



Giuseppina Avantaggiato

Role: Since 1995 research scientist at the Institute of Sciences of Food Production (ISPA) of the National Research Council (CNR)

e-mail: giuseppina.avantaggiato@ispa.cnr.it

Address: Via Amendola, 122/O, 70126 Bari

Telephone: +39 080 5929348

Cell.: +39 3277364274

Fax: +39 080 5929348

Skype: giuseppina.avantaggiato1

EDUCATION AND TRAINING

- Graduation in biochemistry, with honours at Bari University.
- One year training at the Chemistry Department of the Carleton University (Ottawa, Canada) on the production, isolation and purification of C14-labelled fumonisins and on their distribution during food processing of maize.
- Six month training at TNO Nutrition and Food Research (Holland) on the use of a dynamic, computer controlled gastrointestinal model to study the bioaccessibility of mycotoxins and the efficacy of mycotoxin detoxifying agents in reducing mycotoxins bioaccessibility.

SKILLS AND COMPETENCES

- 20 year experience on mycotoxins and other secondary metabolites produced by toxigenic fungi that colonize plants and agricultural products
- Determination of natural toxins in foods and feed commodities and in *in vitro* cultures
- Validation, confirmation and implementation in routine of official and alternative methods for identification and detection of toxins
- Production, isolation, chemical and biological characterization of metabolites produced by fungal and bacterial pathogens
- Fate and stability of toxins in the food/feed chains and along processing of food/feed, using also radio-labelled toxins
- Development of new vinification techniques and of new oenological fining agents to reduce ochratoxin A contamination in wines
- Development and delineation of enterosorbent strategies and novel therapies to mitigate dietary risk factors for disease in humans and animals
- Modelling and thermodynamics of surface-toxin interactions on organic and clay-based composite materials

- Development of mycotoxin decontamination strategies based on the use of biological agents (bacteria, yeasts and enzymes)
- Assessment of the *in vitro* and *in vivo* protective effect of mycotoxin detoxifying agents, including mycotoxin-adsorbent materials and biotransforming agents (bacteria, yeasts and enzymes)
- Development of a rapid and physiologically relevant method, using a dynamic, computer controlled model simulating the stomach and small intestine of healthy pigs, to measure the intestinal absorption of mycotoxins and to assess the effectiveness of adsorbent materials in reducing mycotoxin bioaccessibility
- Transfer of mycotoxin to tissues, biological fluids via contaminated foods/feeds
- Development of new methods for the analysis of mycotoxin biomarkers in tissues and biological fluids and their use to assess human and animal exposure to mycotoxins

MAIN RESEARCH PROJECTS (participation and responsibility)

Principal investigator in:

three (3) **EU projects of the 5th FP:**

FAIR-CT98-4094, Concerted Action “Quality Control Measures in the Production and Processing Chain to Reduce *Fusarium* Mycotoxin Contamination of Food and Feed Grains”

QLK1-1999-996, Control Mycotox Food, “Hazard analysis and control of food contaminants: prevention of *Fusarium* mycotoxins entering the human and animal food chain”

QLK5-CT2000-01248, EMAN “Thematic network to promote awareness of mycotoxins in food: European Mycotoxin Awareness Network”

one (1) **EU project of the 7th FP:**

KBBE-2007-2-5-05, MycoRed “Novel integrated strategies for worldwide mycotoxin reduction in food and feed chains”

one (3) **Ministerial Project:**

PON 297 SIVINA, “Individuation of innovative methodologies user friendly for the improvement of the safety and quality of red wines of Salento”

PON art. 13, S.I.Mi.S.A. “Strumenti Innovativi per il Miglioramento della Sicurezza Alimentare: Prevenzione, Controllo, Correzione”

PON01_01409, SAFEMEAT “Innovazioni di processo e di prodotto per incrementare i profili di sicurezza e per diversificare la gamma dei prodotti (freschi e stagionati) a base di carne suina”

WorkPackage Leader of:

two (2) **ministerial projects**

MIPAAF-MIUR “Prevenzione delle contaminazioni chimiche e da micotossine nei sistemi agrozootecnici convenzionali e biologici per la produzione del latte”

MIPAAF, BIOCER “Organic cereal growing: agrotechnical and genetic interventions for the quantitative-qualitative improvement of the durum and soft wheat and the valorization of the by-products”

one (1) **EFSA project**

CFP/EFSA/FEEDAP/2009/01 “Review of mycotoxin detoxifying agents used as feed additives: mode of action, efficacy and feed/food safety”

Project Manager of:

two (2) **research programs with FEFANA Asbl** (EU Association of Feed Additives and Premixtures Operators) on the development and validation of *in vitro* methods to determine

adsorption efficacy of mycotoxin adsorbent materials

more than twenty (>20) **research agreements** with Large/Medium/Small European and USA Enterprises on the in vitro/in vivo evaluation of mycotoxin-detoxifying agents and on the analysis of mycotoxins in foods and feeds, such as A.M.I. (Associazione Maiscoltori Italiani), Mestre, Italy; A.P.S.O.C.LO. (Associazione Produttori Cereali e Semi Oleosi Lombarda), Cremona, Italy; AIRE (Associazione Italiana Raccoglitori ed Essiccatori di Cereali e Semi Oleosi), Treviso, Italy; ALLTECH, Levallois-Perret, France; ARGILE DU VELAY (ARVEL), Villefranche-sur-Saône, France; Associazione Italiana Celiachia (CSN-AIC), Bologna, Italy; BEGHIN MEIJI Feed, Thumeries, France; BIO-ENERGY INGREDIENTS Ltd, Surrey, UK; CARGILL Animal Nutrition, MN, USA; CENTRALYS – Créons l'avenir nutrition, Trappes Cedex, France; FIS Srl (Feed Industry Service), Lodi, Italy; FEFANA Asbl, Brussels, Belgium; ANPARIO – KIOTECHAGIL, Nottinghamshire, UK; LALLEMAND SAS, Blagnac Cedex, France; LESAFFRE Feed Additives, Marcq-en-Baroeul Cedex, France; MIX SCIENCE, Bruz, France; OLMIX S.A, Brehan, France; PACTA Srl, Limii di Soliera (MO), Italy; SAFE WHEAT Srl – Spin-off of the CNR-ISPA, Bari, Italy; SOCIETÀ LAVIOSA Chimica Mineraria Spa, Livorno, Italy; University College of Cork, Cork, Ireland; VIRIDIS s.r.l, Mestrino (PD), Italy.

Other

Peer reviewer for the Animal Journal (Cambridge Journals); Applied and Environmental Microbiology (American Society for Microbiology); "Food Additives and Contaminants (Taylor and Francis); Food and Chemical Toxicology (Elsevier); Journal of Agricultural and Food Chemistry (American Chemical Society Publications); Journal of the Science of Food and Agriculture (Wiley); Phytopathologia Mediterranea (Firenze University Press).

Member of the PhD board for the PhD course in Vegetable Productions, Foods and Environment at the Bari University. Member of the Scientific Committee of the GLM, Italian Working Group on mycotoxins (Bologna). Member of a scientific group of the Italian Association on Celiac Disease (Bologna). Member and leader of the FEFANA Asbl working group on mycotoxin adsorbents (Brussels). Member of the scientific group of EFSA for the evaluation and statement of guidelines for mycotoxin-detoxifying agents (Parma).

CNR Tutor for training and coaching of undergraduate and graduate Italian and foreign students.

CNR Supervisor of PhD theses in Food Safety and of degree theses in Analytical Chemistry