha. Nuevas estrategias de prevención y control”. En: El paradigma de la Salmonella. Editorial Amazing Books, Zaragoza, España: pp. 171-224 ISBN: [978-84-17403-70-6](https://www.amazon.es/dp/9788417403706)
- Barrero-Domínguez B, Luque I, Galán-Relaño A, Vega-Pla JL, **Huerta B**, Román F, Astorga RJ. **2019**. Antimicrobial resistance and distribution of *Staphylococcus* spp. pulsotypes isolated from goat and sheep bulk tank milk from southern Spain. Foodborne Pathogens and Disease, 16(10): 723-730. doi: [10.1089/fpd.2018.2593](https://doi.org/10.1089/fpd.2018.2593) 2 citations
- De Aguiar FC, Solarte AL, Tarradas C, Astorga RJ, Maldonado A. **Huerta B.** **2019**. Combined effect of conventional antimicrobials with essential oils and their components against resistant *Streptococcus suis* strains. Letters in Applied Microbiology. doi: [10.1111/lam.13151](https://doi.org/10.1111/lam.13151). 6 citations
- De Aguiar FC, Solarte AL, Tarradas C, Luque I, Maldonado A, Galán-Relaño A, **Huerta B.** **2018**. Antimicrobial activity of selected essential oils against *Streptococcus suis* isolated from pigs. MicrobiologyOpen, doi: [10.1002/mbo3.613](https://doi.org/10.1002/mbo3.613) 12 citations

- Solarte AL, Astorga RJ, De Aguiar FC, De Frutos C, Barrero-Domínguez B, **Huerta B**. 2018. Susceptibility distribution to essential oils of *Salmonella enterica* strains involved in animal and public health and comparison of the Typhimurium and Enteritidis serotypes. *Journal of Medicinal Food*, 21(9): 946-950. doi: [10.1089/jmf.2017.0103](https://doi.org/10.1089/jmf.2017.0103)
- Solarte AL, Astorga RJ, De Aguiar FC, Galán-Relaño A, Maldonado A, **Huerta B**. 2017. Combination of antimicrobials and essential oils as an alternative for the control of *Salmonella enterica* multiresistant strains related to foodborne disease. *Foodborne Pathogens and Disease*, 14(10): 558-563 doi: [10.1089/fpd.2017.2295](https://doi.org/10.1089/fpd.2017.2295)
- Huerta B**, Barrero-Domínguez B, Galán-Relaño A, Tarradas C, Maldonado A, Luque I. 2016. Essential oils in the control of infections by *Staphylococcus xylosus* in horses. *Journal of Equine Veterinary Science*, 38: 19-23 doi.org/[10.1016/j.jevs.2015.11.011](https://doi.org/10.1016/j.jevs.2015.11.011)

C.2. Congress

- Vera-Salmoral E, Sanchez-Carvajal JM, Mena-Rodríguez MA, Gómez-Gascón L, Luque I, Tarradas C, Maldonado A, **Huerta B**. Application of control measures in a free-ranged pig farm with a background of porcine lymphadenitis. XIII International Scientific Agriculture Symposium. 2022. Jahorina (Bosnia and Herzegovina). Poster
- Galán-Relaño A, Sánchez-Carvajal JM, Gómez-Gascón L, **Huerta B**, Vera E, Astorga, RJ. Genetic Determinants of *Salmonella* Typhimurium and mST multi-drug resistant isolates belonging to pigs reared in extensive systems in the South of Spain. International Symposium Salmonella and Salmonellosis, 2022. Sant Maló (France). Poster
- Vera-Salmoral E, Sánchez-Carvajal JM, Galán-Relaño A, Rueda- Torres I, Gómez-Laguna J, Tarrada C, Carrasco L, Luque I, **Huerta B**. Evaluation of two different DNA extraction protocols to validate *Mycobacterium tuberculosis* complex direct diagnosis from fresh tissue samples by IS6110 qPCR. 6th Congress of the European Association of Veterinary Laboratory Diagnosticians, 2021. Poster
- De Aguiar FC, Solarte AL, Tarradas C, Luque I, Maldonado A, Astorga RJ, Barrero-Domínguez B, Galán-Relaño A, **Huerta B**. Antimicrobial effect of cinnamaldehyde, carvacrol and thymol and their combined effect with penicillin and trimethoprim-sulfametoxazole against resistant *Streptococcus suis* strains. V International Conference on Antimicrobial Research. 2018. Torremolinos (España), Poster
- De Aguiar FC, Solarte AL, Tarradas C, Luque I, Astorga RJ, Maldonado A, **Huerta B**. Combined effect of gentamicin and oxytetracycline with essential oils and their main components against resistance *Streptococcus suis* strains. 10th European Symposium of Porcine Health Management. 2018. Barcelona (España). Poster
- Solarte AL, Astorga RJ, de Aguiar FC, Maldonado A, Galán-Relaño A, **Huerta B**. Induction of resistant mutants of *Salmonella* Typhimurium under enrofloxacin and natural alternatives for control in pigs. 12th International Symposium on the Epidemiology and Control of Biological. Chemical and Physical Hazards in Pigs and Pork (SAFEPOK). 2017. Foz do Iguaçu (Brasil). Poster
- Solarte AL, Astorga RJ, De Aguiar FC, Barrero B, Galán A, Maldonado A, **Huerta B**. In vitro assay to assess the antimicrobial activity of essential oils against strains of *Salmonella* Typhimurium and *S. Enteritidis*. i3S International Symposium *Salmonella* and Salmonellosis. 2016. Saint Malo (France). Poster
- Huerta B**. Credibility of the results of tests for the diagnosis of vector-borne diseases: influence of the prevalence in the area. X Andalusian Congress of Veterinary Specialists in companion animals. 2014. Cordoba (España), Invited presentation.
- Huerta B**. Eubiotics -essential oils- as antimicrobials in birds. DSM day of laying poultry farming. 2011. Cordoba (España), Invited presentation.

C.3. Research projects

- Diseño y evaluación de estrategias de lucha integradas para el control de enfermedades transmisibles en ganado porcino en sistemas silvopastorales en Andalucía. Consejería de Transformación Económica, Industria, Conocimiento y Universidades. Junta de Andalucía. Duration: 2022. Amount: 258,800 € Researcher.
- A1122062EO_AGROMIS I and II. Application and evaluation of inactivated autovaccines against the main responsible for zoonotic diseases: *Mycobacterium bovis*, *Trueperella pyogenes*, *Streptococcus*

suis, *Streptococcus dysgalactiae* spps *equisimilis* (). Consejería de Economía, Conocimiento, Empresas y Universidad EUR 18,750 and 65,500 respectively. 2020 and 2021. Researcher

GOP2I-CO-16-0010GOP2I-CO-16-0010-SUBP. AGR-256. INNOTUBER: New measures and techniques for the control of bovine tuberculosis in Andalusia. European Agricultural Fund for Rural Development (EAFRD) and the Ministry of Agriculture and Fisheries of the Junta de Andalucía. IP: Carmen Tarradas Iglesias and Inmaculada Luque Moreno (University of Córdoba). 02/15/2018 to 02/15/2020. Amount: 99,881.02 EUR. Researcher.

XXII PP MOD. 4.2. Multiomic approaches to the study of antibiotic resistance in Gram-positive pathogens. 100% UNIVERSITY OF CORDOBA. IP: Manuel José Rodríguez Ortega (University of Córdoba). 07/01/2017 to 06/30/2019. Amount: 40000.00 EUR. Researcher.

FP7-228393 (NADIR project N 49). Valoración of a new recombinant protein as vaccine candidate against *Streptococcus suis* infection in pigs (WELLVAC-SUIS). UNIÓN EUROPEA. IP: Inmaculada Luque Moreno. 01/03/2013 al 31/05/2013. Importe: 33.018,00 EUR. Researcher.

C.4. Contracts, technological or transfer merits,

Centro Tecnológico Agroalimentario del Valle de los Pedroches (CICAP). IMMUNITY-UP: Mejora del estatus sanitario del ovino extensivo (CRO). Duration: 2023. Amount: 22,143 €. Principal researcher (PR): Carmen Tarradas. Type of participation: researcher.

Company INTERPORC Ref. 12018039. Salmonella Animal Health-INTERPORC (Phase II). Duration: 04/09/2018 to 10/09/2019. Amount: 9,438 €. **Principal researchers:** Rafael J. Astorga Márquez and Belén Huerta Lorenzo.

Several companies (12015058). Evaluation of the efficacy and safety of vaccines. Duration: from 04/13/2015 to 04/04/2018. Amount: 72,600.00 €. PRs: Inmaculada Luque Moreno and Alfonso Maldonado García. Type of participation: researcher.

BEDSON ESPAÑA S.L. (12016086). Selection and evaluation of plant extracts and essential oils with antimicrobial capacity against intestinal bacterial strains isolated in farms. Duration: from 06/20/2016 to 03/31/2017. Amount: 15,730.00 euros. **Principal researcher:** Belén Huerta Lorenzo.

COVAP Company Ref. 12014175. Control strategies against lymphadenitis in extensive Iberian pigs. Duration: 11/21/2014 to 06/30/2016. Amount: 75,625 €. PRs: Inmaculada Luque Moreno and Carmen Tarradas Iglesias. Type of participation: researcher.

Cooperativa Ganadera del Valle de los Pedroches (COVAP) Ref. 12012108. SAFEPORK. Food zoonoses in the Iberian pig: prevalence and control from the farm to obtain safe food. Duration: 07/20/2012 to 07/31/2015. Amount: 34,215.28 €. PRs: Inmaculada Luque Moreno and Carmen Tarradas Iglesias. Type of participation: researcher.

Cooperativa Ganadera del Valle de los Pedroches (COVAP) Ref. 12012069. Impact and control measures of lymphadenitis in Iberian pigs in the pasture (BIODHESA). Duration: 05/01/2012 to 12/31/2014. Amount: 35,759 euros. PR: Inmaculada Luque Moreno and Carmen Tarradas Iglesias. Type of participation: researcher.

Sánchez Romero Carvajal Company Ref. 12012109. SAFEPORK. Food zoonoses in the Iberian pig: prevalence and control from the farm to obtain safe food. Duration: 07/20/2012 to 12/31/2014. Amount: 35,861.38 €. PRs: Inmaculada Luque Moreno and Carmen Tarradas Iglesias. Researcher.

University of Murcia-Salsa J.R. Suarez Monedero S.L. Company. Determination of the antimicrobial activity of garlic powder against zoonotic agents transmitted by food: *Salmonella* spp. and *Campylobacter*. Duration: 11/30/2012 to 11/30/2013. Amount: 3,013.00 €. PR: M^a José Cubero Pablo (University of Murcia). Type of participation: researcher.

Laboratorios Hypra Ref. 12012013. Evaluation of the safety and efficacy of the pb-127 vaccine in reducing mastitis problems caused by *Staphylococcus aureus* and / or coagulase negative staphylococci (CSN) in sheep and goats. Duration: 03/02/2012 to 12/31/2012. Amount: 23,600 €. PR: Rafael J. Astorga Márquez. Type of participation: researcher