

TOWARDS A STANDARDISED AND HARMONISED SELECTION OF NUTRITIONAL, MICROBIOLOGICAL AND TOXICOLOGICAL COMPONENTS IN RISK-BENEFIT ASSESSMENT OF FOODS: A METHODOLOGY DEVELOPED UNDER THE NOVSRBA PROJECT

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INTRODUCTION

Risk-Benefit Assessment (RBA) of foods is an emerging research area aiming to assess the overall impact of diets on public health, considering both risks and benefits under a common methodological framework. A key point that influences the assessment, and consequently the final conclusions, is the selection of components to be considered, but to date there is no systematic method available. The objective of the present work was to develop a harmonised, standardised, transparent and documented methodological framework for selecting the components to be considered in the areas of nutrition, microbiology, and toxicology, as well as the related health outcomes.

METHODOLOGY

The suggested framework was developed under the NovSRBA project (Novel foods as red meat replacers – an insight using Risk-Benefit Assessment methods), funded by the European Food Safety Authority (EFSA). This project progress on methodological development by applying a learning-by-doing approach, using as a case study the partial or total substitution of minced beef in burgers by an insect powder (*Acheta domesticus*).

RESULTS

An exhaustive list of the nutritional, microbiological and toxicological components of beef and house cricket was established using systematic review procedures. High-level selection criteria were established by dedicated working groups, aiming to prioritise these components based on their occurrence levels and the severity of their impact on health. Each criterion had three levels associated with each component following specific definitions suggested for each domain. For instance, the severity was graded in nutrition considering the potential contribution of the food item to the overall diet, as well as

bioavailability. Regarding microbiology the DALY (Disability adjusted life year) per 1 000 cases of illness of each hazard were considered. In the field of toxicology, contribution to the total exposure, current incidence of the disease in the population, potential fatality and lifelong disability were taken into account. Combining these levels enabled a ranking of all the components in terms of priority, ultimately resulting in a short list of components to be included in the RBA case study.

DISCUSSION

The strategy developed can be broadly used in RBA of foods to guide and reinforce a harmonised and standardised selection of nutritional, microbiological and toxicological components. Moreover, this structured approach facilitates the mapping of any uncertainties that may arise in relation to the available data, which may shape the decision-making regarding the assessment strategy. This development will additionally contribute to a facilitated process for application of the RBA, and to the generation of more robust, transparent and comparable outcomes.

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