C.v. Javier Abadía

Aula Dei Experimental Station-Spanish Council for Scientific Research (EEAD-CSIC),
Zaragoza, Spain

(see full c.v.)

02-04-1954 Born in Zaragoza, Spain

Education

Institution and Location, Degree	*Year Conferred*		*Field of study*
University of Zaragoza, Spain	Lic.	1976	Chemistry
University of Zaragoza, Spain	Dr.	1981	Sciences/Chemistry

Scientific career

2003-present	Research Professor CSIC, EEAD. Plant stress physiology
1989-2003	Researcher CSIC, EEAD. Plant stress physiology
1988-1989	Research Associate CSIC, EEAD. Plant stress physiology
1987	Visiting Scientist, OECD Fellow, University of Essex, Colchester, UK. Chlorophyll fluorescence techniques
1986-1988	Postdoctoral Fellow MEC, EEAD. Iron nutrition in plants
1984-1985	Postdoctoral Fellow CSIC and Assistant Specialist, University of California, Berkeley, California, USA. Iron nutrition in plants
1981-1983	Postdoctoral Fellow CSIC, EEAD. Iron nutrition in plants
1979-1981	Predoctoral Fellow CSIC, EEAD. Manganese nutrition in plants

Main research topics-competences

Experience in: plant nutrition studies, with special emphasis in iron and other metals, in crops -including fruit trees- and model plant species; photosynthesis studies, including chlorophyll fluorescence, determination of plant pigments (chlorophylls and carotenoids), separation and analysis of pigment-protein complexes; application of mass spectrometry techniques to agricultural science studies; plant metabolomics (GC-MS) and proteomics (gel based and non-gel based techniques).

Responsibilities in Research Organization

2018-	Member of the External Advisory Board MeditBio (Centre for Mediterranean Bioresources and Food), Faro, Algarve, Portugal
2004-2008	Member of the CSIC Agricultural Sciences Commission
2002-2004	Deputy Director of the CSIC Institute "Estación Experimental de Aula Dei"
1995-1998	Member of the Joint Commission CSIC-DGA
1995-1998	Coordinator of the project AIR3-CT94-1973, with 6 laboratories, funded by the Commission of the European Communities
1994-1998	Director of the CSIC Institute "Estación Experimental de Aula Dei"
1994-1995	Member of the Agronomic Sciences Committee of the Advisory Research Council of the Diputación General de Aragón (DGA, Local Government)

Membership in Scientific Societies

American Society of Plant Physiologists/Biologists	since 1984
Sociedad Española de Fisiología Vegetal	" 1985
European Society of Plant Physiologists	" 1985
Japanese Society of Plant Physiologists	" 2000
Sociedad Española de Proteómica	" 2006
American Society for Horticultural Science	" 2017

Responsibilities in Scientific Societies

1991-2012	Member of the Steering Committee of the International Symposium on Iron Nutrition and Interactions in Plants
1998-2004	Member of the Steering Committee of the Iberic Symposia Series on Plant Mineral Nutrition, of the Spanish Society of Plant Physiologists

PUBLICATIONS

Articles in SCI peer-reviewed Journals	**176**
Researcher ID: http://www.researcherid.com/rid/B-8804-2008	
H index (WOS ResearcherID, February 2021)	***53***
Articles in Dissemination and Technical Journals	**39**
Books and Special Journal issues edited	**6**
Invited Book Chapters	**6**
PhD Thesis supervised	**16**
Communications to Symposia	**236**

Articles in SCI peer-reviewed Journals 2016-2021

2021

176 **Hosseini MS**, Ebrahimi M, Samsampour D, **Abadía J**, Khanahmadi M, Amirian R, Ghafoori IN, Ghaderi-Zefrehei M, Gogorcena Y (2021) Association analysis and molecular tagging of phytochemicals in the endangered medicinal plant licorice (*Glycyrrhiza glabra* L.). **Phytochemistry** Q1 183, 112629 (doi: 10.1016/j.phytochem.2020.112629)

175 Sobrino-Plata J, Barón-Sola A, Ortega-Villasante C, Ortega-Campayo V, González-Berrocal C, Conesa-Quintana C, Carrasco-Gil S, **Muñoz-Pinilla M**, **Abadía J**, **Álvarez-Fernández A**, Hernández LE (2021) Sulphur and biothiol metabolism determines toxicity responses and fate of mercury in Arabidopsis. **Environmental and Experimental Botany** Q1 108, 104302 (doi: 10.1016/j.envexpbot.2020.104302)

174 **Gheshlaghi Z**, **Luis-Villarroya A**, **Álvarez-Fernández A**, Khorassani R, **Abadía J** (2021) Iron deficient *Medicago scutellata* grown in nutrient solution at high pH accumulates and secretes large amounts of flavins. **Plant Science** Q1 303, 110664 (doi: 10.1016/j.plantsci.2020.110664)

2020

173 Castro-Rodríguez R, Abreu I, Reguera M, Novoa-Aponte L, Mijovilovich A, Escudero V, **Jiménez-Pastor FJ**, **Abadía J**, Wen J, Mysore KS, **Álvarez-Fernández A**, Küpper H, Imperial J, González-Guerrero M (2020) *Medicago truncatula* Yellow Stripe1-Like3 gene is involved in vascular transition metal delivery to root nodules. **Journal of Experimental Botany** D1 71, 7257-7269 (doi: 10.1093/jxb/eraa390)

172 **Ceballos-Laita L**, **Gutierrez-Carbonell E**, Takahashi D, Lonsdale A, **Abadía A**, Doblin MS, Bacic A, Uemura M, **Abadía J**, **López-Millán AF** (2020) Effects of excess manganese on the xylem sap protein profile of tomato (*Solanum lycopersicum*) as revealed by shotgun proteomic analysis. **International Journal of Molecular Sciences** Q1 21, 8863 (doi:10.3390/ijms21228863)

171 **Davarpanah S**, Tehranifar A, Zarei M, Aran M, Davarynejad G, **Abadía J** (2020) Early season foliar iron fertilization increases fruit yield and quality in pomegranate. **Agronomy** Q1 10, 832 (doi: 10.3390/agronomy10060832)

170 **Hosseini MS**, Samsampour D, Ebrahimi M, **Abadía J**, Najafabadi AS, Igartua E, Khanahmadi M (2020) Evaluation of glycyrrhizin contents in licorice (*Glycyrrhiza glabra L.*) under drought and soil salinity conditions using nutrient concentrations and biochemical traits as biomarkers. **Acta Physiologiae Plantarum** Q2 42, 103 (doi: 10.1007/s11738-020-03090-4)

169 Zahedi SM, Hosseini MS, **Abadía J**, Marjani M (2020) Melatonin foliar sprays elicit salinity stress tolerance and enhance fruit yield and quality in strawberry (*Fragaria* × *ananassa* Duch.). **Plant Physiology Biochemistry** Q1 149, 313-323 (doi: 10.1016/j.plaphy.2020.02.021)

168 Escudero Welsch VP, Abreu I, del Sastre E, Tejada-Jiménez M, Larue C, Novoa-Aponte L, **Castillo-González J**,Wen J, Mysore K, **Abadía J**, Argüello JM, Castillo-Michel H, **Álvarez-Fernández A**, Imperial J, González-Guerrero M (2020) Nicotianamine synthase 2 is required for symbiotic nitrogen fixation in *Medicago truncatula* nodules. **Frontiers in Plant Science** D1 10, 1780 (doi: 10.3389/fpls.2019.01780)

167 Izadi Z, Nejad AR, **Abadía J** (2020) Physio-morphological and biochemical responses of pot marigold (*Calendula officinalis* L.) to split iron nutrition. **Acta Physiologiae Plantarum** Q2 42, 6 (doi: 10.1007/s11738-020-3011-x)

166 **Gheshlaghi Z**, Khorassani R, **Abadía J**, **Álvarez-Fernández A**, **Luis-Villarroya A**, Fotovat A, Kafi M (2020) Glutathione supplementation prevents iron deficiency in *Medicago scutellata* grown

in rock sand under different levels of bicarbonate. **Plant and Soil** Q1 446, 43–63 (doi: 10.1007/s11104-019-04314-4)

2019

165 Ruiz-Navarro A, Fernández V, **Abadía J**, **Abadía A**, Querejeta JI, Albaladejo J, Barberá GG (2019) Foliar fertilization of two dominant species in a semiarid ecosystem improves their ecophysiological status and the use efficiency of a water pulse. **Environmental and Experimental Botany** Q1 167, 103854 (doi: 10.1016/j.envexpbot. 2019.103854)

164 Banakar R, **Álvarez-Fernández A**, Zhu Ch, **Abadía J**, Capell T, Christou P (2019) The ratio of phytosiderophores nicotianamine to deoxymugenic acid controls metal homeostasis in rice. **Planta** Q1 250, 1339–1354 (doi: 10.1007/s00425-019-03230-2)

163 **Gheshlaghi Z**, Khorassani R, **Abadía J**, Kafi M, Fotovat A (2019) Glutathione foliar fertilisation prevents lime-induced iron chlorosis in soil grown *Medicago scutellata*. **Journal of Plant Nutrition and Soil Science** Q1 182, 607–624 (doi: 10.1002/jpln.201800692)

162 Castillo-González J, Ojeda-Barrios D, Hernández-Rodríguez A, **Abadía J**, Sanchez E, Parra-Quezada R, Valles-Aragon MC, Sida-Arreola JP (2019) Zinc nutritional status of pecan trees influences physiological and nutritional indicators, the metabolism of oxidative stress, and yield and fruit quality. **Notulae Botanicae Horti Agrobotanici Cluj-Napoca** Q4 47, 531-537 (doi: 10.15835/nbha47211389)

161 Mueller B, Kovács K, Diep Pham H, Kavak Y, Pechoušek J, Machala L, Zbořil R, Szenthe K, **Abadía J**, Fodor F, Klencsár Z, Solti A (2018) Chloroplasts preferentially take up ferric-citrate over iron-nicotianamine complexes in *Brassica napus*. **Planta** Q1 249, 751-763 (doi: 10.1007/s00425-018-3037-0)

2018

160 **Hosseini MS**, Samsampoor D, Ebrahimi M, **Abadía J**, Khanahmadi M (2018) Effect of drought stress on growth parameters, osmolyte contents, antioxidant enzymes and glycyrrhizin synthesis in licorice (*Glycyrrhiza glabra* L.) grown in the field. **Phytochemistry** Q1 156, 124-134 (doi: 10.1016/j.phytochem.2018.08.018)

159 **Díaz-Benito P**, Banakar R, Rodríguez-Menéndez SM, Capell T, Pereiro R, Christou P, **Abadía J**, Fernández B, **Álvarez-Fernández A** (2018) Iron and zinc in the embryo and endosperm of rice (*Oryza sativa* L.) seeds in contrasting 2'-deoxymugineic acid/nicotianamine scenarios. **Frontiers in Plant Science** D1 9, 1190 (doi: 10.3389/fpls.2018.01190)

158 **Ceballos-Laita L**, **Gutierrez-Carbonell E**, Imai H, **Abadía A**, Uemura M, **Abadía J**, **López-Millán A-F** (2018) Effects of manganese toxicity on the protein profile of tomato (*Solanum lycopersicum*) roots as revealed by two complementary proteomic approaches, two-dimensional electrophoresis and shotgun analysis. **Journal of Proteomics** Q1 185, 51-63 (doi: 10.1016/j.jprot.2018.06.016)

157 Lefèvre F, Fourmeau J, Baijot A, Cornet T, **Abadía J**, **Álvarez-Fernández A**, Boutry M (2018) The *Nicotiana tabacum* ABC transporter secretes O-methylated coumarins in response to iron deficiency. **Journal of Experimental Botany** D1 18, 4419–4431 (doi: 10.1093/jxb/ery221)

156 **Hosseini MS**, Zahedi SM, **Abadía J**, Karimi M (2018) Effects of postharvest treatments with chitosan and putrescine to maintain quality and extend shelf-life of two banana cultivars. **Food Science & Nutrition** Q3 6, 1328–1337 (doi: 10.1002/fsn3.662)

155 **Davarpanah S**, Tehranifar A, **Abadía J**, Val J, Davarynejad G, Aran M, Khorassani R (2018) Foliar calcium fertilization reduces fruit cracking in pomegranate (*Punica granatum* cv. Ardestani). **Scientia Horticulturae** Q1 230, 86-91 (doi: 10.1016/j.scienta.2017.11.023)

154 **Ceballos-Laita L**, **Gutierrez-Carbonell E**, Takahashi D, **Abadía A**, Uemura M, **Abadía J**, **López-Millán A-F** (2018) Effects of Fe and Mn deficiencies on the protein profiles of tomato (*Solanum lycopersicum*) xylem sap as revealed by shotgun analyses. **Journal of Proteomics** Q1 170, 117-129 (doi: 10.1016/j.jprot.2017.08.018), **Data in Brief** 17, 512-516 (doi: 10.1016/j.dib.2018.01.034)

2017

153 Ben Abdallah H, Mai H-G, **Álvarez-Fernández A**, **Abadía J**, Bauer P (2017) Natural variation reveals contrasting abilities to cope with alkaline and saline soil among different *Medicago truncatula* genotypes. **Plant and Soil** Q1 418, 45-60 (doi: 10.1007/s11104-017-3379-6)

152 Banakar R, **Álvarez-Fernández A**, **Díaz-Benito P**, **Abadia J**, Capell T, Christou P (2017) Phytosiderophores determine thresholds for iron and zinc accumulation in biofortified rice endosperm while inhibiting the accumulation of cadmium. **Journal of Experimental Botany** D1 68, 4983-4995 (doi: 10.1093/jxb/erx304)

151 Banakar R, **Álvarez-Fernández A**, **Abadia J**, Capell T, Christou P (2017) The expression of heterologous Fe (III) phytosiderophore transporter HvYS1 in rice increases Fe uptake,

translocation and seed loading and excludes heavy metals by selective Fe transport. **Plant Biotechnology Journal** [D1] 15, 423–432 (doi: 10.1111/pbi.12637)

150 **Davarpanah S**, Tehranifar A, Davarynejad G, Aran M, **Abadía J**, Khorasani R (2017) Effects of foliar nano-nitrogen and urea fertilizers on the physical and chemical properties of pomegranate (*Punica granatum* cv. Ardestani) fruits. **Hortscience** [Q2] 52, 288-294 (doi: 10.21273/HORTSCI11248-16)

2016

149 **Sisó-Terraza P**, **Luis-Villarroya A**, Fourcroy P, Briat J-F, **Abadía A**, Gaymard F, **Abadía J**, **Álvarez-Fernández A** (2016) Accumulation and secretion of coumarinolignans and other coumarins by *Arabidopsis thaliana* roots in response to iron deficiency at high pH. **Frontiers in Plant Science** [D1] 7, 1711 (doi: 10.3389/fpls.2016.01711)

148 Solti A, Kovács K, Muller B, Vázquez S, Tóth B, **Abadía J**, Fodor F (2016) Does a voltage-sensitive outer envelope transport mechanism contribute to the chloroplast iron uptake? **Planta** [Q1] 6, 1303–1313 (doi: 10.1007/s00425-016-2586-3)

147 **Gutierrez-Carbonell E**, Takahashi D, Lüthje S, González-Reyes JA, Contreras-Moreira B, Uemura M, **Abadía J**, **López-Millán AF** (2016) A shotgun proteomic approach reveals that Fe deficiency causes marked changes in the protein profiles of plasma membrane and detergent resistant microdomain preparations from *Beta vulgaris* roots. **Journal of Proteome Research** [Q1] 15, 2510–2524 (doi: 10.1021/acs.jproteome.6b00026)

146 **Davarpanah S**, Davarynejad G, **Abadia J**, Khorasani R (2016) Effects of foliar applications of zinc and boron nano-fertilisers on pomegranate (*Punica granatum* cv. Ardestani) fruit yield and quality. **Scientia Horticulturae** [Q1], 210, 57-64 (doi: 10.1016/j.scienta.2016.07.003)

145 **Rios JJ**, **Carrasco-Gil S**, **Abadía A**, **Abadía J** (2016) Using Perls staining to trace the iron uptake pathway in leaves of a Prunus rootstock treated with iron foliar fertilizers. **Frontiers in Plant Science** [D1] 7, 893 (doi: 10.3389/fpls.2016.00893)

144 **Rodríguez-Celma J**, **Ceballos-Laita L**, Grusak M, **Abadía J**, **López-Millán AF** (2016) Plant fluid proteomics: delving into the xylem sap, phloem sap and apoplastic fluid proteomes. **Biochimica Biophysica Acta Proteins and Proteomics** [Q2] 1864, 991–1002 (doi: 10.1016/j.bbapap.2016.03.014)

143 **Rodríguez-Celma J**, **Lattanzio G**, **Villarroya D**, **Gutierrez-Carbonell E**, **Ceballos-Laita L**, Rencoret J, Gutiérrez A, del Río JC, Grusak MA, **Abadía A**, **Abadía J**, **López-Millán AF** (2016) Effects of Fe deficiency on the protein profiles and lignin composition of stem tissues from *Medicago truncatula* in absence or presence of calcium carbonate. **Journal of Proteomics** [Q1] 140, 1-12 (doi: 10.1016/j.jprot.2016.03.017)

142 **Carrasco-Gil S**, **Rios JJ**, **Álvarez-Fernández A**, **Abadía A**, García-Mina JM, **Abadía J** (2016) Effects of individual and combined metal foliar fertilisers on iron- and manganese-deficient *Solanum lycopersicum* plants. **Plant and Soil** [Q1] 402, 27-45 (doi: 10.1007/s11104-015-2759-z) *Erratum* **Plant and Soil** 402, 409-410 (doi: 10.1007/s11104-016-2806-4)

141 **Sisó-Terraza P**, **Ríos JJ**, **Abadía J**, **Abadía A**, **Álvarez-Fernández A** (2016) Flavins secreted by roots of iron deficient *Beta vulgaris* enable mining of ferric oxide via reductive mechanisms. **New Phytologist** [D1] 209, 733–745 (doi: 10.1111/nph.13633)

Member of Editorial Committees in Scientific Journals

-Frontiers in Plant Science (Plant Nutrition)	2011-2015
-Functional Plant Biology	2009-2014
-BioMetals	2005-2008

Review of Grant Proposals

Agencia Nacional de Evaluación y Prospectiva ANEP (1988), Israel Basic Research Foundation (1992-), International Science Foundation ISF (1993), BARD US-Israel (1995-), USDA (1997-), Italian Ministry for University and Research MURST (2000-)

Review of Research Papers

Plant Physiology (1991-), Journal of Plant Nutrition (1995-), Physiologia Plantarum (1997-), European Journal of Agronomy (1997-), Protoplasma (1998-), Plant Physiology Biochemistry (1999-), Plant and Soil (1999-), J Photochemistry Photobiology (1999-), Annals of Botany (2002-), Tree Physiology (2002-), Inorganic Chemistry (2003-), Plant Science (2003-), Plant Molecular Biology (2005-), Journal of Separation Science (2005-), Scientia Horticulturae (2006-), Journal of Plant Physiology (2006-), Journal of Experimental Botany (2006-), Plant & Cell Environment (2006-), New Phytologist (2008-), Journal of Hazardous Materials (2008-), Pedosphere (2009-), Environmental Experimental Botany (2009-), Journal of Agricultural and Food Chemistry (2010-), Journal of Plant Growth Regulation (2010-), Critical Reviews In Biochemistry & Molecular Biology (2010-), BMC Plant Biology (2010-), Journal of Plant Nutrition and Soil Science (2010-), Journal of Proteomics (2010-), Journal of Proteome Research (2010-), Plant and Cell Physiology (2011-), Journal of Biological Chemistry (2011-

), BMC Plant Genomics (2011-), Talanta (2011-), Journal of the Science of the Food and Agriculture (2011-), Frontiers in Plant Science (2011-), Plant Cell (2017-), Science (2018-)

Participation in Master and Doctorate courses

Universidad de Zaragoza: Química Analítica Agrícola (1990), Técnicas analíticas en Bioquímica y Fisiología Vegetal (1992), Técnicas fisiológicas y bioquímicas en Agronomía (1994, 1996).
Universidad Autónoma de Madrid: Master Quimica Agrícola (2006, 2007, 2008, 2009, 2010, 2011).
Universidad Autónoma de Chihuahua, México: Maestría Agricultura (2008).

Participation in PhD Thesis Committees at Universities

Spain: Autónoma de Madrid, Zaragoza, Granada, Córdoba, Murcia, Autónoma de Barcelona, Navarra, Pública de Navarra, Alcalá de Henares

Abroad: Bologna (Italy), Lund (Sweden), Algarve (Faro, Portugal), Copenhague (Denmark), Bogotá (Colombia).