Harmonised European food composition data utilizing standards and best practice

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IMEKOFOODS, Rome, 12-14 October 2014
No official food composition standards

- Work done since the 1980’s to improve standardisation and harmonisation of food composition data

- INFOODS (worldwide)
- EuroFOODS (Europe)
- several EU projects
- International Agency for Research on Cancer (IARC)
- EuroFIR
EuroFIR

- EuroFIR EU projects from 2005-2013
  - Improving food composition data through harmonisation and standardisation of procedures and data
  - Building a quality framework

- EuroFIR AISBL from 2009
  - Non-profit association aiming to be the European Food Information Resource for all food data

- Network of food composition data organisations
Elements of EuroFIR quality framework

Flow chart describing the generic food compilation process
- Critical steps identified
- Generic SOPs for each critical step

Consensus among EuroFIR compilers

Standardised procedures
- EuroFIR standard data documentation
- EuroFIR thesaurus
Standardized documentation of food data

Use same foods and food composition data in each country, as food choices and local foods differ

Use standardised documentation systems between countries and organisations

This enables

- data exchange between producers, compilers and users of food composition data
- understanding and proper use of food composition data
- comparing and combining food composition data
EuroFIR standard for data documentation

- **Food entity**
  - FoodNames entity: optional
  - Recipe entity: optional
  - Ingredients entity: optional
  - Retention factor entity: optional
  - Sample entity: optional

- **Component entity**
  - Method Specification entity: optional

- **Value entity**
  - Quality Assessment entity: optional
  - ContributingValues entity: optional

- **Reference entity**
  - mandatory
## Mandatory properties of FOOD entity

<table>
<thead>
<tr>
<th>Property name</th>
<th>Property id</th>
<th>Data type</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original food code</td>
<td>ORIGFDCD</td>
<td>KEY</td>
<td>M</td>
</tr>
<tr>
<td>Original food name</td>
<td>ORIGFDNM</td>
<td>STR</td>
<td>M</td>
</tr>
<tr>
<td>English food name</td>
<td>ENGFDNAM</td>
<td>STR</td>
<td>M</td>
</tr>
<tr>
<td>Product type</td>
<td>PRODTYPE</td>
<td>{THS}</td>
<td>M</td>
</tr>
</tbody>
</table>

M = mandatory
Product type is Language facet A (food groups).
Why is food description important?

Belgian/French endive, Witloof, raw

Spinach fresh raw

American muffin

Endive, raw

Spinach deep frozen cubes with cream

English muffin
LanguaL system used by EuroFIR

- Systematic food description using controlled vocabulary
- 14 facets

- www.langual.org

- example:

Mandatory properties of COMPONENT entity

<table>
<thead>
<tr>
<th>Property name</th>
<th>Property id</th>
<th>Data type</th>
<th>Priority</th>
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</thead>
<tbody>
<tr>
<td>EuroFIR component identifier</td>
<td>ECOMPID</td>
<td>THS</td>
<td>M</td>
</tr>
<tr>
<td>Original component code</td>
<td>ORIGCPCD</td>
<td>STR</td>
<td>M</td>
</tr>
<tr>
<td>Original component name</td>
<td>ORIGCPNM</td>
<td>STR</td>
<td>M</td>
</tr>
</tbody>
</table>
Why is component description important?

- Different dietary fibre fractions measured by different methods
- Several component identifiers needed
EuroFIR component identification

- Unique identifier for each component
  - Analytical method not included
  - Unit not included
## Mandatory properties of VALUE entity

<table>
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<tr>
<td>Food identifier</td>
<td>ORIGFDCCD</td>
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<tr>
<td>Component identifier</td>
<td>ECOMPID</td>
</tr>
<tr>
<td>Selected value</td>
<td>SELVAL</td>
</tr>
<tr>
<td>Unit</td>
<td>UNIT</td>
</tr>
<tr>
<td>Matrix unit</td>
<td>MATRIX</td>
</tr>
<tr>
<td>Value type</td>
<td>VALTYPE</td>
</tr>
<tr>
<td>Acquisition type</td>
<td>ACQTYPE</td>
</tr>
<tr>
<td>Value reference</td>
<td>SOURCEID</td>
</tr>
<tr>
<td>Method type</td>
<td>METHTYPE</td>
</tr>
<tr>
<td>Method indicator</td>
<td>METHIND</td>
</tr>
<tr>
<td>Method parameter</td>
<td>METHPAR</td>
</tr>
</tbody>
</table>

- **Property name**: Name of the property.
- **Property id**: Unique identifier for the property.
- **Data type**: Type of data that can be stored in the property.
- **Priority**: Importance level of the property.
### Mandatory properties of REFERENCE entity

<table>
<thead>
<tr>
<th>Property name</th>
<th>Property id</th>
<th>Data type</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
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<td>M</td>
</tr>
<tr>
<td>Acquisition Type</td>
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<td>THS</td>
<td>M</td>
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<tr>
<td>Reference Type</td>
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</tr>
<tr>
<td>Authors</td>
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<tr>
<td>Publication Date</td>
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</tr>
<tr>
<td>Original Language</td>
<td>ORIGLANG</td>
<td>THS</td>
<td>M</td>
</tr>
</tbody>
</table>

Other properties are mandatory in connection to reference type. E.g. book title for books; journal name, volume and issue for a journal and file format for files or databases.
EuroFIR standard for documentation

- Applied by 28 European food composition databases
  - 29,000 foods

- Available in FoodExplorer tool for EuroFIR members
  - search data
  - use data
  - compare data
Compiler peer reviews 2011-2013

As part of the EuroFIR quality approach

- to identify strengths and weaknesses of each compiler organization
- to identify ’best practice’ processes
- to give recommendations on how to improve quality systems and quality of food composition data
Content of peer reviews

- 18 compiler organizations were reviewed
- By peer compilers from neighboring countries
  - Organizational structures
  - Compilation procedures
  - Documentation of procedures
  - Quality assurance
  - Training
  - IT and database management including security of data
Conclusions of compiler peer reviews

- EuroFIR quality management procedures were well received
- Compiler organisations focussed on building and improving their quality systems wherever possible
- Compilers should be encouraged to document their process and write own SOPs
- Process documentation is important to continue harmonisation of the data compilation processes.
- The possibility of sharing key process documents within EuroFIR should be considered
CEN standard (EN: 16104): food data and interchange format, since January 2013

- To be used by all organizations describing and interchanging food data

- The CEN standard structures
  - Properties to be exchanged
  - Standardized vocabularies to be used (e.g. EuroFIR thesauri or INFOODS tag names)
  - Data exchange formats (xml)

- Based on the EuroFIR standard and the GS1 Food and Beverage Extension
  - Broader than EuroFIR standard with more food properties e.g. for food processing and trade
More information about EuroFIR AISBL: www.eurofir.org

- Membership benefits e.g. datasets, standards, tools
- Activities e.g. training, projects, meetings
- Membership fees
- LinkedIn discussion groups for members

Not a member yet?
You can have free trial access to the membership benefits!

For any questions related to membership in the Association, please contact our Secretariat at secretariat@eurofir.org
Thank you for your attention

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