

Curriculum Vitae

Personal information **Federica Aureli**

Work experience

1. Employer's name: Istituto Superiore di Sanità-National Centre for the Control and Evaluation of Medicines-Chemical Medicines Unit.

- Start date: December 2019
- End date: present
- Position held: Researcher
- Country of Employment: Italy
- Main activities in the position: Assessor of quality part in National and European marketing authorization procedures of veterinary medicines. Control and evaluation activities in the field of chemical medicines and OMCL network-related activities. Technical support for the quality of Radiopharmaceuticals in the frame of GMP inspections of radiopharmaceuticals manufacturing facilities as (pharmaceutical) quality/analytical expert. Research activity: falsified medicines and illegal medicines including health products such as food supplements containing undeclared APIs "medicines in disguise" in food supplements, medical devices and other health products containing undeclared APIs.

2. Employer's name: Istituto Superiore di Sanità- Department of Food Safety, Nutrition and Veterinary Public Health of the Istituto Superiore di Sanità

- Start date: July 2006
- End date: November 2019
- Position held: Researcher
- Country of Employment: Italy
- Main activities in the position: research on chemicals - nutrients, contaminants and intentionally used substances - in food, and their impact on human health. Substances in focus were inorganic nanomaterials of interest in the food sector, contaminants (acrylamide), and trace elements assumed through the diet. Main research topic included: (i) Analytical detection and risk assessment of inorganic NMs in food focused on the characterization of engineered NMs and analytical detection of metal/oxide nanoparticles in food and biological samples using state-of-the-art techniques such as single particle-ICP-MS and AF4-UV-MALS-ICP-MS; (ii) Speciation and bioaccessibility of both essential and potentially toxic TEs (e.g. arsenic, selenium and vanadium) in feed and food, using hyphenated techniques with ICP-MS detection (e.g. HPLC-ICP-MS) in tandem with molecular mass spectrometry (ESI-MS) as the analytical tools; (iii) Biomonitoring and biomarkers of dietary exposure to NMs, TEs and their species; (iv) Involvement in the European interlaboratory activities for the development and harmonization of analytical methods for the detection of nanoparticles in complex matrices by single particle ICP-MS and FFF-UV-ICP-MS as well as detection and certification of trace elements and their species by (HPLC)-ICP-MS. Food-chain transfer of TEs was another research field.

3. Employer's name: Istituto Superiore di Sanità- Department of Environment and Primary Prevention-Pesticides Unit.

- Start date: October 2005
- End date: June 2006
- Position held: Researcher
- Country of Employment: Italy
- Main activities in the position: dossier evaluation (physical and chemical properties, analytical methods) of biocides and pesticides substances according to the respective Community Regulations.

Education and training

1. Institution: University of Messina

- Start date: September 2007
- End date: March 2010
- Qualification: PhD
- Subjects covered by the education or training: "Experimental, Environmental and Occupational Toxicology"
- Country: Italy

2. Institution: La Sapienza-University of Rome

- Start date: September 1997
- End date: March 2004
- Qualification: University degree (5 years degree)
- Subjects covered by the education or training: Pharmaceutical Chemistry
- Country: Italy

Additional information

Publications

Raimondo M, Prestinaci F, **Aureli F**, D'Ettorre G and Gaudiano MC. Investigating metformin-active substances from different manufacturing sources by NIR, NMR, high-resolution LC-MS, and chemometric analysis for the prospective

classification of legal medicines. *Front. Anal. Sci.* (2023) 3:1091764.

Ajmone-Cat MA, De Simone R, Tartaglione AM, Di Biase A, Di Benedetto R, D'Archivio M, Vari R, Ricceri L, **Aureli F**, Iaconi F, Raggi A, Cubadda F, Fairweather-Tait SJ, Calamandrei G, Minghetti L. Critical role of maternal selenium nutrition in neurodevelopment: effects on offspring behavior and neuroinflammatory profile. *Nutrients* 2022;14(9):1850.

Gaudiano MC, Bertocchi P, De Orsi D, Manna L, Antonielli E, Rodomonte AL, Sorbo A, Aureli F, Bartolomei M. A case of medicine in disguise: motion sickness patches sold as medical devices containing active pharmaceutical substances. *Annali dell'Istituto Superiore di Sanità*

Recordati C, De Maglie M, Cella C, Argenti S, Paltrinieri S, Bianchessi S, Losa M, Fiordaliso F, Corbelli A, Milite G, **Aureli F**, D'Amato M, Raggi A, Cubadda F, Soldati S, Lenardi C, Scanziani E. Repeated oral administration of low doses of silver in mice: tissue distribution and effects on central nervous system. *Particle and fibre toxicology* 2021;18(1):23.

Geiss O, Bianchi I, Senaldi C, Bucher G, Verleysen E, Waegeneers N, Brassinne F, Mast J, Loeschner K, Vidmar J, **Aureli F**, Cubadda F, Raggi A, Iaconi F, Peters R, Undas A, Müller A, Meinhardt A-K, Walz E, Gräf V, Barrero-Moreno J. Particle size analysis of pristine food-grade titanium dioxide and E 171 in confectionery products: Interlaboratory testing of a single-particle inductively coupled plasma mass spectrometry screening method and confirmation with transmission electron microscopy. *Food control* 2021;120:107550.

Cubadda F, Iaconi F, Ferraris F, D'Amato M, **Aureli F**, Raggi A, Sette S, Turrini A, Mantovani A. Dietary exposure of the Italian population to nickel: the national Total Diet Study. *Food and chemical toxicology* 2020;146:111813.

Tassinari R, Di Felice G, Buttroni C, Barletta B, Corinti S, Cubadda F, **Aureli F**, Raggi A, Narciso L, Tait S, Valeri M, Martinelli A, Di Virgilio A, Pacchierotti F, Cordelli E, Eleuteri P, Villani P, Fessard V, Maranghi F. Hazard identification of pyrogenic synthetic amorphous silica (NM-203) after sub-chronic oral exposure in rat: a multitarget approach. *Food and chemical toxicology* 2020;137:111168.

Aureli F, Ciprotti M, D'Amato M, do Nascimento da Silva E, Nisi S, Passeri D, Sorbo A, Raggi A, Rossi M, Cubadda F. Determination of total silicon and SiO₂ particles using an ICP-MS based analytical platform for toxicokinetic studies of synthetic amorphous silica. *Nanomaterials* 2020;10(5):888.

Talamini L, Gimondi S, Violatto MB, Fiordaliso F, Pedica F, Tran NL, Sitia G, **Aureli F**, Raggi A, Nelissen I, Cubadda F, Bigini P, Diomedea L. Repeated administration of the food additive E171 to mice results in accumulation in intestine and liver and promotes an inflammatory status. *Nanotoxicology* 2019;13(8):1087-1101.

Boudard D, **Aureli F**, Laurent B, Sturm N, Raggi A, Antier E, Lakhdar L, Marche PN, Cottier M, Cubadda F, Bencsik A. Letter to the Editor-The Authors Reply. *Kidney international reports* 2020; 5(4): 554-558.

Boudard D, **Aureli F**, Laurent B, Sturm N, Raggi A, Antier E, Lakhdar L, Marche PN, Cottier M, Cubadda F, Bencsik A. Chronic oral exposure to synthetic amorphous silica (NM-200) results in renal and liver lesions in mice. *Kidney international reports* 2019;4(10):1463-1471.

Di Nunzio M, Bordoni A, **Aureli F**, Cubadda F, Gianotti A. Sourdough fermentation favorably influences selenium biotransformation and the biological effects of flatbread. *Nutrients* 2018;10(12):E1898.

Turrini A, Lombardi-Bocchia G, **Aureli F**, Cubadda F, D'Addezio L, D'Amato M, Darnerud P, Dias MG, Jurkovic M, Kelleher C, Le Donne C, López M, Lucarini M, Martínez Burgos MA, Martínez-Victoria E, McNulty B, Mistura L, Nugent A, Oktay Basegmez HI, Oliveira L, Ozer H, Perelló G, Pite M, Presser K, Sokolic-Mihalak D, Vasco E, Volatier JL. A conceptual framework for the collection of food products in a Total Diet Study. *Food additives & contaminants. Part A, Chemistry, analysis, control, exposure & risk assessment* 2018;35(2):171-190.

Campagnolo L, Massimiani M, Vecchione L, Piccirilli D, Toschi N, Magrini A, Bonanno E, Scimeca M, Castagnozzi L, Buonanno G, Stabile L, Cubadda F, **Aureli F**, Fokkens PHB, Kreyling WG, Cassee FR, Pietroiusti A. Silver nanoparticles inhaled during pregnancy reach and affect the placenta and the foetus. *Nanotoxicology* 2017;11(5):687-698.

Ammendolia MG, Iosi F, Maranghi F, Tassinari R, Cubadda F, **Aureli F**, Raggi A, Superti F, Mantovani A, De Berardis B. Short-term oral exposure to low doses of nano-sized TiO₂ and potential modulatory effects on intestinal cells. *Food and chemical toxicology* 2017;102:63-75.

do Nascimento da Silva E, **Aureli F**, D'Amato M, Raggi A, Cadore S, Cubadda F. Selenium bioaccessibility and speciation in selenium-enriched lettuce: investigation of the selenocompounds liberated after in vitro simulated human digestion using two-dimensional HPLC-ICP-MS. *Journal of agricultural and food chemistry* 2017;65:3031-3038.

Cubadda F, D'Amato M, **Aureli F**, Raggi A, Mantovani A. Dietary exposure of the Italian population to inorganic arsenic: the 2012-2014 Total Diet Study. *Food and chemical toxicology* 2016;98:148-158.

Recordati C, De Maglie M, Bianchessi S, Argenti S, Cella C, Mattiello S, Cubadda F, **Aureli F**, D'Amato M, Raggi A, Lenardi C, Milani P, Scanziani E. Tissue distribution and acute toxicity of silver after single intravenous administration in mice: nano-specific and size-dependent effects. *Particle and fibre toxicology* 2015;13(1):12.

Gonzalez L, De Santis Puzzon M, Ricci R, **Aureli F**, Guarguaglini G, Cubadda F, Leyns L, Cundari E, Kirsch-Volders M. Amorphous silica nanoparticles alter microtubule dynamics and cell migration. *Nanotoxicology* 2015;9(6):729-736.

Papadopoulos A, Sioen I, Cubadda F, Ozer H, Oktay Basegmez HI, Turrini A, López Esteban MT, Fernández San Juan PM, Sokolic-Mihalak D, Jurkovic M, De Henauw S, **Aureli F**, Vin K, Sirot V. TDS exposure project: application of the analytic hierarchy process for the prioritization of substances to be analyzed in a total diet study. *Food and chemical toxicology* 2015;76:46-53.

Aureli F, D'Amato M, Raggi A, Cubadda F. Quantitative characterization of silica nanoparticles by asymmetric flow field flow fractionation coupled with online multiangle light scattering and ICP-MS/MS detection. *Journal of analytical atomic spectrometry* 2015;30(1):1266-1273.

Cubadda F, D'Amato M, Mancini FR, **Aureli F**, Raggi A, Busani L, Mantovani A. Assessing human exposure to inorganic arsenic in high-arsenic areas of Latium: a biomonitoring study integrated with indicators of dietary intake. *Annali di igiene medicina preventiva e di comunità* 2015;27(1):39-51.

Tassinari R, Cubadda F, Moracci G, **Aureli F**, D'Amato M, Valeri M, De Berardis B, Raggi A, Mantovani A, Passeri D, Rossi M, Maranghi F. Oral, short-term exposure to titanium dioxide nanoparticles in Sprague-Dawley rat: focus on reproductive and endocrine systems and spleen. *Nanotoxicology* 2014;8(6):654-662.

Rossi M, Cubadda F, Dini L, Terranova ML, **Aureli F**, Sorbo A, Passeri D. Scientific basis of nanotechnology, implications for the food sector and future trends. *Trends in food science and technology* 2014;40(2):127-148.

Vin K, Papadopoulos A, Cubadda F, Aureli F, Oktay Basegmez HI, D'Amato M, De Coster S, D'Evoli L, López Esteban MT, Jurkovic M, Lucarini M, Ozer H, Fernández San Juan PM, Sioen I, Sokolic-Mihalak D, Turrini A, Sirot V. TDS exposure project: relevance of the Total Diet Study approach for different groups of substances. *Food and chemical*

toxicology 2014;73:21-34.

Cordelli E, Eleuteri P, Villani P, Maranghi F, Tassinari R, Narciso L, Cubadda F, **Aureli F**, D'Amato M, Martinelli A, Di Virgilio A, Pacchiarotti F. Assessment of SiO₂ nanoparticle genotoxicity in blood cells of rats after sub-chronic exposure. *Mutagenesis* 2014;29(6):530- 531.

Ouerdane L, **Aureli F**, Flis P, Bierla K, Preud'homme H, Cubadda F, Szpunar J. Comprehensive speciation of low-molecular weight selenium metabolites in mustard seeds using HPLC - electrospray linear trap/orbitrap tandem mass spectrometry. *Metallomics* 2013;5(9):1294-1304.

Bathia P, **Aureli F**, D'Amato M, Prakash R, Cameotra SS, Nagaraja TP, Cubadda F. Selenium bioaccessibility and speciation in biofortified *Pleurotus* mushrooms grown on selenium-rich agricultural residues. *Food chemistry* 2013;140(1-2):225-230. (*corresponding author*)

Proietti I, Tait S, **Aureli F**, Mantovani A. Modulation of sorghum biological activities by varieties and two traditional processing methods: an integrated in vitro/modelling approach. *International journal of food science and technology* 2013; 49(6):1593-1599.

D'Amato M, Turrini A, **Aureli F**, Moracci G, Raggi A, Chiaravalle E, Mangiacotti M, Cenci T, Orletti R, Candela L, di Sandro A, Cubadda F. Dietary exposure to trace elements and radionuclides: the methodology of the Italian Total Diet Study 2012-2014. *Annali dell'Istituto Superiore di Sanità* 2013;49(3):272-280.

Aureli F, Ouerdane L, Bierla K, Szpunar J, Prakash NT, Cubadda F. Identification of selenosugars and other low-molecular weight selenium metabolites in high-selenium cereal crops. *Metallomics* 2012;4(9):968-978.

Cubadda F, **Aureli F**, D'Amato M, Raggi A, Turco AC, Mantovani A. Speciated urinary arsenic as a biomarker of dietary exposure to inorganic arsenic in residents living in high- arsenic areas in Latium, Italy. *Pure and applied chemistry* 2012;84(2):203-214.

Aureli F, D'Amato M, De Berardis B, Raggi A, Turco AC, Cubadda F. Investigating agglomeration and dissolution of silica nanoparticles in aqueous suspensions by dynamic reaction cell inductively coupled plasma-mass spectrometry in time resolved mode. *Journal of analytical atomic spectrometry* 2012;27(9):1540-1548.

D'Amato M, **Aureli F**, Ciardullo S, Raggi A, Cubadda F. Arsenic speciation in wheat and wheat products using ultrasound- and microwave-assisted extraction and anion exchange chromatography-inductively coupled plasma mass spectrometry. *Journal of analytical atomic spectrometry* 2011;26:207-213.

Ciardullo S, **Aureli F**, Raggi A, Cubadda F. Arsenic speciation in freshwater fish: focus on extraction and mass balance. *Talanta* 2010;81(1-2):213-221.

Cubadda F, **Aureli F**, Ciardullo S, D'Amato M, Raggi A, Acharya R, Reddy RAV, Prakash NT. Changes in selenium speciation associated with increasing tissue concentrations of selenium in wheat grain. *Journal of agricultural and food chemistry* 2010;58(4):2295-2301.

Cubadda F, Ciardullo S, D'Amato M, Raggi A, **Aureli F**, Carcea M. Arsenic contamination of the environment-food chain: a survey on wheat as a test plant to investigate phytoavailable arsenic in Italian agricultural soils and as a source of inorganic arsenic in the diet. *Journal of agricultural and food chemistry* 2010;58(18):10176-10183.

Cubadda F, **Aureli F**, Raggi A, Carcea M. Effect of milling, pasta making and cooking on minerals in durum wheat. *Journal of cereal science* 2009;49(1):92-97.

Aureli F, Ciardullo S, Pagano M, Raggi A, Cubadda F. Speciation of vanadium(IV) and (V) in mineral water by anion exchange liquid chromatography-inductively coupled plasma mass spectrometry after EDTA complexation. *Journal of analytical atomic spectrometry* 2008;23:1009-1016.

Ciardullo S, **Aureli F**, Coni E, Guandalini E, Iosi F, Raggi A, Rufo G, Cubadda F. Bioaccumulation potential of dietary arsenic, cadmium, lead, mercury, and selenium in organs and tissues of rainbow trout (*Oncorhynchus mykiss*) as a function of fish growth. *Journal of agricultural and food chemistry* 2008;56(7):2442-2451.

Lungarini S, **Aureli F**, Coni E. Coumarin and cinnamaldehyde in cinnamon marketed in Italy: a natural chemical hazard? *Food additives and contaminants* 2008;25(11):1297-1305.

Aureli F, Di Pasquale M, Lucchetti D, Aureli P, Coni E. An absorption study of dietary administered acrylamide in swine. *Food and chemical toxicology* 2007;45(7):1202-1209.

Aureli P, **Aureli F**. Where infant botulism meets BIG: recent advances in infant botulism treatment. *Italian journal of pediatrics* 2007;33(3):150-155.

Carcea M, **Aureli F**, Cubadda F. Minerals and trace elements in the Italian wheat and products. *Tecnica molitoria international* 2007;58(8/A):129-139.

Projects

Coordinator (ISS Unit 2) "Risk assessment of arsenic exposure from rice-based food in children with celiac disease: study of urinary metabolic profiles and genetic Polymorphisms". National funding programme "Ricerca Finalizzata 2012-2013, Giovani Ricercatori." From 01/11/2014 to 30/10/2018.

Memberships

Other Relevant Information

Member of the "Comitato Tecnico per la Nutrizione e la Sanità Animale - Sezione Consultiva del Farmaco Veterinario (SCFV)" of the Italian Ministry of Health. From 2019.