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SUPPLEMENT

using FoodEx2 to facilitate the collection of food consumption and food composition data on a global level. EFSA is engaged in improving and promoting best practice regarding its use. FoodEx2 is freely available for download and use.

111. Refined risk assessment using ImproRisk

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ImproRisk, an excel-based model, is a tool for conducting rapid risk assessment analysis. It is an empirical distribution model using the deterministic method of dietary exposure assessment to contaminants. Its most important feature is the derivation of probability and cumulative distributions of exposure. The model has been upgraded to meet the needs of risk assessors within the EU and the non-member countries. It abridges the gap between screening and probabilistic models and is compatible to the approach applied by EFSA for dietary exposure assessment. The model can easily be applied to food additives and other chemicals. It is a simple, straightforward and a user-friendly model, validated by EFSA.

ImproRisk combines Food Consumption Data with Occurrence Data and calculates the exposure rate for the population of interest. The model embeds the EFSA FoodEx system version 1. It has the capacity to work with individual Food Consumption Data; therefore, it supports exposure calculation at each food consumption instance.

The capacity of the model to use Occurrence Data at FoodEx Level 3 makes the exposure assessments quite refined. This is shown in the estimation of the dietary intake of Aflatoxin B1, which has been recently conducted in Cyprus. Aflatoxin B1 occurrence data in 1,231 food samples, for the years 2006–2015, were used for the calculation of the dietary exposure. The exposure calculation was performed and compared, using both Occurrence Data at FoodEx Level 2 and Level 3. To carry out risk characterisation, the Margin of Exposure (MOE) approach was applied. The calculated MOE values for Aflatoxin B1 were substantially lower than 10,000, indicating a health concern for carcinogenicity. The highest contribution of exposure was observed for nuts, cereals and spices. The results were comparable with the findings of EFSA and other research groups.

112. The Raw Primary Commodity (RPC) Model

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EFSA's dietary exposure assessments to chemicals are informed by both dietary consumption data and chemical occurrence data. Dietary consumption data are stored in EFSA's Comprehensive European Food Consumption Database and are formatted either as composite foods or as Raw Primary Commodity (RPC) derivatives (i.e. food ingredients). In several food sector areas however, chemical occurrence data are reported to EFSA for the RPC. These can be provided either through EU monitoring programmes or within a specific regulatory framework as trial data. In these cases, the dietary consumption data available in the EFSA Comprehensive Database are not compatible with the chemical occurrence data provided. The objective of the RPC model is to facilitate the standardised conversion of dietary consumption data for composite foods and RPC derivatives into their corresponding amounts of RPC. The RPC model functions in three main steps. In the adjustment step, the classification of the initial consumption data are optimised for disaggregation. In the disaggregation step, the adjusted foods are disassembled into their RPC derivatives, with a probability analysis step employed where required. In the final conversion step, descriptive facets are allocated to the RPC derivatives and the initial amount of RPC required to produce each RPC derivative is estimated through the use of reverse yield factors. A cross-check was executed against the RPC consumption estimates currently used in the area of feed additives and pesticides. Overall, the consumption outputs of the model were consistent with previous estimates. The availability of the Comprehensive Database at various consumption levels will enhance EFSA's capacity to utilise the Comprehensive Database in areas where it is not currently applicable, allowing for the implementation of more proficient exposure assessment methodologies in the future.

113. An adaptive, mechanistic and quantitative approach for plant pest risk assessment

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Plant pest risk assessment at EFSA consists of two phases: (i) a pest categorisation; and, if needed, (ii) a more detailed risk assessment.

For the second phase, the EFSA Plant Health Panel developed a novel approach for quantitative pest

risk assessment which increases the transparency and objectivity of the process. This methodological framework is based on three pillars:

An adaptive approach (scenario-based analyses and conditional assessments). For ensuring fit-for-purpose risk assessment, special care is given to the problem formulation, with interactions between the requestor of the assessment and the risk assessors. During this activity, the risk assessment scenarios are chosen and the risk assessment strategy is defined based on the available resources and data.

A mechanistic and population-based approach (the risk assessment model is based on the biology of the pest, in particular on the pest abundance). For each assessment a model is developed estimating pest abundance from the place of production in the country of origin to the endangered area in the EU.

A quantitative and evidence-based approach (expression of the model parameters as probability distributions integrating both risk estimates and related uncertainties). Pest entry, establishment, spread and impact may be assessed directly, using weight of evidence and expert knowledge. Each assessment model is developed using Monte Carlo simulations, which can compare scenarios for relevant factors, e.g. with or without risk reduction options (RRO). Comparisons between scenarios are made to draw conclusions on the magnitude of pest risks and the effectiveness of RRO.

This new approach is detailed in the PLH Guidance Document for quantitative pest risk assessment that provides explanations on the application of the two-phase assessment method and on how to communicate its results.

114. Use of human biomonitoring data and ICF classification to develop targeted vertical public health policies

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Introduction: Human biomonitoring is a relatively new scientific field aiming at the detection of potentially hazardous chemicals and their metabolites in human biological samples and their association with undesirable health outcomes. Despite gradual accumulation of experience and harmonisation initiatives, no uniform approach exists at an EU level yet, resulting in significant variance in priority areas and populations, screening algorithms or result communication. The aim of this presentation is to present existing Cypriot experience in human biomonitoring and its potential implication for focused policy making

Materials and methods: Since 2013 Cyprus has participated in a number of consortia to develop and apply harmonised human biomonitoring studies along with most other EU Member States. At the same time, it has restructured its disability assessment system to use ICF for a holistic assessment of patient needs and priorities.

Results: About 120 individuals have participated in pilot Cypriot biomonitoring studies and more than 4,000 have been enrolled in the ICF-based national disability registry to this date. Participation rates have been more than 60% for both processes, which are among the best compared to other EU countries using comparable approaches. Information from these databases has already been used to adapt national legislation and regional health and nutrition measures resulting in improved satisfaction and more efficient resource allocation.

Discussion: Health and nutrition public health policies have to surpass resistance and financial barriers to be effectively applied. The use of comprehensive and comparable needs assessment data can facilitate raising public awareness and coordinating different services towards the achievement of improved outcomes.

115. In situ spectral sensing to support evidence-based risk assessment for food safety, traceability and authenticity

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In situ generation of chemical information for food products can enhance the risk assessment task performed for food safety, traceability and authenticity issues. Due to the recent development of advanced optics, different modes of molecular spectroscopy such as visible (VIS) and near-infrared (NIR) can be deployed rapidly and in real time. Even miniature sensors for molecular spectroscopy can be combined with smartphones to support data acquisition. Further, advanced chemometic analysis can be performed to derive conclusions from the data recorded by the sensors. The information provided by the techniques can be used to perform non-destructive classification and chemical composition estimation, which can potentially support rapid generation of evidence for assessing the risk for cases of food safety, traceability and authenticity. In the present poster, application of a miniature mobile phone operated NIR spectral sensor is presented for locating the geographic origin of green tea products originating from seven different parts of the world. It was possible to locate the geographical origin of the samples based on the NIR spectral signatures and chemometrics modelling. Furthermore, black cut–tear–curl (CTC) teas with known chemical profile differences could be classified using a hierarchy of similarities using the same sensor. In conclusion, miniature spectral sensors could support in *in situ* evidence generation for food risk assessment.