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Collection of chemical occurrence data for the exposure assessments of additive intakes in the Irish diet as part of a pan-European chemical exposure surveillance system

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Contemporary food supplies contain a vast range of chemicals, their presence resulting in the need for effective risk assessment strategies. A pivotal step in the risk assessment process is exposure assessment. Exposure assessments require a certain level of data: (1) concentration levels of the chemical substance and (2) total intake of foods that contain the chemical⁽¹⁾. Concentration levels can be actual or reflect the maximum permitted levels as per the relevant legislation. Furthermore, in the absence of actual occurrence data, it must be assumed that if an additive can legally be present in a food, it always will. Chemical occurrence data, therefore, identifies foods that contain the target chemical and helps refine the exposure assessment to that particular chemical, e.g. a food additive.

FACET⁽²⁾ is a seventh Framework EU funded project, with the aim of creating a food chemical exposure surveillance system to cover representative EU regions. An element of this project is obtaining chemical occurrence data (on additives, flavourings and packaging materials) from eight EU countries, including Ireland. A number of target food-groups were developed (*n* 12) and target additives identified for deeper analysis (*n* 32, including colours, preservatives, emulsifiers, etc.). Foods from market leaders, supermarket own brands and discount stores were purchased per food group according to standardised criteria in each country. A database was created in MS Access for entering complete information on each product purchased, including a unique brand ID, country of origin, brand, weight, ingredients, nutrients and packaging information. Data collection started in May 2010 and is ongoing (March 2011).

The aim of this study is to present initial findings for Ireland for six food groups and to characterise the number of additives (both target and non-target) present in these groups.

Food group name	No. of foods purchased	Occurrence of any additive*	No. of foods containing target additives	Occurrence of target additives
Fruits**, nuts, seeds	41	25	2	2
Salts, spices, herbs, sauces	4	5	1	2
Vegetables†, starch roots	7	6	0	0
Non alcoholic beverages	74	172	34	77
Desserts	44	165	28	74
Baby foods	41	10	10	10
Total	211	383	75	165

*Includes target and non-target additives.

†Refers to canned and jarred products only.

Data were collected on 211 foods within these six food groups. The foods contained a total of 383 additives (both target and non-target). Focusing on the target additives, only 75 foods (36%) contained at least one of the 32 target additives and these were present in different frequencies depending on the food group. This data will allow for more refined exposure assessments of the target additives in these six food groups. Data collection is ongoing to gather data on a further six food groups and to harmonise this data with that collected by the other seven countries. This will provide comprehensive chemical occurrence data, from which accurate exposure analyses may be conducted, on both national and European levels.

- Spanjersberg MQI, Kruijzinga AG, Rennen MAJ *et al.* (2007) Risk assessment and food allergy: the probabilistic model applied to allergens. *Food Toxicol* **45**, 49.
- FACET (Flavourings, Additives and Contact Materials Exposure Task), EU 7th Framework Project, Project No. 211686. <http://www.ucd.ie/facet/>