

**Combined  
presentations**



# ePlantLIBRA Database:

Plant Food Supplements - Bioactives  
Composition, Benefit and Adverse Effects

Paul Finglas, Jenny Plumb, Jackie Lyons, Karin  
Nørby, Carlos Ramos, Patrizia Restani

Le Chatelain Hotel, Brussels 2014

# ePlantLIBRA introduction



Welcome and overview of PlantLIBRA project and database

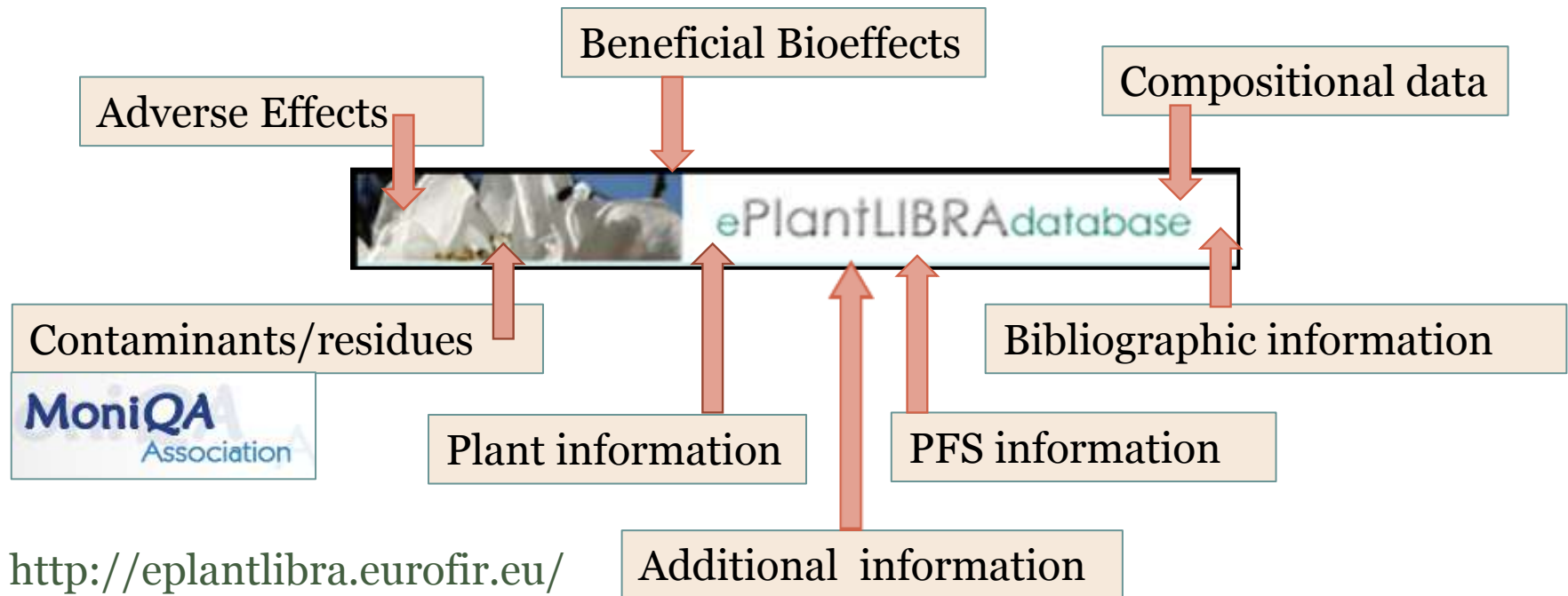
Demonstration of ePlantLIBRA

Data included: Composition, Beneficial effects, Adverse effects

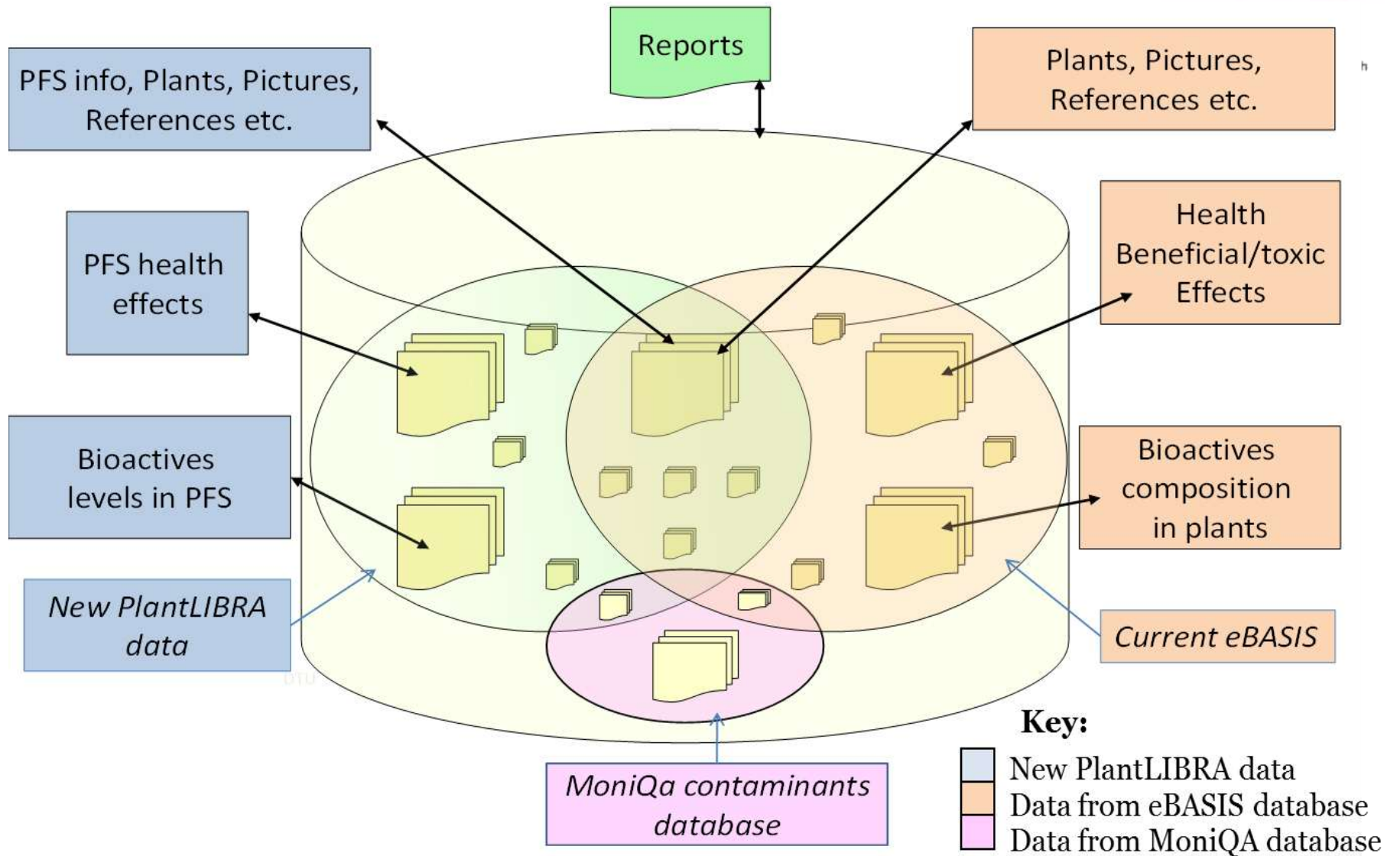
Users and Uses, Sustainability and plans

# Aim: To develop, test and apply a sustainable integrated meta-database of biologically active compounds, residues and contaminants

**ePlantLIBRA:** A sustainable, reliable, flexible and fit-for-purpose internet-deployed database, providing a unique comprehensive resource on PFS for researchers, health professionals, health educators, the food industry and policy makers



# ePlantLIBRA Structure



# ePlantLIBRA functions

## Data inputting:

Via 5 online systems

- Composition data
- Beneficial data
- Adverse effects
- PFS information
- Plant information:

## Data reporting:

user led data retrieval software system,

searchable by:  
compound, food,  
biological effect:

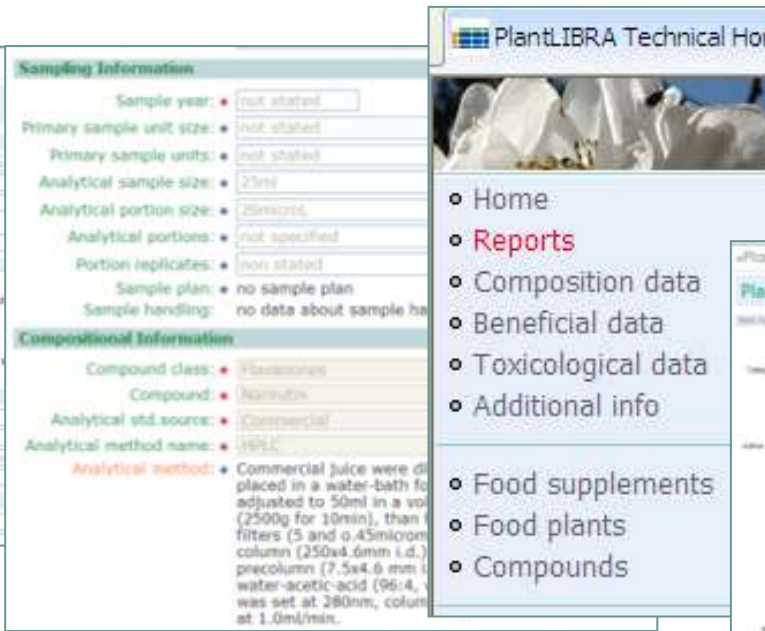
- Composition
- Bio-effects
- PFS info
- Plant details
- Contaminants



PlantLIBRA Database  
Plant Details

Sample year: not stated  
Primary sample unit size: not stated  
Primary sample units: not stated  
Analytical sample size: 23ml  
Analytical portion size: 23microl  
Analytical portions: not specified  
Portion replicates: non stated  
Sample plan: no sample plan  
Sample handling: no data about sample handling

Compound class: Flavonoids  
Compound: Naringin  
Analytical std.source: Commercial  
Analytical method name: HPLC  
Analytical method: Commercial juice were diluted in a water-bath for adjusted to 50ml in a vol (2500g for 10min), than filters (5 and 0.45microm column (250x4.6mm i.d.) precolumn (7.5x4.6 mm i.d.) water-acetic-acid (96:4), was set at 380nm, column at 1.0ml/min.



PlantLIBRA Technical Home

- Home
- Reports
- Composition data
- Beneficial data
- Toxicological data
- Additional info
- Food supplements
- Food plants
- Compounds

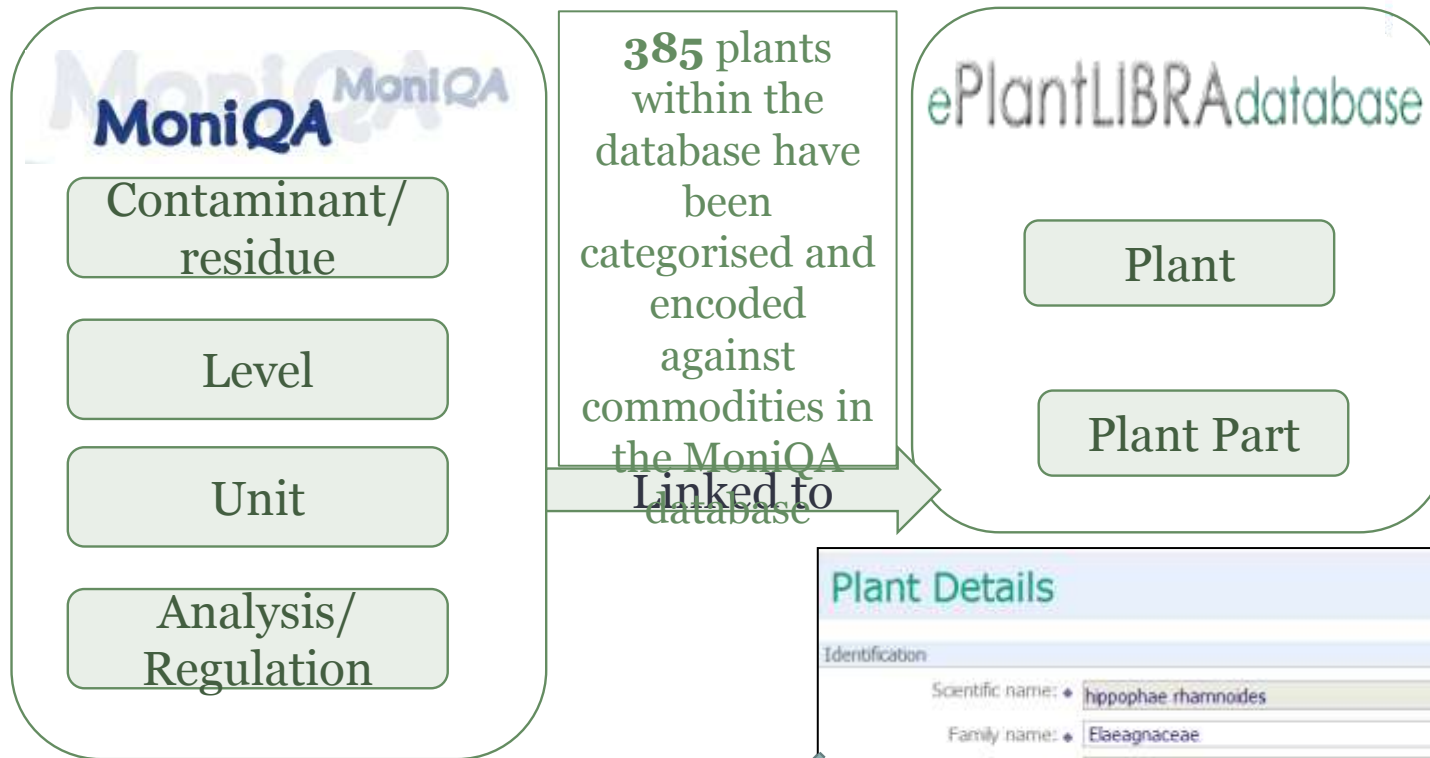


PlantLIBRA Database  
Plant Food Supplement Details

Sample year: not stated  
Primary sample unit size: not stated  
Primary sample units: not stated  
Analytical sample size: 23ml  
Analytical portion size: 23microl  
Analytical portions: not specified  
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# Contaminant information



**Plant Details**

Identification

Scientific name:

Family name:

English name:

Information from ▶ MoniQA

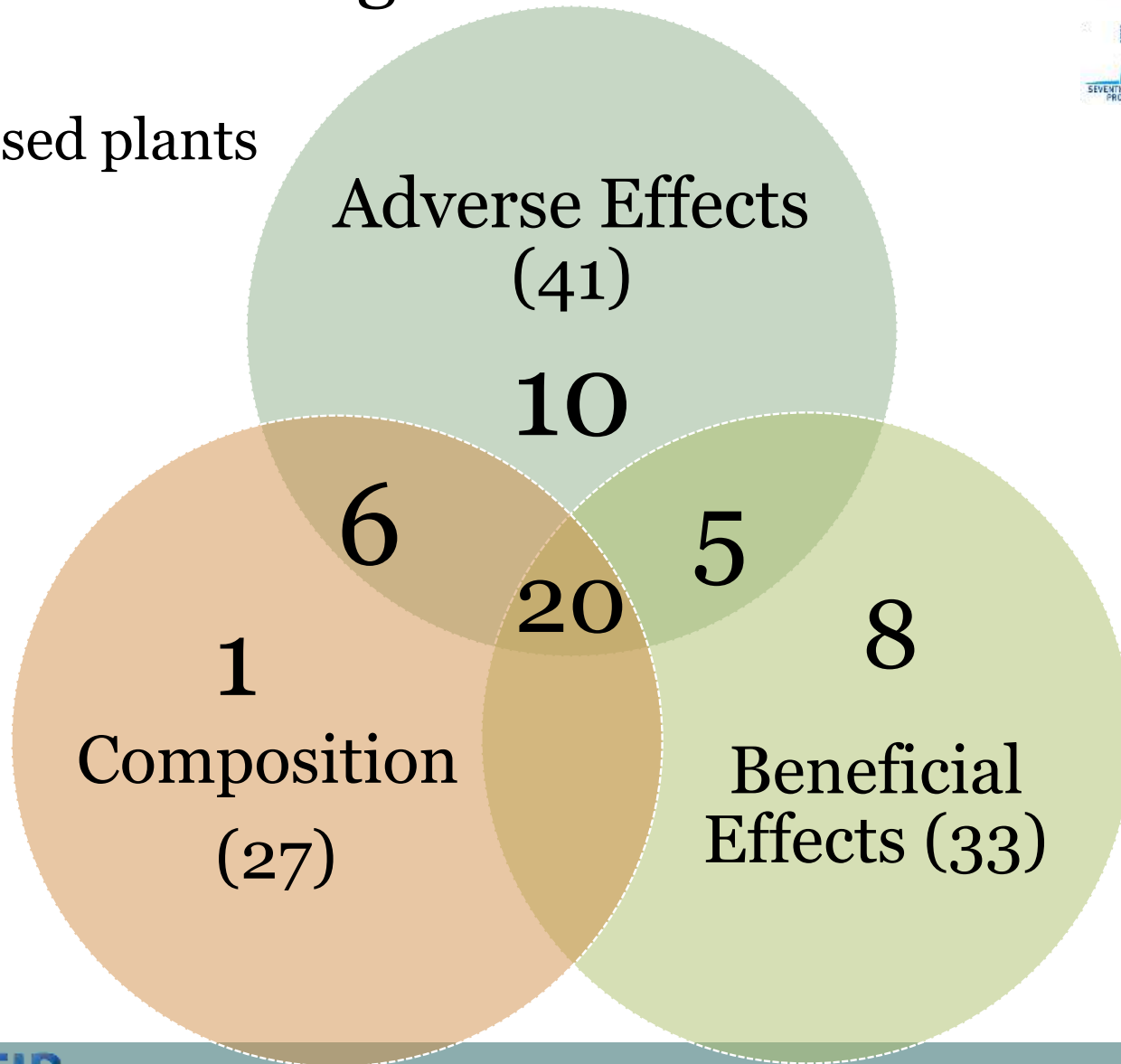
Contaminant	Regulatory plant classification	Level	Unit	Analysis
Cadmium	3.2.15. Vegetables and fruit, excluding leafy vegetables, fresh herbs, leafy brassicas, fungi, stem vegetables, root vegetables and potatoes	0.05	mg/kg wet weight	Regulation (EC) 333/2007 EFSA Opinion - cadmium
Lead	3.1.13. Berries and small fruit	0.2	mg/kg wet weight	Regulation (EC) 333/2007 EFSA Opinion - lead
Pesticides	015. Berries and small fruit - Other small fruit and berries	MRLs for elderberries (0154080) apply	mg/kg	Regulation (EC) No 396/2005 and its Annex amendments

# Horizon Scan: New features under development – an example

Plant	Latin name	Exporter (source)	Reported commodity	Issue (residue or contaminant)
Camomile	<i>Chamaemelum nobile</i> (L.) All.	Germany	Chamomile flowers	Acetamiprid, Carbofuran, Chlormequat, Dimethoate, Fonofos, Glyphosate, Heptachlor, Methamidophos, Methiocarb, Oxydemeton-methyl, Triazophos
Camomile	<i>Chamaemelum nobile</i> (L.) All.	The Former Yugoslav Republic Of Macedonia	Chamomile flowers	Acetamiprid, Chlorpyrifos, Dimethoate, Methomyl, Monocrotophos, Omethoate, Procymidone
Chanterelle	<i>Cantharellus cibarius</i> Fr. var. <i>cibarius</i>	France	Wild mushrooms	High radioactive concentration (220 Bq/kg) in Chanterelles
Onion	<i>Allium cepa</i> L.	Morocco	from Onions	cadmium in fresh wild onions
Onion	<i>Allium cepa</i> L.	Ukraine	from Onions	lead (0.15 mg/kg - ppm) in fresh onions from Ukraine
Onion	<i>Allium cepa</i> L.	Ukraine	from Onions	lead (0.33 mg/kg - ppm) in fresh onions from Ukraine

# Plant/PFS Coverage

51 prioritised plants





# Detailed breakdown of content

	Plants covered	PFS covered	Compounds	References	Datapoints
<b>Composition</b>	240*	22	511	400*	25,500*
	27			220**	4400**
<b>Beneficial Bioeffects</b>	71*	32	161	563*	894*
	33			82**	
<b>Adverse Bioeffects**</b>	41	41	-	210	243
<b>Contaminants</b>	374				

\*Includes data inherited from eBASIS database

\*\*New references evaluated and entered specifically for ePlantLIBRA



## ePlantLIBRA Database:

Demonstration (Jenny Plumb, IFR)  
Composition data (Jenny Plumb, IFR)  
Beneficial Bioeffects (Jackie Lyons UCC)  
Adverse Effects (Patricia Restani UMIL)

# ePlantLIBRA: Composition



Composition data entry

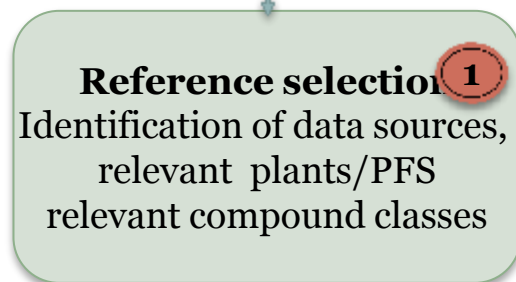
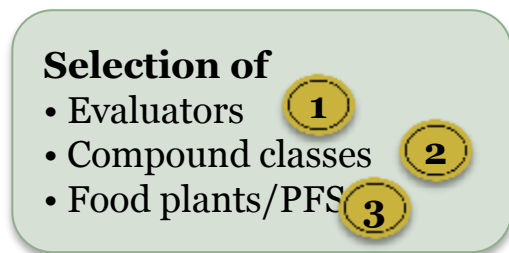
Composition data included

Example of use

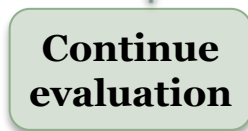
# Compilation process

ePlantLIBRA database

SEVENTH FRAMEWORK PROGRAMME



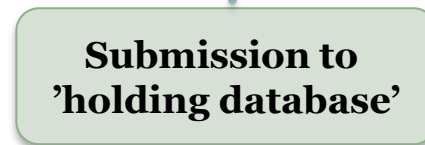
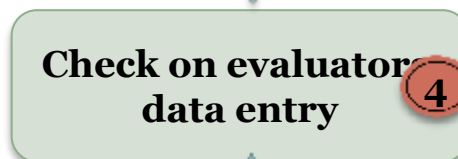
YES



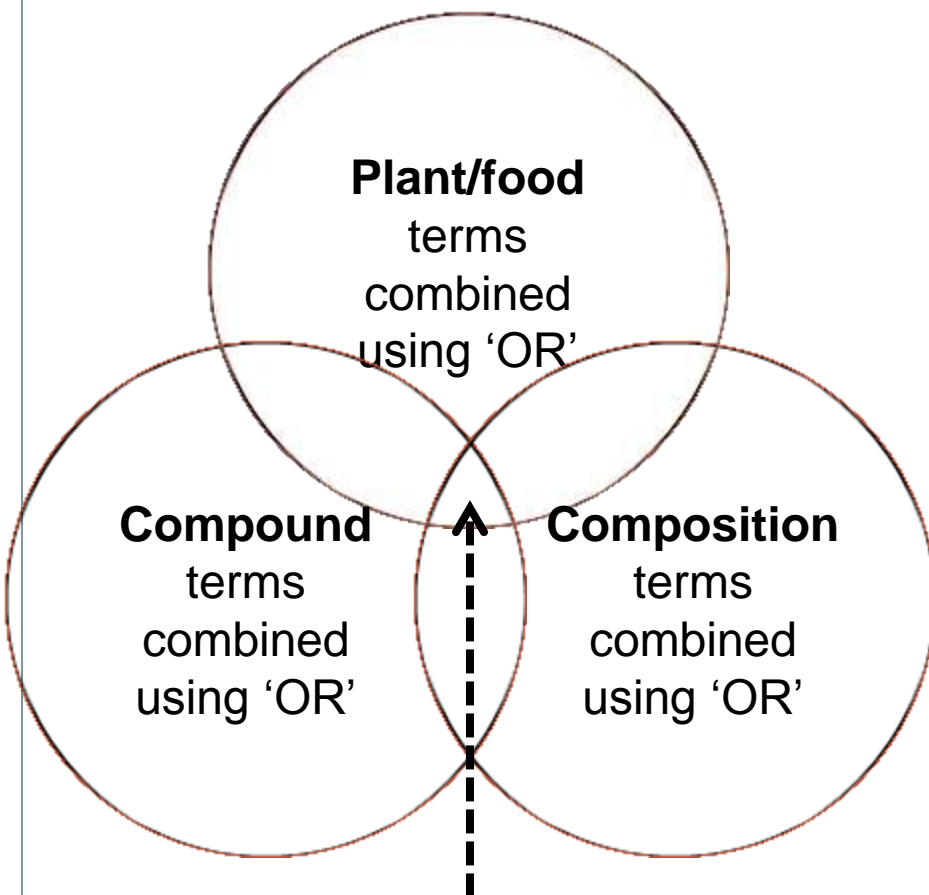
YES

**Correct?**

NO



# Composition literature search



**Three categories of terms  
combined with 'AND' to give  
relevant papers**

Field	Terms
TOPIC	(Camellia sinensis OR Tea*)
AND	
TOPIC	(polyphenol* OR flavan* OR *flavon* OR catechin* OR quercetin* OR *quinic* OR *cyanidin* OR phenol* OR kaempferol* OR theaflavin* OR theobromin*)
AND	
TOPIC	(composit* OR analy* OR content* OR evaluat* OR quantif* OR concentrat*)

# Composition: Data Entry



Online form: **35 fields, 14 picklists:**

- Bibliographic Reference Information
- Plant/PFS information
- Processing
- Sampling information
- Compositional information
- Quality assessment:
  - Food description
  - Processing defined
  - Sampling plan
  - Sample handling
  - Compound identification
  - Analytical method
  - Analytical performance

Quality Assessment: 89/100 points

Plant/Food description:  1  2  3  4  5

- Quality score of either primary or secondary source

Processing defined:  1  2  3  4  5

5. Processing properly defined
3. Processing applied but sufficient
1. Processing applied but not sufficient

Sampling plan:  1  2  3  4  5

5. Ideal sampling plan
4. Samples taken from several locations
3. Samples taken from several locations
1. No sample plan - one sample

Sample handling:  1  2  3  4  5

- Indicate how appropriate the handling is (very poor) and 5 (perfect)

Compound identification:  1  2  3  4  5

5. There are no doubts on the identity of the compound
3. There is uncertainty in the identity of the compound with diode array detection
1. The chemical identity poor

Analytical method:  1  2  3  4  5

- Hydrolysis, extraction and purification
- Appropriate selectivity and sensitivity
- Enough to allow assessment of the method
- Determination of the recovery of the analyte in the food or plant material
- Relevant working range of the method
- Linearity of response of the method
- Use of internal standard (a standard addition method)
- Purity of standards, and stability of the method

Analytical performance:  1  2  3  4  5

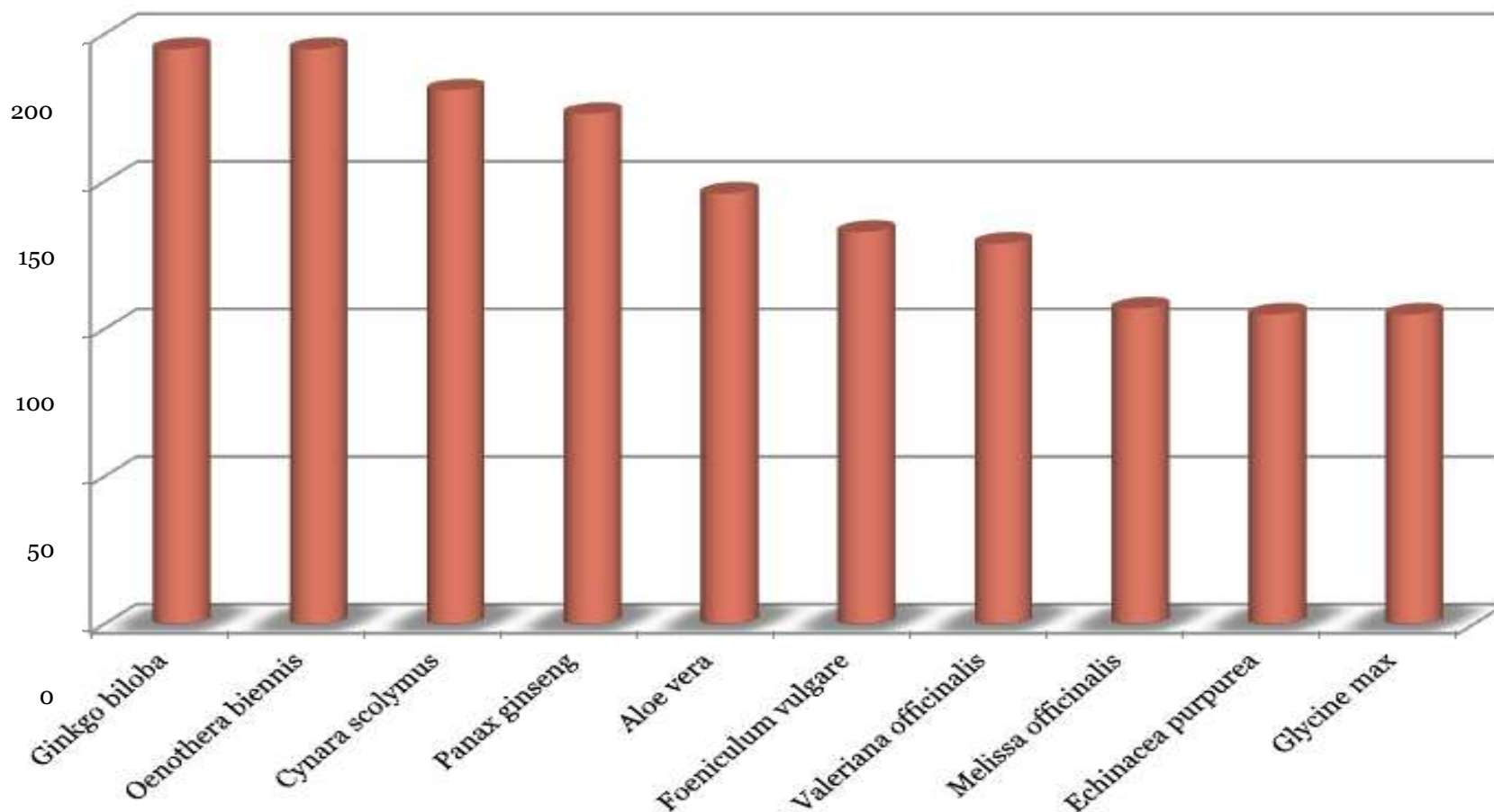
- Accuracy of the method

# Breakdown of Composition content



- **345 papers** sourced on composition PFS/botanical ingredients
- **237 papers completed**
- **4700 inputs** (26800 including inherited data)
- **315 compounds**
- **78 Botanicals** (353 including inherited data)
- **30 Generic PFS products e.g:**  
Artichoke, liquorice, boswellia, ginkgo, ginseng, st Johns Wort, camellia sinensis (tea)

# Example of use: Consumption Survey, Intake calculation





# Example of composition data use:



## Intake of selected bioactive compounds from plant food supplements containing fennel (*Foeniculum vulgare*) among Finnish consumers

- 12-month retrospective PFS consumption survey conducted in Finland
- Estimated average intake
  - estragole was 0.20 mg/d,
  - trans-anethole 1.15 mg/d,
  - rosmarinic acid 0.09, etc...
- The intakes of kaempferol, quercetin, luteolin, matairesinol and lignans from fennel-containing PFS were low in comparison with their dietary supply.
- The intake of estragole was usually moderate, but a heavy consumption of fennel-containing PFS may lead to a comparably high intake of estragole.
- To our knowledge, this study presents the first intake estimates of trans-anethole, p-coumaric acid and rosmarinic acid in human populations.



# ePlantLIBRA: beneficial effects data

**Dr Jacqueline Lyons**

University College Cork, Ireland

**Jenny Plumb | Karin Nørby | Erik Nørby | Paul Finglas | Máiréad Kiely**

**Brussels, March 2014**

# Why study beneficial effects?

- Bioactive compounds defined as *“inherent non-nutrient constituents of food plants with anticipated health-promoting (beneficial) and/or toxic effects when ingested”*
- May help to promote optimal health and to reduce the risk of chronic disease
- Epidemiological evidence for the health benefits derived from a diet rich in fruit and vegetables thought to be largely explained by bioactive compounds

## How can ePlantLIBRA help?



- Unique on-line database containing quality assessed data from peer-reviewed literature
- Contain composition and biological effects data (both beneficial and adverse) for plants, plant food supplements, compounds
- Contain additional information (e.g. notes on plants, links to contaminant data, etc)

## How can ePlantLIBRA help?



- Specific data can be easily extracted and manipulated
- **Useful to those with an interest in beneficial effects of bioactive compounds, e.g.**
  - **Researchers**
  - **Epidemiologists**
  - **Food regulatory authorities**
  - **Product developers in plant food supplement (PFS) industry**



# Output fields relate to human studies...

Ref no	Plant	Compound	Experimental design	Adverse effects, text	Quality comment	Gender specific	Study subjects
L0054	Tea	Catechin	Study examined green tea consumption in 20 young healthy chronic smokers. FMD was measured before green tea consumption, and changes in vascular endothelial function and EPC were assessed. Subjects consumed powdered green tea (8g/day) dissolved in 1L water for 2 weeks. Researchers were blinded. Fasting bloods were obtained before and at the	None described	Relatively small sample size (n=20), and short duration (2 weeks). Adverse effects not described. Treatment dose chosen 'at random'. No control group included.	Not applicable	20 healthy chronic smokers; mean age 27.6y; subjects who consumed herbs or vitamins were excluded; subjects with underlying hypertension, diabetes or other diseases were excluded; mean BMI at baseline 23.6 (S.D. 3.0).
B0501	Tea	Catechins	This Teas Effect on Atherosclerosis (TEA) pilot study was a randomized, parallel design, assessor-blinded clinical trial of black tea consumption among men and women with cardiovascular risk factors. The participants assigned to consume 3 glasses black tea daily (318 mg total catechins) or 3 glasses water for 6 months. They followed their typical diet and visited the hospital for screening at 2 weeks, 3 and 6 months. Blood samples were collected at	The major adverse effects, recorded in 2 participants, were chest pain and tooth staining.	This is a well-organized study with sufficient discussion of the results and sufficient description of subjects and test material.	not studied	31 men and women, aged 55 years and older, were recruited to the study. All participants had either diabetes or 2 other cardiovascular risk factors (hypertention, current smoking, LDL cholesterol>130 mg/dl, HDL cholesterol180/110 mgHg, serum craetinine>2,5 mg/dl or dialysis, history of hyponatremia, use of vitamin supplements greater than the recommended daily allowance, inability to speak English and lack of working telephone.
B0367	Tea	Catechins	20 healthy male smokers,	No adverse	-There is not	Not specified	

## Which plants are included, and why?



- PlantLIBRA Task 2.1 (2010): “Review of evidence for PFS benefit from epidemiological, clinical and intervention studies”
- Health areas chosen as important were:
  - **Cardiovascular health**
  - **Post-menopausal bone health**
  - **Menopausal symptoms**
  - **Gastrointestinal health**
  - **Inflammation**



## Which plants are included, and why?



- Choice of PFS to be included was based on an initial search of the prioritised health benefit areas
- Key PFS in each health area were selected, in order to limit the number of studies to be reviewed to a manageable level
- Systematic literature search covered the period 1970 – 2010
- The Cochrane Library | Embase | PubMed | SciFinder Scholar

- Inflammation

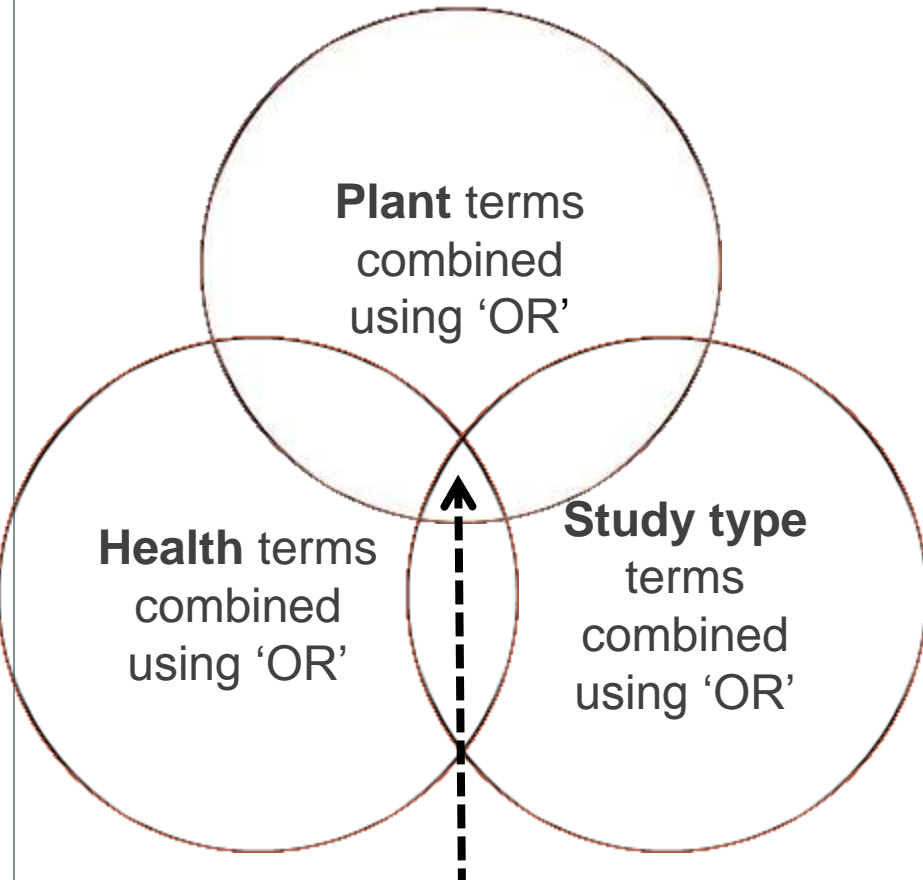
**Outcomes investigated (test and measurements)**

Several test were used to evaluate the anti-inflammatory effect of the 10 PSF under study. The following test have been extensively used: 1) test ELISA for measuring cytokines production, C reactive protein (CRP) and metalloproteases; 2) immunoturbidimetric tests (for pRC and cytokines); 3) Joint score, swollen joint, disability score and osteoarthritis index for osteoarthritis of knee; 4) WOMAC test, VAS, Arhus index and Lequesne functional index for pain; 5) Clinical activity index (CAI) and endoscopic index (EI) for ulcerative colitis. Tests will be more deeply discussed in task 2.2.

- Digestive health

**Outcomes investigated (test and measurements)**

The most frequent bowel function outcomes found in the review were: symptoms of irritable bowel syndrome, stool weight in irritable bowel syndrome, gut transit time, bowel habits, abdominal pain and bloating, preparation for colonic cleansing, bowel movement, defecation events and stool consistency. Also, outcomes related to digestive dysfunctions such as alleviation of infant colic symptoms, crying time in breastfed colicky infants and gastrointestinal symptom score of dyspepsia were also evaluated. Finally, some outcomes addressed liver disorders: symptoms related to biliary retention and hepatitis C (such as indicators of quality of life), as well hepatic biomarkers: lipid profile (LDL, cholesterol, HDL-cholesterol, triglycerides), SGOT, SGPT, liver alkaline phosphatase, indirect bilirubin, direct bilirubin.



Three categories of terms combined with 'AND' to give relevant papers

Field	Terms
TOPIC	(Camellia sinensis OR Tea*)
AND	
TOPIC	(cardiovascular disease* OR cardiovascular* OR hypertens* OR oxidative stress* OR metabolic syndrome)
AND	
TOPIC	(control* OR stud* OR random* OR control* OR stud* OR control* OR trial* OR random* OR clinical* OR control* OR stud* OR RCT OR Human Intervention Stud*)

## The stats...

- Following the systematic search (Task 2.1), 219 papers were identified for evaluation
- Of these, 8 were later deemed unsuitable for evaluation
  - **Non-English language**
  - **Duplicates**
  - **Abstract only**
  - **Systematic reviews**
- As of January 2014, all 211 papers have been evaluated



Ref.	Plants/PFS studied	Biomarkers examined	Beneficial effects?
L0001	<b>Green tea</b> (beverage/extract)	<b>Inflammation</b> biomarkers; features of metabolic syndrome	Minimal effect on inflammation biomarkers
L0002	<b>Boswellia</b> product	<b>Pulmonary function</b> and asthmatic symptoms; plasma biomarkers	↓ in plasma levels of leukotriene, nitric oxide and malondialdehyde ✓
L0003	<b>Green tea</b>	<b>Endothelial dysfunction</b> in smokers	High-dose acute and chronic supplementation associated with improved endothelial function in smokers (↑ nitric oxide production, ↓ ADMA levels, ↓ oxidative stress) ✓
L0004	<b>Boswellia</b> product (5-Loxin and Aflapin)	Pain scores and <b>physical ability in osteoarthritic patients</b>	Significant improvements in pain and physical function scores; better efficacy observed with Aflapin ✓
L0006	<b>Milk thistle</b>	<b>Hepatotoxicity</b> in children with leukaemia (changes in levels of bilirubin, AST and ALT enzymes)	No effects observed after 28 days; a trend towards reduced toxicity observed after 56 days

Ref.	Plants/PFS studied	Biomarkers examined	Beneficial effects?
L0007	<b>Senna</b> with docusate	<b>Time to first bowel movement</b> following pelvic floor reconstructive surgery in women	Significant ↓ in time to first bowel movement and constipation compared with placebo group ✓
L0008	<b>Soy</b> isoflavones	Effects on lumbar spine, total proximal femur, femoral neck and whole body <b>bone mineral density</b> (BMD) in non-osteoporotic women	Overall, very limited evidence for bone-sparing effects; modest protective effect on decline in femoral neck BMD observed only
L0009	<b>Soy</b> isoflavones	Psychological, somatic and urogenital <b>symptoms in symptomatic postmenopausal women</b> (using Menopause Rating Scale)	Significant improvements observed in somatic and urogenital symptoms ✓
L0010	<b>Red clover</b> -derived isoflavones	Anxiety and depressive <b>symptoms in post-menopausal woman</b>	Significant decrease in depression scale scores (both <i>Hospital</i> and <i>Self-rating</i> ) following 180-day treatment ✓
L0011	<b>Bilberry</b> juice	<b>Markers of inflammation</b> associated with cardiovascular disease (CVD)	Bilberry juice modulates inflammatory mediators in men and women at ↑ risk of CVD, and ↑ plasma polyphenol levels ✓

Ref.	Plants/PFS studied	Biomarkers examined	Beneficial effects?
L0012	<b>Green tea</b> polyphenols (GTP)	Clinical and histologic <b>attributes of photo-aging skin</b>	No significant improvements in GTP group compared with placebo group
L0013	<b>Grape</b> seed extract	Markers of <b>inflammation, glycaemia and oxidative stress</b> (cardiovascular risk factors) in diabetic patients	Significant improvement in most markers of cardiovascular risk examined; improved markers of inflammation, glycaemia & oxidative stress ✓
L0014	<b>Green tea</b> extract (containing theanine, catechins and other polyphenols)	<b>Blood pressure, blood lipid profile</b> , serum amyloid alpha (SAA) and serum malondialdehyde (MDA)	The product lowered blood pressure, SAA and MDA levels; total cholesterol (CL) lowered in men; LDL-CL lowered in all subjects with baseline levels >99 mg/dL ✓
L0015	<b>Milk thistle</b> extract (silymarin)	Symptoms and <b>biomarkers of acute hepatitis</b> in symptomatic patients	Faster resolution of symptoms of impaired biliary excretion compared with placebo group ✓
L0023	<b>Black cohosh; red clover</b>	Cognitive function and <b>frequency of hot flashes in menopausal women</b>	No effect on cognitive function; no effect on 'objective' hot flashes (improvement in 'subjective' hot flashes reported)

## 2.4) Cardiovascular Health (UBA)

Selected botanicals for cardiovascular health were as follows:

Latin name	Common name	Used portion	Active compounds	Main reported benefits
<i>Aloe ferox</i> Mill.	Bitter aloe/tap aloe	Leaves/ Leaves Juice	Anthroquinones	Helps to promote intestinal regularity. Ease intestinal transit
<i>Vaccinium myrtillus</i> L.	Bilberry	Leaves, fruits	Tannins and anthocyanosides	Astringent, enhance vascular tone, antioxidant, Antiphlogistic
<i>Salvia hispanica</i> L. <i>Salvia columbariae</i>	Chia seed	Seed	soluble and insoluble fibre and antioxidant activity of phenolic compounds	Dietary fibre; Phenolic compounds; Antioxidant activity; Lipid oxidation
<i>Ginkgo biloba</i> L.	Maidenhair tree	Leaves	Ginkgolides	Memory and concentration enhancer Antiphlogistic, emollient, mildly ease intestinal
<i>Panax ginseng</i>	Ginseng	Roots	Ginsenosides	Adaptogen, tonic, immunomodulant, cardiogenic, enhance mental faculties
<i>Vitis vinifera</i>	Grapes and grapeseed	Grapes and grapeseed	Flavonoid-rich active compound in grape seed	Anti-inflammatory, antioxidant, laxative.
<i>Camellia sinensis</i>	Green Tea	leaves and leaf buds	Cathechins/ hepatotoxicity	Angina pectoris, peripheral vascular disease, and coronary artery disease
<i>Glycine max</i> (L.)Merr.	Soy / Soy Lecithin	Soybean	Isoflavones / Phytosterols	antioxidant and phytoestrogenic properties. Isoflavones may reduce the risk of hormone-dependent cancers.
<i>Valeriana officinalis</i> L.	Valerian	Roots	Monoterpenes, Sesquiterpene, etc	Mild ansiolitic, spasmolytic



# “Applications of an online database on plant food supplements: the ePlantLIBRA database” *(in preparation)*



- Papers to highlight practical uses of the database for special users
- Focus on applications in:
  - (i) **safety assessment of botanicals** for use in PFS
  - (ii) **estimating exposure to bioactive compounds** from PFS in population groups

# Safety assessment of botanicals for use in PFS



- **ePlantLIBRA combines literature on beneficial and adverse biological effects of PFS in a single platform**, making it useful in assessing safety of botanicals for use in PFS using methods described by EFSA (2009)
  - (i) Technical data
  - (ii) Exposure data
  - (iii) Toxicological data

## Applications in exposure assessments (epidemiology)



- **ePlantLIBRA composition data (i.e. data on content of bioactive compounds in PFS) is combined with PFS consumption data** from a specific population group to address exposure to a particular bioactive in a more targeted way
- Estimates are more meaningful where **all of the available composition data** for a particular plant are incorporated into the calculation (rather than using a single average value only)



# Adverse effects data in ePlantLIBRA

**Patrizia Restani**

Dip. Scienze Farmacologiche e Biomolecolari  
Università degli Studi di Milano

# Adverse effects: why?



- A relative low number of case reports and clinical studies are at disposal on adverse effects in humans
- Necessity to collect these data using quality criteria
- Causality assessment according to the WHO guidelines
  - ❖ Certain
  - ❖ Probable
  - ❖ Possible
  - ❖ Unlikely/unclassifiable

# List of plants and priority



- The list of plant was based on information collected by researchers and stakeholders having a long experience in the field of food supplements containing botanicals. Finally a further addition was done during the first year of the project
- 67 plants were searched and ranked for frequency of adverse effect
- Only papers with the highest causality classes are presently considered

# Plants/PFS ingredient responsible for adverse effects in human: data from scientific papers (>10 cases)



Plant ingredient	N	Plant ingredient	N
<i>Glycine max (L.) Merr</i>	89	<i>Echinacea purpurea (L.) Moench</i>	24
<i>Glycyrrhiza glabra L.</i>	59	<i>Cimicifuga racemosa (L.) Nutt</i>	23
<i>Ginkgo biloba L.</i>	42	<i>Cinnamomum verum J Presl (zeylanicum)</i>	23
<i>Camellia sinensis (L.) Kuntze</i>	40	<i>Vitex agnus castus L.</i>	22
<i>Citrus aurantium L.</i>	25	<i>Harpagophytum procumbens DC</i>	12



- Home
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- Composition data
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- Adverse effect data
- PFS data
- Additional info
- Food supplements
- Plants
- Input forms - TOX**
- Updates
- Print this page
- Bug reports
- My details
- Logout

## Toxicological Input Form - TOX

### Bibliographic Reference

Reference no: K0075  
Author: Dara,L., Hewett,J. and Kartaik,J.  
Title: Hydroxycut hepatotoxicity: A case series and review of liver toxicity from herbal weight loss supplements  
Journal: World J Gastroenterol  
Volume: 14(45)  
Year: 2008  
Pages: 6999,7004  
Publisher:

Reference information: ♦ The authors describe two cases of acute hepatitis in the setting of Hydroxycut exposure, a popular weight loss supplement and describe possible mechanisms of liver injury.



Evaluator

Patrizia Restani

## Plant Food Supplement

Plant Food Supplement: ♦

Green tea dietary supplement

Remarks:

Camellia sinensis (green tea) EGCG 91 mg;  
Camellia sinensis (white tea) 15% EGCG;  
Camellia sinensis (oolong tea) 15% EGCG

Additional information:

The list of ingredients per serving (2 capsules): Calcium 156 mg, Chromium 133 mg,, Potassium 118 mg, Garcinia cambogia (66% hydroxycitric acid); Gymnema sylvestre (25% gymnemic acid); Soy phospholipids, Rhodiola rosea extract (5% rosavin), Green tea as Camelia Sinensis (91 mg ECCG), White tea as Camellia sinensis (15% ECCG),

Other bioactive compounds:

Other plants contained in the Hydroxucut product and levo-tyroxine used for hypothyroidism. No other PFS or drug used

## Event history

---

Administration: ♦ Oral

Gender: ♦ Female

Subject characterization:

The subject was a 40-year-old female with a prior medical history notable only for hypothyroidism and diet-controlled hyperlipidemia. She did not smoke or drink.

Description of the event: ♦

One week prior to presentation at the Emergency Department, the patient began using Hydroxycut, 6 pills daily in preparation for a bodybuilding competition. Just prior to presentation she attended an office holiday party, although no other persons in attendance became ill.

## Adverse effects

Main clinical effects:

Acute hepatitis

Clinical aspects: ♦

The subject arrived to the Emergency Department with 3 d of new-onset crampy, mid-epigastric abdominal pain and non-bloody diarrhea. She noted subjective fevers and chills, and two isolated episodes of nausea and vomiting, anorexia and profound fatigue. She did not experience jaundice, icterus, pruritus, arthralgias, acholic stools or dark urine. She otherwise does not take regular medications except for levothyroxine. She denied taking

Dose ingested: ♦

6 capsules of PFS/day

Intake duration: ♦

One week

Treatment of AE: ♦

Hospitalization, withdrawal of the supplement and diagnostic evaluations

De-challenge / Re-challenge: ♦

None

Gender specific effect:

None

Outcome: ♦

Upon outpatient follow-up, she had returned to her usual state of health with normalization of transaminases with AST 46 U/L and ALT 48 U/L. She has not experienced any further recurrence of symptoms or liver abnormalities within 10 mo of follow-up.

Causality assessment: ♦

According to the authors judgment, the temporal relationship to acute liver injury and the rapid resolution upon withdrawal of Hydroxycut make the drug associated hepatotoxicity probable/likely.

Conclusion: ♦

Authors consider the relationship probable

Effective dose:

273 mg of EGCG/day from green tea (no quantity reported)

Reviewer comments:

According to WHO scale, the causality of suspected adverse reaction is probable. The role of other plants contained in the PFS is well considered and discussed.

## Quality Assessment

PFS information:  1  2  3  4  5  6

Are the following details reported?

- PFS name (i.e. International Nonproprietary Name INN or generic name)
- Brand name and/or manufacturer
- PFS composition

Intake:  1  2  3  4

Are the following details reported?

- Daily dose and dosing regimen
- Length of intake (dates and duration of intake)

Quality code: ◆

A: Acceptable

Quality comments:

According to WHO scale, the causality of suspected adverse reaction is probable. There is a temporal relationship between drug administration and the onset of the symptoms, dechallenge was positive and patient had no other factors that could be involved in the adverse effect. No biomarker of exposure was measured

Comments to Database Manager

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Comments to DBM:



ePlantLIBRA Database:  
Users and Uses  
Sustainability Plan and Way Ahead

Paul Finglas

# Sustainability Task Force

## Members:

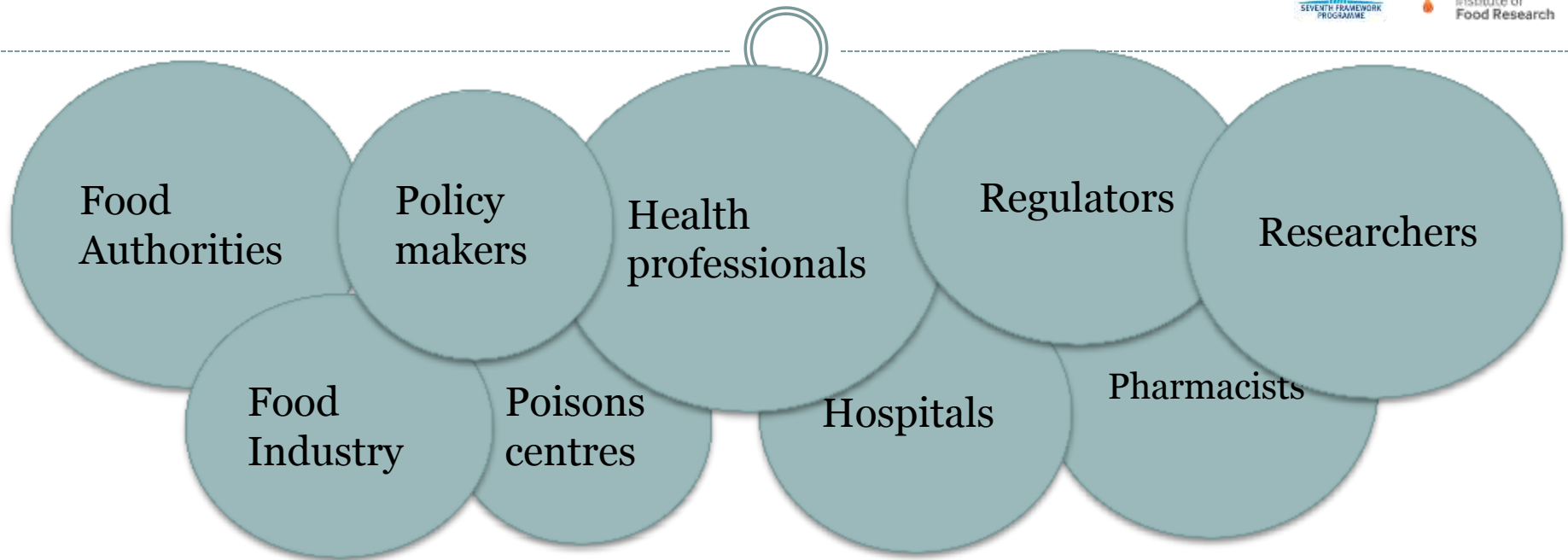
Paul Finglas & Jenny Plumb (IFR)  
Patrizia Restani (UMIL)  
Carlos Ramos (EUROFIR)  
Simon Pettman (EAS)  
Miles R Thomas (FERA)  
Roland Poms (ICC)  
Hugo Kupferschmidt (STIC)  
Joris Geelan (PAB-FPS)  
Anne-Christine Goudar (SIAG -NAREDI)

## Sustainability plan:

- Meeting users' needs and requirements
- Involvement of experts and continuous updates on new data
- Appropriate dissemination and promotion including launch
- Develop membership model, pay-per-access & income
- Agree on continual access to include MoniQA data



# Users and Uses of eplantlibra



- Regulatory issues,
- Science based decision making,
- Preparation of health claim dossiers
- Benefit/risk assessments

- Estimating exposure levels,
- Epidemiological studies,
- Supporting submissions to research

- New product development
- User friendly info on botanicals
- Easily accessible info on adverse effects

# Examples of use:

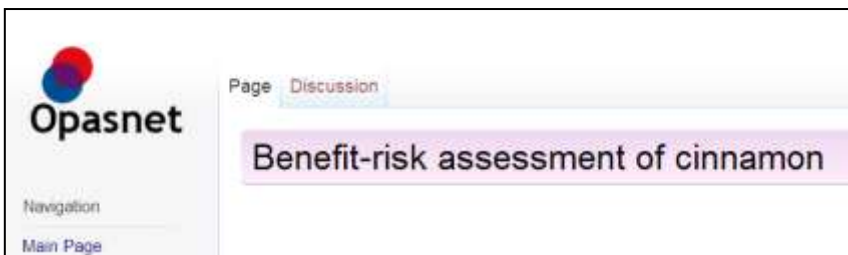
## Benefit/Risk assessment

Integration of databases:  
OPASNET: an internet based interface where users can access, combine, by plant and compound, and discuss information for risk benefit assessment.

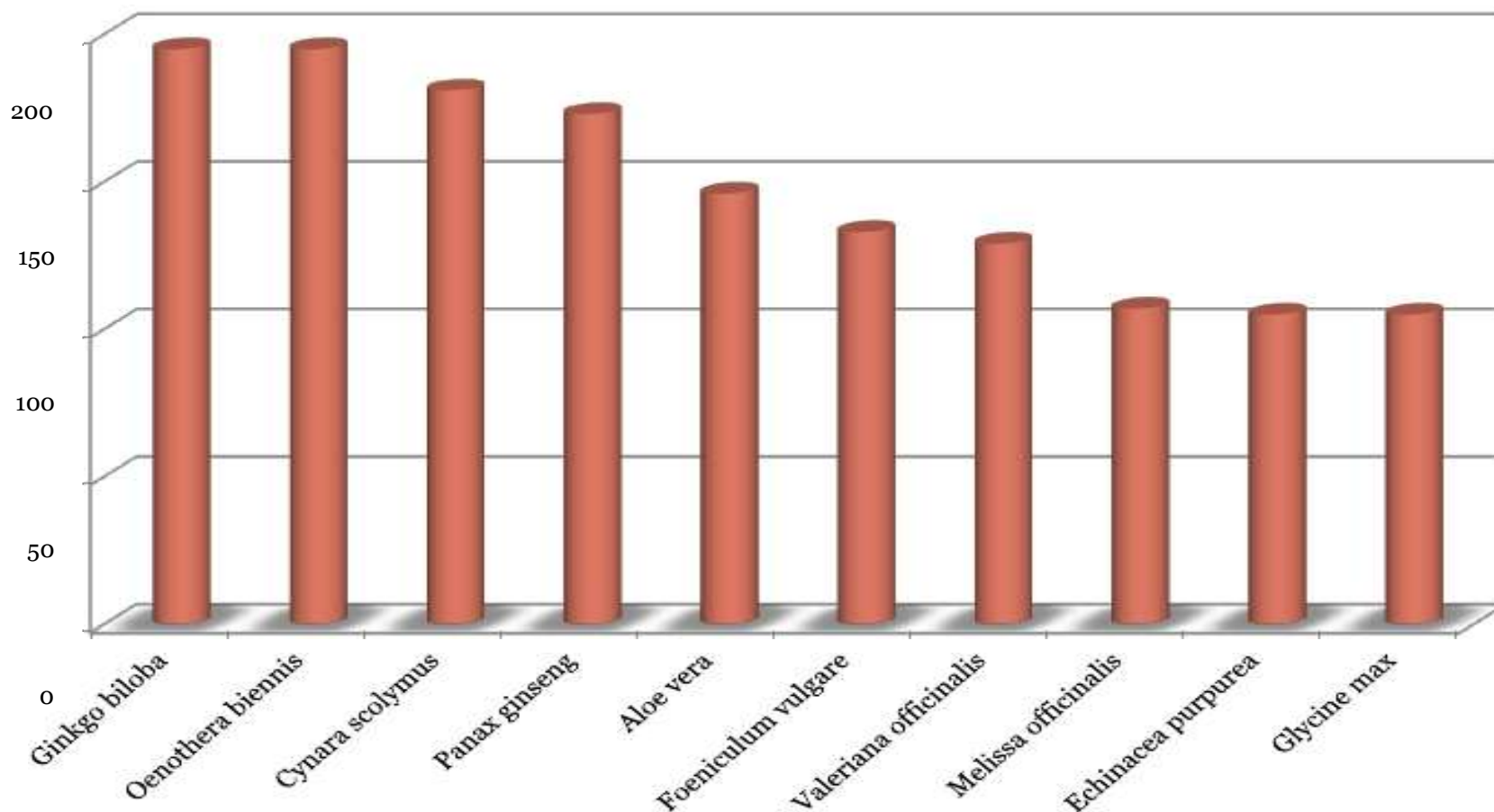
<http://en.opasnet.org>



Establish a Network with Poison Centers



# Example of use: Consumption Survey, Intake calculation



# The key services to users and stakeholders:



*Improve delivery of PFS data and expertise* for research and policy describing bioactive compounds in botanicals and herbal extracts with putative health benefits and adverse effects in PFS in Europe and globally;

*Support cooperation and exchange, and increased awareness of PFS* with other information providers, laboratories, regulators and industry to provide a forum for discussion and cooperation in Europe and globally (this could be in cooperation with other PlantLibra partners/ePlantLibra Board);

*Initiate new coordinated training and support* in conjunction with other research projects for users from the research community, health professionals, food and biotech industries, government agencies and departments.

# Membership types and services

## Organisational:

- Existing PlantLibra partners
- PAB (food authorities/policy/regulators)
- SIAG
- Laboratories
- New researchers/health professionals
- New food/PFS industry

*Typical annual fee 500€*

## Individual:

- Poisons centres
- Students
- Pay-for-view (all types)

*Typical fee 50-100€*

## Additional services:

- Quarterly update on new papers published with summary for 1 or more specific plants
- Reviews or dossier on some specific plants/topics (toxicological or beneficial for different industrial uses)
- Training and/or bespoke consultancies related to PFS
- New EU/EFSA grants
- Training/bespoke consultancies included in Hylobates/EuroFIR initiative

# Proposed requirements



Organisation	Type
EuroFIR AISBL (Polytec)	Promotion/ membership/ secretariat / hosting/ Maintenance&bug-fixing
FERA	Maintaining MoniQA/ HorizonScan +monitoring emerging contaminants for PFS
DTU	Database Manager (DBM) adverse effects
UCC	DBM beneficial effects
IFR	DBM Composition
Data evaluations	Data Entry
SISTE	Sustaining PlantLIBRA Website

# ePlantLibra contents and plans for future updating

<b>Topic</b>	<b>Completed plant coverage (remaining)</b>	<b>Required additional papers for evaluations (post-PlantLibra)</b>
<b>Composition</b>	28 (33)	200 (4.5 pms total; evaluators: 3.0 & DBM: 1.5)
<b>Beneficial effects</b>	33 (28)	175 (1 pm total; evaluators: 0.5 & DBM: 0.5)
<b>Adverse effects</b>	41 (20)	250-300 (4.5 pms total; evaluators: 3.0 & DBM: 1.5)
<b>Contaminants</b>		

# Plans to project end



## ***Introduction to the ePlantLIBRA database***

26<sup>th</sup> March, 2014 Le Chatelain Hotel, Brussels

Demo and talks to: Stakeholders, PlantLIBRA members approx 50

*International Plantlibra Conference, Vienna, May 2011*

## ***Plenary session 4, ePlantLIBRA database***

Live Demonstration, detail coverage on database, user perspectives (SIAG, PAB, Poisons centres), sustainability plans.

Final version of sustainability plan after feed back from above meetings,  
May 2014

## ***Delivery of database May 2014***



## *Acknowledgements*

### *PlantLIBRA WP 6 members and 3<sup>rd</sup> Parties*

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