



## CURRICULUM VITAE (CVA)

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

### Part A. PERSONAL INFORMATION

CV date	23/02/2023
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First name	JOSÉ		
Family name	MUÑOZ GARCÍA		
		Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail		URL Web	
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-1709-722X		

(\*) Mandatory

#### A.1. Current position

Position	Professor of Chemical Engineering (Catedrático de Universidad)		
Initial date	28/12/2017		
Institution	Universidad de Sevilla		
Department/Center	Ingeniería Química	<a href="#">Facultad de Química</a>	
Country	Spain (España)	Teleph. number	
Key words	Rheology; Emulsions; Surfactants, Hydrocolloids; Biopolymers		

#### A.2. Previous positions (research activity interruptions, art. 14.2.b))

Period	Position/Institution/Country/Interruption cause
25/1/1986-30/9/1987	Ayudante de Clases Prácticas/Universidad de Sevilla
1/10/1987-22/2/1990	Profesor Titular de Universidad Interino
23/2/1990-27/12/2017	Profesor Titular de Universidad

#### A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Licenciado en Ciencias Químicas	Universidad de Sevilla	1981
Dr en Ciencias Químicas	Univ. de Sevilla (defense: 1986 title: 1987)	1987

### Part B. CV SUMMARY (max. 5000 characters, including spaces)

#### 1. Scientific contribution in the last 10 years

I am Professor of Chemical Engineering in the Universidad de Sevilla and leader of the PAIDI Research Group TEP-943 "Reología Aplicada. Tecnología de Coloides". Our mission is to get a deeper insight into the flow and structure of non-Newtonian materials. This involves rheological and microstructural studies, along with formulation and processing studies. I have used a multidisciplinary approach embracing different disciplines. This is supported by the fact I have published articles in journals classified in different JCR subjects. For example: Food Science & Technology, Biophysics, Biomaterials, Engineering (Chemical), Polymer Science, Physical Chemistry, Mechanics or Green & Sustainable



Science & Technology. I have published around 80 articles (50% Q1) in journals ranked in JCR from 2012 to 2021. In addition I have disseminated results by regular contributions to rheology, colloidal sciences and food technology (mainly on Gums & Stabilizers) conferences. My overall h index is 25 (WOS) /26 (Scopus) and my h index for the last 10 years is 20. Regarding the development of our scientific and technological skills, we have developed our expertise in different rheological tests, the laboratory of rheology of University of Seville being a national and international reference (In fact we host the 2022 Annual European Rheology Conference). We are equipped not only with 4 operative rheometers but with a high number of accessories. In recent years we have mastered the use of the microfluidization technique for suspensions and emulsions, the multiple light scattering technique of Turbiscan for monitoring the destabilization of dispersions and a wide range of microscopy techniques. The rationale of our studies is that for the formation of emulsions the interfacial properties of emulsifiers are of outstanding importance, since they must decrease the interfacial tension as fast as possible and create a strong viscoelastic interface to bear the high energy applied during emulsification and to guarantee a long physical stability. If necessary, bio-based stabilisers of polymeric nature are used. Therefore, the rheology of the continuous phase of dispersions is essential. We have been funded by the national research plan (CTQ2011 27371, CTQ2015-70700-P), Proyecto Transición Ecológica y Transición Digital (TED2021-131246B-100); Regional FEDER programme (US-1380760, 2021-2023), Regional funds after the call for Projects of Excellence (2022): Proy\_Excel 00426 to work on different types of emulsions and nanoemulgels of essential oils. Apart from that, we were funded by a Retos- Colaboración Project in 2014, where we carried out complex studies on rheokinetics with Abengoa Research and Universidad Complutense de Madrid. The research group have been funded by Junta de Andalucía and by the V and VI “Plan Propio de Investigación” of University of Sevilla. With regards to International collaborations, I have been responsible for short research stages of several Ph.D. students and lecturers of the Research Group in Universities of Birmingham, Lisboa, Nova de Lisboa, Harvard, Calabria and Loughborough. I have supervised research visits of Ph.D. (E. Bruno) and researchers (N. Baldino) from University of Calabria and of Erasmus students to do research from the Universities of York and Federico II (Naples). I participated in the preparation of a proposal for Horizon 2020 FTI Pilot in 2016 with Univ. Calabria, Silvateam and Ingredion. Index (h-Scopus: 28).

## 2. Contribution to Society

I have collaborated with PERSAN in research and formation of researchers because I was director of “Cátedra de Detergencia” in Universidad de Sevilla. Furthermore, I have collaborated with CEPASA, CEPASA-Química, Reckitt-Benkiser, Grupo Ybarra Alimentación, Metalgráfica del Sur, Instrumentos Físicos Ibérica, Abengoa Research and Laboratorios Galpa. I have carried out research work on different types of products for these companies.

3. Contribution to the formation of young researchers. I have supervised 6 Ph.D. Thesis in the last 10 years. 3 out of 6 have become lecturers of Universidad del Zulia (Venezuela) or Universidad de Sevilla, 1 is Lecturer at Universidad Loyola Andalucía and 2 joined private companies.

4. Evaluation of Projects. I review projects for ANEP (Agencia Estatal de Investigación) and currently manuscripts for journals (most of them edited by Elsevier).

## Part C. RELEVANT MERITS (sorted by typology)

### C.1. Publications (see instructions)

#### Book chapter

J. Muñoz; M.C. Alfaro; L.A. Trujillo-Cayado; J. Santos; M.J. Martín-Piñero. Production of food bioactive loaded nanostructures by microfluidization, in Nanoencapsulation of Food Ingredients by Specialized Equipment. Volume 3(Nanoencapsulation in the Food Industry Series) pp 341-390. Ed: S.M. Jafari. Academic Press. (2019). ISBN: 978-0-12-815671-1. DOI: <https://doi.org/10.1016/B978-0-12-815671-1.00007-X>.

#### Articles



Carmona, J.A.; Ramírez, P.; Calero, N.; Muñoz, J. (2023). Effect of the Welan Gum Concentration on the Rheological and Structural Behaviour of Biocomposite Hydrogels with Sepiolite as Filler. *Polymers* 2023, 15,33. <https://doi.org/10.3390/polym1501003>.

Alfaro, M.C.; Prieto, P.; García, M.C., Martín-Piñero, M.J.; Muñoz, J. Influence of nanoemulsion/gum ratio on droplet size distribution, rheology and physical stability of nanoemulgels containing inulin and omega-3 fatty acids. *Journal of The Science of Food and Agriculture*. 102: 6397–6403 DOI 10.1002/jsfa.12005. 2022;

Mileti, O., Baldino, N., Carmona, J.A., Lupi, F.R., **Muñoz, J.**, Gabriele, D. Shear and dilatational rheological properties of vegetable proteins at the air/water interface. *Food Hydrocolloids*, 126, 107472 (2022).Q1.

Bruno, E., Lupi, F.R, Martín-Piñero, M.J., Girimonte, R., Baldino, N., **Muñoz, J.**, Gabriele, D. (2021) Influence of different dispersing systems on rheological and microstructural properties of citrus fiber suspensions. *LWT - Food Science and Technology* 152 112270. Q1.

Martín-Piñero, M.J.; García, M.C.; Santos, J.; Alfaro-Rodríguez, M. Carmen; **Muñoz, J.** (2020). Characterization of novel nanoemulsions with improved properties, based on rosemary essential oil and biopolymers. *Journal of the Science of Food and Agriculture*, 100, (4) 3886-3894. Q1.

Santos, J. Trujillo-Cayado, L.A., Calero, N., **Muñoz, J.** (2019). Encapsulation of  $\beta$ -carotene in emulgels-based delivery systems formulated with sweet fennel oil. *LWT-Food Science and Technology* 100 (2019) 189–195. Q1. Citations: 10 (Scopus); 9 (WOS).

Carmona, J.A., Ramírez, P., García, M.C., Santos, J., **Muñoz, J.** (2019). Linear and non-linear flow behavior of welan gum solutions. *Rheologica Acta*. 58, 1-8 (2019). Q2. Citations: 3 (Scopus & WOS).

Llinares, R., Santos, J., Trujillo, L.A., Ramirez, P., **Muñoz, J.** (2018). Enhancing rosemary oil-in-water microfluidized nanoemulsion properties through formulation optimization by response surface methodology. *LWT - Food Science and Technology*. 97, 370 - 375. Q1. Citations: 18 (Scopus), 17 (WOS).

Santos, J.; Calero, N.; Trujillo-Cayado, L.A.; García, MC.; **Muñoz, J.** (2017). Assessing differences between Ostwald ripening and coalescence by rheology, laser diffraction and multiple light scattering. *Colloids and Surfaces B: Biointerfaces*. 159, 405-411. Q1. Citations: 24 (Scopus & WOS).

Santos, J., Calero, N., Guerrero, A., **Muñoz, J.** (2015). Relationship of rheological and microstructural properties with physical stability of potato protein-based emulsions stabilized by guar gum. *Food Hydrocolloids*, 44, 109-114. Q1. Citations: 35 (Scopus), 33 (WOS).

Carmona, J. A., Ramírez, P., Calero, N., **Muñoz, J.** (2014). Large amplitude oscillatory shear of xanthan gum solutions. Effect of sodium chloride (NaCl) concentration. *Journal of Food Engineering*, 126, 165-172. Q1. Citations: 38 (Scopus & WOS).

## C.2. Congress

### Invited talk (International Conference)

J. Muñoz, M.C. García; L.A. Trujillo-Cayado, J.A. Carmona, J. Santos. *The role of rheology in the development of green emulsions*. **Invited talk**. Ibero 2017 Conference. Valencia (España) 6-8 September. Extended abstract published in *The multidisciplinary science of rheology. Towards a healthy and sustainable development*. Eds: M.J. Hernández, T. Sanz, A. Salvador, F. Rubio-Hernández, R. Steinbrüggen; ISBN: 978-84-697-5123-7.

## C.3. Research projects

1. Formulation and processing of new low-oil content food emulsions enriched with dietary fibers submitted to mechanical treatment. Proyecto de Investigación de Excelencia de la Junta de Andalucía. Convocatoria 2022 (Ref: Proy\_Excel 00426). Consejería de Universidad, Investigación e Innovación. Type of Call: Regional. Chief researchers: M. Carmen Alfaro Rodríguez and José Muñoz García. Project duration: from 02/12/2022 to 31/12/2025. Total amount: 133.255€.
2. Desarrollo de nanoemulgeles con aplicación en sistemas de encapsulación basados en materiales sostenibles de origen biológico: extracto de microalga y mucilagos. Proyecto Transición Ecológica y Transición Digital. Convocatoria 2021 (Ref: **TED2021-131246B-100**).



Ministerio de Ciencia e Innovación. Type of Call: National. Chief researchers: Nuria Calero Romero and Luis Alfonso Trujillo Cayado. Project duration: from 01/12/2022 to 30/11/2024. Total amount: 101.200€.

3. Producción y caracterización de nanoemulgeles de aceite esencial de limón. Microfluidización versus Ultrasonido (Code: **US-1380760**). Junta Andalucía (FEDER). Type of call: Regional. Chief researchers: José Muñoz García and M<sup>a</sup> Carmen Alfaro Rodríguez. Project duration: from 01/01/2021 to 31/05/2023. Total Amount: 90.000 €.
4. Evaluación de la Homogeneización Por Microcanales para la Preparación y Caracterización de Emulsiones Submicrónicas de Aceites Esenciales. Ministerio de Economía y Competitividad/FEDER. **CTQ2015-70700-P**. Universidad de Sevilla. 3 años (1/1/2016 a 31/12/2018). (Investigador Principal/Chief Researcher: José Muñoz García). Cuantía total de la subvención (Total amount: 118.580€.

#### C.4. Contracts, technological or transfer merits

- **ANALISIS DE DISTRIBUCIONES DE TAMAÑOS DE GOTAS DE EMULSIONES TIPO MAYONESA O SIMILARES**. Project type: Contrato 68/83. Company: **Grupo Ybarra Alimentación, S.L.** (Gestor: FIUS. Fundación de Investigación de la Universidad de Sevilla. Ref: PRJ202003821). 18/2/2020 a 17/2/2021. Chief Researcher/IP: José Muñoz García. 360 € + 21% IVA (VAT): 435,60 €.
- Viscoelasticidad y retrodispersión de luz de una dispersión acuosa de compuestos de caucho. Company: **Metalgráfica del Sur**. Chief researcher: M. Carmen Alfaro. (Gestor: FIUS. Fundación de Investigación de la Universidad de Sevilla 18/06/2021 to 17/07/2021. 605 €.
- ReoLAS: Conportamiento reológico de mezclas de alquilbenceno sulfonato de sodio (LAS) con otros surfactantes y espesantes". Project type: Contrato 68/83. Company: Compañía Española de Petróleos, S.A.U (**CEPSA**) (Gestor: FIUS. Fundación de Investigación de la Universidad de Sevilla). (28 de Noviembre 2017- 28 de Febrero 2019). Chief Researcher/IP: José Muñoz García. 35000 € + (VAT. 21%): 42350€.
- Influencia de la temperatura sobre la viscoelasticidad de grasa de silicona de alto vacío. Project type: Contrato 68/83. Company: **Laboratorios Galpa, S.L.** (Gestor: FIUS. Fundación de Investigación de la Universidad de Sevilla, Ref: PRJ201803243). (20/11/2017 – 19/05/2018). Chief Researcher/IP: M. Carmen Alfaro Rodríguez. Researcher: José Muñoz García. Total amount: 5000 € + (VAT:21%): 6050 €.
- Viscoelasticidad dinámica no lineal aplicada al desarrollo de un fluido de calibrado. Project type: Company: **Instrumentos Físicos Ibérica, S.L.** (Gestor: FIUS. Fundación de Investigación de la Universidad de Sevilla, Ref: PRJ201602704) (4/2/2016-3/11/2016). Chief Researcher/IP: José Muñoz García. Project type: Contrato 68/83. Total amount: 11100.1 € + (VAT:21%): 13310.12 €
- Estudio de las propiedades reológicas y de la estabilidad de nuevos tensioactivos para EOR. Chief Researcher/IP: José Muñoz García. Project type: Contrato 68/83. Ref: 2448/0160. Company: **CEPSA QUÍMICA S.A.** (17-02-2015 / .16-03-2016). Total amount: 78650 €. Source: SISIUS (Univ Sevilla).
- Cátedra de Detergencia-PERSAN. Chief Researcher/IP: José Muñoz García. Project type: Cátedra/Industrial chair. (Gestor: FIUS. Fundación de Investigación de la Universidad de Sevilla, Ref: 200900620. Company: **PERSAN, S.A.** (1/12/2009-31/12/2020).Total amount: 127555.56 €.
- Estudio reológico de nuevos surfactantes. Project type: Contrato 68/83. Company: **CEPSA QUÍMICA S.A** Chief researcher/IP: Muñoz-García, Jose. (25/07/2013 - 24/01/2014). Cuantía total/Total amount (EUROS): 29209.40 €.
- Rheological study of liquid detergents. Tipo de contrato: Contrato 68/83. Company: **RECKITT-BENKISER ESPAÑA, S.L.** Chief researcher/IP: Muñoz-García, Jose. (Gestor: FIUS. Fundación de Investigación de la Universidad de Sevilla. (1/11/2011-30/10/2012). Cuantía total/Total amount (EUROS): 30000 €. Source: FIUS.
- **Formation course for private company: Title:** Tensioactivos y Detergentes. **Responsible:** José Muñoz García. **Type:** Curso de Formación Continua (Centro de Formación Permanente de la Universidad de Sevilla).**Financing entity:** CEPSA QUIMICA. **Duration:** from 07-02-2012 to 09-02-2012