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State of the art



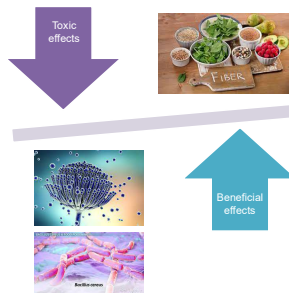
MYCOMIX

Data from a recent Portuguese national project that studied the toxic effects of children exposure (under 3 years old) to multiple mycotoxins in infant foods (**MYCOMIX**) reported the **co-occurrence of 21 mycotoxins and metabolites** present in breakfast cereals primarily marketed for children. This study showed that 96% of the analyzed breakfast cereal samples were contaminated with mycotoxins^{1,2}. The output of this project also highlighted the knowledge gaps on the contra-balance beneficial health effect of these foods, and the **need to determine the risk-benefit balance**, since the evaluated food products, namely breakfast cereals, are simultaneously recognized vehicles of food components, like nutrients, vitamins and water soluble and insoluble fibers, which could be assumed as beneficial for children health.

Question to brainstorm at WMF Conference?



Health risks associated with consumption of cereal-based foods, an important source of nutrients with beneficial health effects, could increase in the near future due to climate changes in Europe³ (dry conditions and increased ambient temperatures).



Health risks:

- chemical (e.g. mycotoxins) hazards
- microbiological (e.g. *Bacillus cereus*) hazards

Beneficial ingredients:

- Dietary fiber (e.g. prevention and treatment of childhood obesity, maintenance of normal blood glucose and lipid values and blood pressure, risk reduction for future chronic diseases, such as cancer, cardiovascular disease (CVD), and type 2 diabetes)

Can we ever have a quantitative tool that enable food and health authorities to estimate the balance between risks and benefits of foods usually contaminated by mycotoxins, as cereals-based products?

RiskBenefit4EU – Partnering to strengthen the risk-benefit assessment within EU

“RiskBenefit4EU – Partnering to strengthen the risk-benefit assessment within EU using a holistic approach” is a recent European project funded by EFSA (GP/EFSA/AFSCO/2017/01-GA02) in a joint initiative of 5 organizations from 3 EU member states: **National Institute of Health Dr. Ricardo Jorge (INSA), Portugal, Economic and Food Safety Authority (ASAE), Portugal, Faculty of Food Sciences and Nutrition, University of Porto (UPORTO), Portugal, Institut National de la Recherche Agronomique (INRA), France and National Food Institute, Technical University of Denmark (DTU), Denmark**. This project aims to strengthen the EU capacity to **assess and integrate food risks and benefits in the areas of microbiology, nutrition and toxicology** through the development of a **harmonized framework** that will be available to EU member states organizations.

Task 1

Management and coordination activities associated to the project organization.

Leader: **INSA**, in close collaboration with all the partners of the consortium.

Task 2

Capacity building activities and framework development. Include knowledge transfer through:

- capacity building of all partners for the methodologies needed for RBA that integrates scientific knowledge on microbiology, nutrition and toxicology, using common health metrics
- development of the harmonized framework for RBA through a holistic approach.

Leader: **INRA**

Task 3

Application of the generated framework (task 2) to a case study.

A Portuguese case study on cereal-based foods, gathering already obtained data, will be used to validate the RBA framework, including the three components – microbiological, nutritional and toxicological.

Leader: **DTU**

Task 4

Sustainability of the generated capacity building and dissemination activities.

Leader: **INSA**

Task 5

Quality assurance and the impact evaluation of the main activities developed under RiskBenefit4EU.

Leader: **UPORTO**



Kick-off meeting

17th January 2018

EFSA (Parma, Italy)

Expected Results

The expected impact of RiskBenefit4EU stands to help further developing and establishing **RBA as a tool** to provide scientific evidence to **inform risk management decisions** in the area of food safety and nutrition at a national, regional and international level.

RiskBenefit4EU will create a **harmonized framework** that different EU institutions could use and apply for their realities and food problems.

Furthermore, the collaborations to be settled will provide a unique opportunity to establish **critical mass thinking for this research area**.

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References: ¹Assunção R, Vasco E, Nunes B, Loureiro S, Martins C, Alvito P (2015). Food and Chemical Toxicology, 86, 274-281. ²Martins C, Assunção R, Cunha SC, Fernandes JO, Jager A, Petta T, Oliveira CA, Alvito P (2018). Food Chemistry, 239, 132-140. ³Assunção R, Martins C, Viegas S, Viegas C, Jakobsen L, Pires S & Alvito P (2018). Food Additives & Contaminants: Part A, DOI: 10.1080/19440049.2018.1447691.