Chapter 2
The Regulatory Situation in Europe and Other Continents

Patrick Coppens and Simon Pettman

Abstract The regulations on botanical food supplements differ substantially between countries world-wide, both in terms of safety and benefit assessment. In the European Union, significant differences exist between the Member States as to what botanicals are allowed and what conditions of use apply. Also the legal status of botanicals differs (medicinal vs. food) and products lawfully marketed in one Member State are often not allowed in other Member States. Also in non-European countries such differences exist. This paper explores these differences on the basis of work carried out by the Policy Advisory Board of the EU funded PlantLIBRA project, which ran from 2010 to 2014. It provides an overview of the various regulations that apply in the EU Member States and a selection of countries at global level and provides insights into how aspects of safety and benefit have been addressed.

Keywords Food supplements • Plants • Plant preparations • Botanicals • Regulation • European Union • Food safety • Health benefit

2.1 Introduction

In the European Union (EU) and many other jurisdictions, food supplements (FS) are regulated under food law. These products are defined by Directive 2002/46 as: "*Foodstuffs the purpose of which is to supplement the normal diet and which are concentrated sources of nutrients or other substances with a nutritional or physiological effect, alone or in combination, marketed in dose form, namely forms such as capsules, pastilles, tablets, pills and other similar forms, sachets of powder, ampoules of liquids, drop dispensing bottles, and other similar forms of liquids and powders designed to be taken in measured small unit quantities*".[1]

[1] Directive 2002/46/EC of the European Parliament and of the Council of 10 June 2002 on the approximation of the laws of the Member States relating to food supplements. Official Journal of the European Union: L136/85, 12 July 2002.

P. Coppens (✉) • S. Pettman
EAS-Strategies, Europe & MEA office, 50 Rue de l'Association, 1000 Brussels, Belgium
e-mail: patrickcoppens@eas-strategies.com; simonpettman@eas-strategies.com

P. Restani (ed.), *Food Supplements Containing Botanicals: Benefits, Side Effects and Regulatory Aspects*, DOI 10.1007/978-3-319-62229-3_2

Botanical Food Supplements (BFS), also called Plant Food Supplements, are not legally defined in the EU but can be considered as food supplements that contain plants as such or plant ingredients (extracts, isolates, etc.), with or without other substances, such as vitamins, minerals or other bioactive compounds.

This paper presents the regulatory environment of such products in the EU and other jurisdictions. It presents information on the extensive but complex regulatory situation of BFS addressing safety, labelling and health benefits.

The information in this paper is largely collected in the framework of the PlantLIBRA project, a seventh framework project financed by the European Union and conducted between 2010 and 2014.[2] Additional information has been included.

The regulatory scope and policy context of the project was assessed and developed with the help of the Policy Advisory Board. This was an Advisory Group created within Work Package 10 and comprised legislators and experts from the EU Member States and non-EU countries. Its aim was to discuss and provide input in the work of the PlantLIBRA project from a policy perspective.

2.2 Legal Framework for Botanicals in the EU

2.2.1 European Harmonisation

FS, including those containing botanicals or botanical preparations are covered by Directive 2002/46/EC of the European Parliament and of the Council of 10 June 2002 on the approximation of the laws of the Member States (MS) relating to FS. This Directive partially harmonises the rules applicable to the placing of FS on the market in the EU MS.

The scope of this Directive covers all FS and includes certain requirements, in particular concerning labelling information and notification, applying to all FS, regardless of their composition.

However, the detailed rules contained in the Directive are only applicable to vitamins and minerals used in food supplements. The use of substances other than vitamins or minerals in FS therefore continues to be subject to the rules in force in national legislation. Products, lawfully marketed in accordance to such national rules are subject to mutual recognition (see further) under Articles 30 and 34 of the EC Treaty[3].

Recital 8 of the Directive states that specific rules concerning nutrients, other than vitamins and minerals, or other substances with a nutritional or physiological effect used as ingredients of FS should be laid down at a later stage. This is not yet the case.

---

[2] www.plantlibra.eu.

[3] Consolidated versions of the Treaty on European Union and the Treaty on the Functioning of the European Union. Official Journal of the European Community C115/01, 9 May 2008.

In 2008, the EC issued a report on the use of substances other than vitamins and minerals in FS[4], in which it indicated that it is not feasible nor necessary to engage in further harmonisation on the use of substances other than vitamins and minerals in FS until adequate and appropriate scientific data become available.

It must be stressed that the substances in question, including botanicals and botanical preparations, are already covered by various Community horizontal legislative texts of general application (i.e. covering all foods or aspects also relevant for FS)

2.2.2 Horizontal EU Legislation Applicable to Botanical Food Supplements

FS containing substances other than vitamins or minerals are foodstuffs within the meaning of Article 2 of Regulation (EC) No 178/2002 (the General Food Law Regulation (GFLR)), which states that "foodstuff" (or "food") means "any substance or product, whether processed, partially processed or unprocessed, intended to be, or reasonably expected to be ingested by humans."

Article 2 also explicitly excludes from the definition of foodstuff a series of product categories, including medicinal products within the meaning of Directive 2001/83/EC on the Community code relating to medicinal products for human use (the Medicinal Product Directive (MPD)).[5]

This Regulation also lays down the responsibilities of food business operators in relation to food safety. These responsibilities include the obligation to place on the market only food that is safe, to ensure traceability of food and food ingredients, to be able to immediately initiate procedures to withdraw foods that are not or suspected not to be in compliance with the food safety requirements and to inform the competent authorities thereof.

It also specifies the missions and tasks of the European Food Safety Authority (EFSA), which is now involved in many activities that are directly relevant to FS, e.g. the establishment of tolerable upper levels of vitamins and minerals; guidance on the scientific evaluation of health claims and subsequent assessments; involvement in risk assessment under article 8 of the food fortification legislation; assessment of nutritional substances submitted in conformity with article 4.6 of the FSD; the self-tasking mandate on botanicals and botanical ingredients, etc.

It is generally considered that the establishment of the GFLR creates a legal counterpart of medicinal law, effectively regulating the safety aspects of foodstuffs, including FS.

---

[4] European Commission. Report from the Commission to the Council and the European Parliament on the use of substances other than vitamins and minerals in food supplements. COM(2008) 824 final; Brussels, 5.12.2008.

[5] Directive 2001/83/EC of the European Parliament and of the Council of 6 November 2001 on the Community code relating to medicinal products for human use. Official Journal of the European Union: L311/67 28 November 2001.

In addition to this general framework legislation, BFS are also subject to the main legislation applicable to foodstuffs. This includes:

2.2.2.1 Novel Food Regulation (EC) 258/97[6] and Regulation (EU) 2015/2283[7]

The Novel Foods Regulation (NFR) specifies the requirements for putting on the market novel food ingredients, i.e. ingredients corresponding to the definition of novel foods that were not marketed in the EU to a significant degree prior to May 1997.

It provides for the requirement of a pre-marketing authorisation procedure based on the submission of a safety dossier followed by an assessment by a national authority. It may lead to an assessment by EFSA if the national authorities do not agree on the outcome of this assessment.

There is also a notification procedure for novel foods that are substantially equivalent to other foods. The outcome of both the authorisation and notification procedures can be found on-line.[8]

From 1 January 2018, the NFR 2015//2283 enters into force. It foresees a centralised assessment of applications by EFSA and the possibility for a substantial equivalence notification procedure is removed.

2.2.2.2 Health Claims Regulation (EC) 1924/2006[9]

The Nutrition and Health Claims Regulation (NHCR) provides for a pre-marketing approval procedure for nutrition and health claims for all foods, including food supplements. It is fully applicable to FS, lays down the definition of health and reduction of disease risk claims and the modalities for their approval. This legislation covers communication to the consumer on the product's health effects.

It led to the establishment of a positive list of health claims. This list contains the nutrient or other substance, the health claim and any conditions of use. It is published by the EC as a register.[10]

---

[6] Regulation (EC) No 258/97 of the European Parliament and of the Council of 27 January 1997 concerning novel foods and novel food ingredients. Official Journal of the European Union: L043/1, 14 February 1997.

[7] Regulation (EU) 2015/2283 of the European Parliament and of the Council of 25 November 2015 on novel foods, amending regulation (EU) No 1169/2011 of the European Parliament and of the Council and Repealing Regulation (EC) No 258/97 of the European Parliament and of the Council and Commission Regulation (EC) No 1852/2001. Official Journal of the European Union: L327/1, 11 December 2015.

[8] http://ec.europa.eu/food/safety/novel_food/index_en.htm.

[9] Corrigendum to Regulation (EC) No 1924/2006 of the European Parliament and of the Council of 20 December 2006 on nutrition and health claims made on foods. Official Journal of the European Union: L12/3, 18 January 2007.

[10] http://ec.europa.eu/nuhclaims/.

To date, no claim for botanicals or botanical preparations has been approved because the application of the NHCR to botanicals has lead to a moratorium until a number of issues have been resolved (see Sect. 2.2.6).

The legislation also foresees the possibility for the approval of new health claims following an application for authorisation and EFSA assessment of the scientific justification. EFSA has published various guidance papers in this context[11].

2.2.2.3 Food Fortification Regulation (EC) 1925/2006[12]

The Food Fortification Regulation (FFR) covers detailed rules on the addition of vitamins and minerals to foods. However, article 8 provides for a process to address safety concerns of all food components, including botanicals and botanical preparations. It is therefore also applicable to other substances that are used in FS. It provides for a system whereby substances can be subjected to a EFSA risk assessment when they are added to foods or used in the manufacture of foods under conditions that would result in the ingestion of amounts of these substances greatly exceeding those reasonably expected to be ingested under normal conditions of consumption of a balanced and varied diet and/or would otherwise represent a potential risk to consumers.

The EC itself, or following a request from MS may initiate the procedure in order to include a certain substance in a list to prohibit or restrict its use. The EC has developed and published implementing rules for this procedure in 2012.[13] Since then, two substances have been introduced into the process: Yohimbe (*Pausinystalia yohimbe* (K. Schum.) Pierre ex Beille) and *Ephedra* ssp. On both EFSA has published its opinion[14,15.] On that basis the EC has decided to add *Ephedra* ssp to the list of prohibited substances and *Yohimbe* to the list of substances for which further data are requested. Assessments for hydroxyanthracene derivates containing botanicals, green tea catechins and monacolin K from red yeast rice are currently in the process.

The above procedure is a case-by-case assessment of food components and is not intended as a tool to develop negative or positive lists.

---

[11] https://www.efsa.europa.eu/en/topics/topic/nutrition.

[12] Regulation (EC) No 1925/2006 of the European Parliament and of the Council of 20 December 2006 on the addition of vitamins and minerals and of certain other substances to foods. Official Journal of the European Union: L404/26, 30 December 2006.

[13] Commission Implementing Regulation (EU) No 307/2012 of 11 April 2012 establishing implementing rules for the application of Article 8 of Regulation (EC) No 1925/2006 of the European Parliament and of the Council on the addition of vitamins and minerals and of certain other substances to foods. Official Journal of the European Union: L102/2, 12 April 2012.

[14] EFSA 2013. Scientific Opinion on the evaluation of the safety in use of Yohimbe (Pausinystalia yohimbe (K. Schum.) Pierre ex Beille). EFSA Journal 2013;11(7):3302.

[15] EFSA 2013. Scientific Opinion on safety evaluation of Ephedra species in food. EFSA Journal 2013;11(11):3467.

2.2.2.4 Food Information to Consumers Regulation (EU) 1169/2013[16]

The Food Information to Consumers Regulation (FICR) lays down labelling requirements for all foodstuffs. It specifies the mandatory particulars and the modalities for correct labelling.

Although some specific labelling requirements for FS have been specified in FSD, the general labelling requirements that are applicable to all foodstuffs are also applicable to FS. These relate to the name, list of ingredients, best before date, (quantitative) ingredient declaration, presence of allergens, etc.

FS are excluded for the nutrition labelling rules as specific requirements have been laid down in the FSD.

2.2.2.5 Food Hygiene Regulation (EC) 852/2004[17]

The European Food Hygiene Regulation (FHR) lays down requirements for the safe manufacturing of foods, including food supplements based on the principles of Hazard Analysis and Critical Control Points (HACCP).

The main principles are:

- The primary responsibility for food safety lies with the food business operator;
- Food safety should be ensured throughout the food chain, starting with primary production;
- General implementation of procedures by companies based on the HACCP system whereby the manufacturer is obliged to assess his whole production process, identify those points in the process where safety risks can occur or that are essential to be controlled, apply measures to make sure these points are sufficiently controlled and monitor and document this during each production run;
- Registration or approval for certain food establishments;
- Development of guides for good practice for hygiene or for the application of HACCP principles as a valuable instrument to help food business operators at all levels of the food chain to comply with the safety rules. Several such guides have been developed specifically for food supplements, including botanical food supplements. One such guide has been developed by Food Supplements Europe[18];
- Flexibility is provided for food produced in remote areas (high mountains, remote island) and for traditional production and methods.

Microbiological criteria are specified in Regulation (EC) No 2073/2005[19].

---

[16] Directive 2000/13/EC of the European Parliament and of the Council of 20 March 2000 on the approximation of the laws of the Member States relating to the labelling, presentation and advertising of foodstuffs. Official Journal of the European Union: L109/29, 6 May 2000.

[17] Corrigendum to Regulation (EC) No 852/2004 of the European Parliament and of the Council of 29 April 2004 on the hygiene of foodstuffs. Official Journal of the European Union: L226/3, 25 June 2004.

[18] www.foodsupplementseurope.org.

[19] Commission Regulation (EC) No 2073/2005 of 15 November 2005 on microbiological criteria for foodstuffs. Official Journal of the European Community L338/1, 22 December 2005.

2.2.2.6 Pesticide Residues Regulation (EC) 396/2005[20]

Pesticides are used to protect crops before and after harvest from infestation by pests and plant diseases. This Regulation harmonises maximum residue levels (MRLs) in the EU to protect consumers from exposure to unacceptable levels of pesticides residues in food and feed.

2.2.2.7 Contaminants Regulation (EC) 1881/2006[21]

This Regulation establishes maximum levels for certain contaminants in foods, including food supplements. This includes maximum levels in certain foods for the following contaminants: Nitrates/Mycotoxins (aflatoxins, ochratoxin A, patulin, deoxynivalenol, zearalenone, fumonisins, citrinine ergot sclerotia and ergot alkaloids, tropane alkaloids)/Metals (lead, cadmium, mercury, inorganic tin, arsenic)/3-MCPD/Dioxins/Dioxin-like PCBs and Non dioxin-like PCBs/Polycyclic Aromatic Hydrocarbons (PAH) (benzo(a)pyrene)/Melamine/Erucic acid.

2.2.2.8 Food Additives Regulation (EC) 1333/2008[22]

The Additives Regulation (AR) provides for a pre-marketing approval procedures for additives to be used in foods, including FS. It also specifies the additives permitted and their conditions of use. This includes substances used for technical purposes, such as colours, preservatives, antioxidants, emulsifier, thickener, gelling agents, stabilisers, flavour enhancers, acids, acidity regulators, anti-caking agents, modified starches, sweeteners, raising agents, anti-foaming agents, glazing agent, emulsifying salts, flour treatment agents, firming agents, humectants, bulking agents and propellant gasses.

For most of the additives permitted, purity criteria have also been established in Regulation (EU) No 231/2012.[23]

---

[20] Regulation (EC) No 396/2005 of the European Parliament and of the Council of 23 February 2005 on maximum residue levels of pesticides in or on food and feed of plant and animal origin and amending Council Directive 91/414/EEC. Official Journal of the European Union: L70/1 16 March 2005.

[21] Commission Regulation (EC) No 1881/2006 of 19 December 2006 setting maximum levels for certain contaminants in foodstuffs. Official Journal of the European Union: L364/5, 20 December 2006.

[22] Regulation (EC) No 1333/2008 of the European Parliament and of the Council of 16 December 2008 on food additives. Official Journal of the European Union: L354/16, 31 December 2008.

[23] Commission Regulation (EU) No 231/2012 of 9 March 2012 laying down specifications for food additives listed in Annexes II and III to Regulation (EC) No 1333/2008 of the European Parliament and of the Council. Official Journal of the European Union: L83/1 22 March 2012.

2.2.2.9 Extraction Solvents Dir 2009/32/EC[24]

This Directive specifies permitted extraction solvents for the manufacture of food, including, where appropriate residue limits.

2.2.2.10 Food Irradiation Directive 1999/2/EC[25] and Directive 1999/3/EC[26]

This legislation specifies the foods that are permitted to be irradiated. It should be noted that most botanicals used in food supplements are not on this list. Only dried aromatic herbs, spices and vegetable seasonings are on the approved list.

2.2.3 National Legislation

Although a harmonized framework has been ensured by the FSD, major differences exist between EU MS in the way rules for the use of botanicals have been implemented.

A large majority of the MS have drawn up positive or negative lists of substances other than vitamins and minerals, which can be used in food supplements. In some cases, use of the substances in question is subject to compliance with technical conditions, such as maximum limits, type of extract or combination of ingredients. Furthermore, entry of new substances onto these lists is often subject to an assessment.

Table 2.1 illustrates the different approaches applied to a number of selected botanicals used in BFS (EU 2008 Report).[27]

Based on the 2008 EU report, research intelligence by EAS-Strategies (EAS), and input from the PlantLIBRA project, the main elements of existing regulations in the EU Member States are highlighted below.

---

[24] Directive 2009/32/EC of the European Parliament and of the Council of 23 April 2009 on the approximation of the laws of the Member States on extraction solvents used in the production of foodstuffs and food ingredients (recast) Official Journal of the European Union: L141/3, 6 June 2009.

[25] Directive 1999/2/EC of the European Parliament and of the Council of 22 February 1999 on the approximation of the laws of the Member States concerning foods and food ingredients treated with ionising radiation. Journal of the European Union: L66/16, 13 March 1999.

[26] Directive 1999/3/EC of the European Parliament and of the Council of 22 February 1999 on the establishment of a Community list of foods and food ingredients treated with ionising radiation. Journal of the European Union: L66/16, 24 March 1999.

[27] Commisison of the European Communities. Report from the Commission to the Council and the European Parliament on the use of substances other than vitamins and minerals in food supplements. 05/12/2008. COM(2008) 824 final.

Table 2.1 Illustration of the variation of permission approaches in Member States

Botanicals & botanical extracts	AUSTRIA	BELGIUM	BULGARIA	CYPRUS	CZECH REPUBLIC	DENMARK	ESTONIA	FINLAND	FRANCE	GERMANY	GREECE	HUNGARY	IRELAND	ITALY	LATVIA	LITHUANIA	LUXEMBOURG	MALTA	NETHERLANDS	POLAND	PORTUGAL	ROMANIA	SLOVAKIA	SLOVENIA	SPAIN	SWEDEN	UNITED KINGDOM
Aloe (*Aloe vera* (L.))	E	✓	E	E	C	L	✓	C	A	C	✖	C	✓	✓	✓	E	✓	✓	✓	✓	✓	✓	C	L/C	✓	✓	C
Ginkgo (*Ginkgo biloba*)	E	L	E	E	L	✓	✖	C	A	✖	✖	L	✖	C	L	E	✓	✓	✓	✓	✓	✓	L	✖	✖	✖	C
Ginseng (*Panax ginseng*)	E	✓	E	E	L	L	✓	C	A	✖	L	L	C	✓	L	E	✓	✓	✓	✓	✓	✓	✓	L	✓	✓	C
Garlic (*Allium sativum* (L.))	✓	✓	E	E	C	✓	✓	✓	A	C	✓	L	C	✓	✓	✓	✓	✓	✓	✓	✓	✓	L	✖	✖	C
Green tea extract (*Camellia sinensis*)	E	L/C	E	E	C	E	✓	✓	A	C/A	✓	L	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✖	✓	C
Garcinia extract (*Garcinia cambogia*)	E	✓	E	E	L	✖	C	✓	A	✖	✖	L	✖	✓	✓	E	✓	✓	✓	✓	✓	✓	✓	C	✖	E	✖
Guarana extract (*Paullinia cupana*)	C	✓	E	E	C	L	✓	✓	A	C/A	✖	L	C	✓	L	E	✓	✓	✓	✓	✓	✓	✓	✓	✖	✓	✓

Symbols	
✓	Permitted for use in food supplements either under national law or internal guidelines.
L	Permitted for use in food supplements - maximum level established.
C	Permitted for use in food supplements under specific conditions (eg type of extract, ingredients combination in the final product, etc)
E	Permission may be given on a case by case basis following evaluation, considering issues such as ingredient function.
A	Not currently pemitted. May be permitted following a pre-marketing authorisation.
✖	Not permitted for use in food supplements, or regarded as medicinal.

2.2.3.1 Austria

In July 2005, the Federal Ministry of Health and Women issued under the framework of the Austrian Codex Alimentarius the "Recommendation for food supplements concerning content of vitamins and minerals, overages and use of plant parts" which, among others, includes:

- A list of herbs prohibited for use in food supplements,
- A short list of herbs and parts thereof for which there are generally no safety concerns and which can be used in food supplements.

Herbs not covered in the Recommendations and other bioactive substances are evaluated on a case-by-case basis. Committees for food supplements and tea have been created from academia and medicinal controls.

A positive and negative list of botanicals for the use in the production of herbal infusions is included in the Chapter B31 of Austrian Food Codex.

2.2.3.2 Belgium

The Royal Decree of 29 August 1997 on the production and marketing of foods composed of plants or containing plant preparations includes a list of prohibited plants, a list of permitted mushrooms and a list of plants permitted in food supplements specifying, in some cases, their conditions of use.

A national plant committee is charged with assessing safety and inclusion of conditions of use in the list of allowed plants. In 2005 the use of maximum levels for active ingredients of certain plants used in food supplements was integrated in this list.

The Royal Decree was further updated in March 2012 and April 2014, based on the scientific opinion of the Belgian Advisory Commission on Plant Preparations. The most important changes in this list are the specification of the plant parts and the additional warnings for labelling. Concerning the plant parts: only the traditionally and safely used plant parts are retained in the list.

Together with France and Italy, Belgium has been working on a consolidated list for the three countries. This so-called BELFRIT list is now finalised and a proposal to include the BELFRIT list in the Royal Decree was notified to the EC. The final new decree was published in February 2017.

2.2.3.3 Bulgaria

Ordinance No 47 (December 2004), as amended on requirements related to food supplements transposes the EU Food Supplement Directive into national law. Annex 4 includes a list of about 120 botanicals that are prohibited for use in food supplements.

According to the Bulgarian food supplement Ordinance standardized plants, plant parts and extracts with a beneficial effect on the health and safe at the daily dose recommended by the manufacturer are permitted to be added to the composition of the food supplements.

2.2.3.4 Croatia

Croatia joined the EU on 1 July 2013. Food supplements need to be approved following a simplified or full notification procedure (depending on their classification), for efficient monitoring.

A list of permitted plant species and mushrooms for use in food supplements, including where applicable, additional restrictions or conditions of use and mandatory warning statements, is provided in Annex II to Croatian Ordinance (No 160/13). Annex 3 of this law lays down the negative list of plants, which are not permitted for use in food supplements. In addition, an application procedure for plants not listed is foreseen, entailing a safety evaluation.

2.2.3.5 Cyprus

The 2004 Regulation on Food Supplements transposes the EU Food Supplement Directive. There are no positive or negative lists of botanicals and other bioactive substances.

The use of substances other than vitamins and minerals in food supplements is evaluated by a scientific committee following one of the two established procedures:

– Mutual recognition if the food supplement product is lawfully sold in another EU Member State
– An authorisation procedure by submission of a detailed dossier to gain a license prior to marketing.

2.2.3.6 Czech Republic

The Czech General Food Law 316/2004 (codified as Food Law 456/2004) includes the definition of food supplements. The Czech Decree No. 225/2008 Coll. (as amended by Ordinance 352/2009) stipulates requirements for botanical food supplements and includes two lists:

1. Annex 3: Conditions for the use of certain other substances in food supplements: with maximum daily levels for certain botanicals;
2. Annex 4: List of plants prohibited in the manufacture of foodstuffs: Latin names and parts of plants.

A new decree was notified to the EC in June 2016. This proposal includes

– A list of botanical and other substances with maximum permissible amounts
– A list of botanicals and substances not permitted for use.

2.2.3.7 Denmark

The 2003 Danish law on food supplements (BEK no 683) permits the use of vitamins, minerals, botanicals and other bioactive substances in food supplements.

Food supplements may contain plants, mushrooms or parts of these. Since 1989, a ‘Drogeliste’, a Danish list of plants, mushrooms etc., that have been toxicologically evaluated, has been published. The latest version is from May 2000 and later evaluations are found as an addendum.

The Danish authorities have published guidance on the safety of food supplements and there are different rules for ingredients that are dried or slightly concentrated.

In addition, the Danish authorities have published a law on the addition of substances other than vitamins and minerals to foods, including food supplements, with a nutritional and/or physiological effect in 2011. This law has been amended twice in 2013 and the latest amendment was published in August 2013.

In case of non-water extracts or extracts with purity of at least 50% or concentrated 40 times or more this order will apply and an authorisation may be required to assess the safety of the extract before product marketing.

2.2.3.8 Estonia

The Food Act of 1999 and Regulation nr 100 of 12 November 2014 on Composition and quality requirements for food supplements and requirements for the provision of food information, apply in Estonia.

In addition, the State Agency of Medicines published a list of botanicals that are generally regarded as medicinal and therefore cannot be used in food supplements.

2.2.3.9 Finland

The Finnish Regulation of the Ministry of Trade and Industry on Food Supplements 571/2003 permits the use of botanicals and other substances with a nutritional or physiological effect. The notification procedure is electronic.

There are no legal lists specifying the permission or prohibition of botanicals or other bioactive substances in food supplements. The permission of botanicals and other bioactive substances is evaluated on a case-by-case basis.

The Finnish Medicines Agency (Fimea) maintains a list of the substances and herbals that may make a product a medicinal product. However, herbals included in this list can also be used in food supplements depending on the level and the extracted active substances and provided that no medicinal claims are made for the final product.

2.2.3.10 France

The provisions of the EU Food Supplement Directive are transposed by the 2006 Food Supplements Decree No 2006-352 which permits the use of botanicals and other bioactive substances.

France adopted an Order on the use of plants and plant preparations (other than mushrooms) permitted in food supplements and their conditions of use on 24 June 2014. Annex I is a list of approximately 600 plants whose use is authorised in food supplements. Annex II is on information to be communicated by food business operators in relation to the characterisation of plant preparations (mandatory information), while Annex III is in relation to the safety of plant preparations (only when their nature or conditions of use significantly differ from the traditional use). Food supplements containing plants not included in the Annex I or plants deviating from the set conditions of use require declaration in accordance with Article 16 of the French food supplement Decree (based on the so-called “mutual recognition”), or in accordance with Article 17 (pre-marketing authorisation procedure, involving an ANSES scientific assessment).

France also adopted a Decree on 22 August 2008 on medicinal plants or parts of plants entered in the Pharmacopoeia, which may be sold to the public by persons other than pharmacists. It includes a list of around 184 ‘released’ medicinal plants. They can be used under certain restrictive conditions (e.g. raw state, powder, aqueous extract) in food supplements.

France is one of the three countries that participated in the so-called BELFRIT project. The BELFRIT list of 1029 plants is now finalised. The French DGCCRF published it at the end of April 2014. This list is meant to help food supplement manufacturers but has no legal value yet.

2.2.3.11 Germany

The 2004 Ordinance on Food Supplements ("Verordnung über Nahrungsergänzungsmitter") with which Directive 2002/46/EC on Food Supplements was transposed into German law permits the use of certain vitamins and minerals in food supplements. The Ordinance however, does not cover any other substances than vitamins or minerals with a nutritional or physiological effect such as amino acids, essential fatty acids or botanicals ("other substances"). Food supplements containing such "other substances" are verified on a case-by-case basis to decide whether they comply with the general legal provisions. In Germany, "other substances" are treated in the same way as food additives. This means they are subject to authorisation for the use in food supplements and other foods.

Experts from Federal Authorities and from the Federal States (Länder) have undertaken a joint project on categorisation of "other substances" to simplify and unify their evaluation. This list of more than 600 botanicals ("Stoffliste") for which by reason of health objections restrictions might have to be considered with respect to their use in food is available on the homepage of the Federal Office of Consumer Protection and Food Safety since 2015.

The "Stoffliste" is only indicative and has no immediate legal effect.

2.2.3.12 Greece

The 2004 Food Supplement Ministerial Decision (AR. U1/ GP. 127962/03) implements the EU Food Supplement Directive. There is no legal positive or negative list of botanicals.

The permission to market botanicals or other bioactive substances in food supplements is evaluated by the Greek Organisation of Medicines (EOF) on a case-by-case basis during product notification.

2.2.3.13 Hungary

The Hungarian Decree of the Ministry of Health 37/2004 (IV. 26.) on food supplements permits the use of substances with physiological or nutritional effects in food supplement products. The use of herbal ingredients and preparations in food supplements is currently not specifically regulated by a legal act and herbals are subject to the assessment of the National Institute for Food and Nutrition Science (OÉTI).

The Hungarian Institutions involved in assessing herbal ingredients adopted their first negative list in 2007. This internal negative list of herbs contained 243 entries and was published on the OÉTI website. This negative list is under continuous revision. It is indicative and has no legal value. The last update was performed in December 2013.

In order to establish a national legislation on the quality requirements of botanicals intended for use as food and/or food ingredients there is draft legislation in the pipeline proposed by the Ministry of Rural Development. This legislation has not been implemented yet.

2.2.3.14 Ireland

Directive 2002/46/ is transposed into national legislation by the European Communities (Food Supplements) Regulations 2007 (S.I.No. 506 of 2007). These regulations require any person placing a food supplement on the market in Ireland to notify the Food Safety Authority of Ireland (FSAI) and provide a copy of the label.

Irish national law on food supplements does not include any negative and/or positive lists of botanicals and other bioactive substances.

In 2013 FSAI has published "Guidance Note No 21—Food Supplements Regulations and Notifications (Revision 2)".

2.2.3.15 Italy

The Circular 18 July 2002, published by the Health Ministry in the Italian Official Gazette, General Series on 12 August 2002, extended the pre-marketing notification procedure mentioned in art. 7 of the Legislative Decree 111/1992, also to herbal food supplements. A botanical ministerial guideline on documentation to be maintained by companies for their botanical ingredients, in case the Ministry would request such information was also published and updated in January 2015.

The Italian Ministry of Health has issued a positive and negative list of plants and their derivatives that have been evaluated by the Commission on Dietetic Foods and Nutrition (CUDN). In 2012 the Italian Ministry of Health adopted the Ministry Decree of 9 July 2012-G.U. 21-7-2012 including in its Annex an extensive positive list of botanicals with an indication of their permitted plant parts that may be used in food supplements. During 2013–2014 the Annex of the decree was regularly updated via the publication of a ministerial guideline published on the Ministry of Health's website which also includes indications or references to physiological effects.

In March 2014, the Italian Ministry of Health has adopted a new plant Decree revising the Decree of 9 July 2012. The aim of the new Decree was to gradually include the BELFRIT project list (that was developed by three countries Belgium, France and Italy) into Italian legislation. The 2014 Decree therefore includes two

positive lists (the latest Italian plant list in Annex 1 and a new Italian BELFRIT list in Annex 1bis), which have been applicable in parallel and which the Ministry intends to finally merge into one positive list after further revisions. A new plant Decree to complete the introduction of the BELFRIT list is in progress.

2.2.3.16 Latvia

There is currently no specific national list of permitted or prohibited herbs, bioactive substances or maximum and minimum levels for the addition of vitamins and minerals.

The addition of some components may be evaluated case-by-case by the State Agency of Medicines. It is possible to prohibit the commercialisation of a new food supplement, as the firm has to notify the product to the public administration.

2.2.3.17 Lithuania

The 2003 Lithuanian Decree on Food Supplements HN 17/2003 permits the use of botanicals and other bioactive substances. It does not include any negative and/or positive lists of botanicals.

Lithuania applies a national notification system for food supplements, The State Food and Veterinary Service (SFVS) takes samples for laboratory analysis of each consignment of food supplements from non-EU countries.

A draft Order of the Minister for Health amending Order No V-432 of 13 May 2010 approving the Lithuanian Hygiene Norm HN 17:2010—Food Supplements was notified on EU level in April 2014. The Order envisages a negative list of botanicals that are prohibited for use in food supplements. The list contains 188 botanical ingredients. To date this Decree has not been published.

2.2.3.18 Luxemburg

The Food Supplement Regulation does not include any negative and/or positive lists of botanicals and other bioactive substances. The authorities evaluate the use of botanicals and other bioactive substances in food supplements on a case-by-case basis and generally apply the mutual recognition principle if proof is available that the same food supplement product is already lawfully sold in another EU Member State.

2.2.3.19 Malta

The Food Safety Act (ACT NO. XIV OF 2002) and Food Supplements Regulations 2003 (L.N. 239 of 2003) permit the use of botanicals in food supplements. It does not include any negative and/or positive list of botanicals and other bioactive substances.

The Maltese authorities evaluate the permission to market botanicals and other bioactive substances in food supplements on a case-by-case basis following a risk assessment by the Malta Standards Authority.

2.2.3.20 The Netherlands

The Decree of 15 March 2003 on Food Supplements implements the EU Food Supplement Directive, completed by several Commodities Act Decrees including that on 'Herbal preparations' of January 2001, which covers herbal preparations that are brought on the market as foods and non-food products. The Decree limits the amount of toxic pyrrolizidine alkaloids in herbal preparations to 1 μg/kg. In addition, part I of the annex to the Decree lists plants that are known to contain toxic pyrrolizidine alkaloids. However, the limit for toxic pyrrolizidine alkaloids extends to all plants with these constituents that are used in herbal preparations. Furthermore, the Decree forbids the presence of aristolochic acids and yohimbine alkaloids in herbal preparations. Part II of the annex to the Decree defines plants that are too toxic to be used in food or in other commodities, and this part of the annex is currently comprised of 46 plants and fungi.

The Dutch authorities have also published a guideline lists of traditional Chinese herbal preparations and Ayurvedic herbal preparations in which harmful substances may be present.

2.2.3.21 Poland

Food supplements are covered by the Polish Decree on the composition and labelling of dietary supplements of 9 October 2007 and by the Polish Act on Food Safety. The definition of food supplements mentioned in the Polish laws permits the use of botanicals and other bioactive substances in food supplements. It does not include any negative and/or positive lists of botanicals.

The status of certain botanicals as ingredients in food supplements needs assessment by the Polish Medicinal Authorities prior to notification.

Poland is currently revising its legislation after the EC launched infringement procedures in 2013 against Poland because of the non-application of mutual recognition.

2.2.3.22 Portugal

The Portuguese Decree No 136/2003 on food supplements (as last amended by the Decree 118/2015) permits the use of botanicals and other bioactive substances in food supplements. It does not include any negative and/or positive lists of botanicals and other bioactive substances. The permission to market botanicals and other bioactive substances in food supplements is evaluated on a case-by-case basis.

The DGAV (Direção-Geral de Alimentação e Veterinária) uses as guidance their internal database of food supplement notifications.

2.2.3.23 Romania

The 2007 Order No 1069 on food supplements (Norma din 19/06/2007 privind suplimentele alimentare) permits the use of botanicals and other bioactive substances in food supplements. The 2005 Common Order of the Ministry of Health and Ministry of Agriculture, Forests and Rural Development no. 401/244 regulates the use of botanicals in food supplements and includes a positive and negative list of herbs and plants, and a positive list of cultivated and wild mushrooms. Moreover, the Order 1228/2005 specifies rules on the approval of food supplements containing animal or herbal products (extracts), alone or in combination with vitamins and minerals.

Ordnance 1228/2005/244/63 of 2006 specifies rules for placing on the market botanicals, botanical/animal extracts or mixtures of them and/or with vitamins, minerals and other substances with nutritional and physiological effects intended for human consumption as food supplements.

In March 2015 a draft legislation with new lists of botanicals (based on the French, Belgian, Italian lists) was notified to the European Commission. If the draft will be approved the Order 244/401/2005 on herbals, processed and partially processed herbals used in food supplements would be repealed and a new lists of botanicals would be implemented.

2.2.3.24 Slovak Republic

The relevant EU legislation in the field of food supplements (Directive 2002/46/EC) has been fully implemented into the Slovak food legislation—i.e. in to the Decree of the Ministry of Agriculture and the Ministry of Health of the Slovak Republic No. 16826/2007-OL, in the Slovak Food Code on foodstuffs intended for particular nutritional uses and food supplements as amended further. Currently, as there is no national legislation related to food supplements in the Slovak Republic, there are no negative or positive lists of botanicals or other substances related to food supplements.

The Decree No. 2089/2005-100 establishing a Chapter of the Slovak Food Codex governing coffee, tea and similar food products provides a list of herbs and their parts permitted for use in tea.

2.2.3.25 Slovenia

Regulation 82/2003 on Food Supplements as recently amended by the Regulation 66/2013 permits the use of botanicals and other bioactive substances in food supplements. The use of herbs and their parts is regulated under Decree 103/2008 on the classification of medicinal herbs, and includes four categories of herbs:

- Herbs permitted for use in foods, including food supplements, provided that no medicinal claims are made,
- Herbs permitted for use in OTC medicines,
- Herbs permitted for use in prescription only medicines,

– Herbs prohibited from use in all types of food and medicinal products.

Herbs included in the list of plants permitted for use in food can in principle be used in food supplements as long as their safety can be proven and no medicinal claims are made for the final product. Products containing high levels of concentrated herbal extracts of herbs from the category 1 generally require a pre-marketing authorisation from the competent health authority and are evaluated on a case-by-case basis.

2.2.3.26 Spain

The Royal Decree 1487/2009 on food supplements permits the use of botanicals and other ingredients in food supplements in Spain. The authorities have however not issued any lists. A couple of negative/positive lists of plants are used as guidance documents by the Spanish authorities.

In December 2013, a draft Royal Decree amending the Spanish Royal Decree 1487/2009 on food supplements and inserting a list of other substances permitted in food supplements was notified via TRIS to the European Commission and other EU Member States. This decree has not been implemented yet.

2.2.3.27 Sweden

The Food Supplement Ordinance (LIVSFS 2003:9) permits the use of botanicals and other bioactive substances in food supplements. The authorities tolerate the use of other bioactive substances in food supplements as long as they are not classified as medicines or natural remedies by the Medicinal Products Agency.

The authorities used to use as a guideline the negative list of plants and plant parts unsuitable for use in food (VOLM). This list is non-exhaustive and subject to modification. Plants contained therein may be unsuitable under specific conditions and due to specific plant parts. In addition, plants not listed in the VOLM list ccannot be ensured not to be harmless. In borderline cases, the advice of the Medicinal Products Agency (MPA) may be required for the final product classification. The Swedish Medical Products Agency has a list published on its website (as a guidance) with substances and plants on which the agency has regularly received questions.

2.2.3.28 United Kingdom

The Food Supplement (England) Regulations 2003 (S.I. 2003 No.1387) permit the use of substances with nutritional or physiological effects in food supplements. It does not include positive and/or negative lists of botanicals or other bioactive substances.

To assist companies in determining the likely status of their product, a list of herbal ingredients has been compiled by regulatory bodies and industry in the UK. This non-exhaustive list, which has no legal status, includes plants specifying their recorded uses in the UK (i.e. food, medicines, cosmetics and aromatherapy). There is also a list of herbal ingredients prohibited or restricted in medicines, which are under the responsibility of the Medicines and Healthcare Products Regulatory Agency (MHRA). Both lists and the 'guide to what is a medicinal product' are useful tools, and used by the authorities in determining product classifications on a case-by-case basis.

2.2.3.29 Norway

Herbs are mostly classified as medicines in Norway, but there are some exceptions.

The Norwegian Regulation 1565/1999 on the classification of medicinal products (Forskrift om legemiddelklassifisering) includes a list of herbs that was issued by the Norwegian Medicines Agency and is generally also used as guidance by the Norwegian Food Safety Authority. The list is divided into the following three herbal categories:

- Herbs for free sale in food,
- Herbal medicines, and
- Herbal medicines on prescription.

Herbs not appearing on this list are assessed on a case-by-case basis by the Norwegian Medicines Agency.

2.2.3.30 Switzerland

Food supplements are regulated by the Swiss EDI Regulation on Special Foods (Art. 22). The Annexes of the Swiss EDI Regulation are listing vitamins, minerals, including their sources, and some other bioactive substances authorised for use in food supplements. Herbal ingredients and extracts thereof are not included in the Annexes of the Swiss EDI Regulation and would therefore require an individual authorisation ("Bewilligung") from the Swiss Federal Office for Public Health (BAG) before their marketing in food supplements.

Swiss Institute for Remedies, Swissmedic and Swiss Federal Office for Public Health (BAG) have issued in a co-operation a document on the classification of herbs and herbal substances: "Classification of herbal materials and preparations as drugs or as food". The document includes a list of herbs with an indication of their classification as medicine or food and their general appropriate purpose of use in specific food sectors. This document is used as a guideline by the Swiss authorities while evaluating herbal ingredients during the authorisation procedure.

2.2.4 Mutual Recognition

In the light of the diverging national rules on BFS, Mutual Recognition (MR) remains an important tool for ensuring the free movement of products, including food supplements, on the European market.

MR means that a MS is obliged to accept on its territory products that are lawfully marketed in another Member State, even when such products would not comply with their national domestic rules. This is a direct consequence of Article 30 of the Treaty.

MR does not prevent MS to still object to the marketing of such product, provided they would pose danger to health. In such cases, it is upon the MS to prove that such is the case.

The principles of MR have been included in Regulation 76/2008 that came into application on 13 May 2009[28]. This Regulation specifies clear procedures and rules to govern refusals of MR.

In addition, the Court of Justice of the European Union (CJEU), as part of its judicial supervision, has set precise limits within which the MS may validly exempt themselves from MR. The CJEU has consistently ruled it is for the MS, to decide on their intended level of protection of human health. However, in exercising this discretion they must comply with the principle of proportionality. This means that the measures and decision they take need to be confined to what is actually necessary to ensure the safeguarding of public health. In addition, such measures must be proportional to the objective thus pursued, which could not have been attained by measures which are less restrictive of intra-Community trade (see as an example paragraphs 86 to 88 of the judgment in the case C-319/05, Commission v Germany)[29].

In practice however, MS still often deny mutual recognition in the area of food supplements without observing these legal principles. This and a number of other elements may pave the way to further harmonisation in this area at EU level.

2.2.5 Towards Further Harmonisation?

Considering all the issues described and analysed in its 2008 report, the EC concluded that laying down specific rules applicable to substances other than vitamins and minerals for use in food supplements was not justified at that time. The EC doubted the feasibility of such a measure, which, in any case, in its view was not necessary in the short term.

---

[28] Regulation (EC) No 764/2008 of the European Parliament and of the Council of 9 July 2008 laying down procedures relating to the application of certain national technical rules to products lawfully marketed in another Member State and repealing Decision No 3052/95/EC. Official Journal of the European Union L218/21. 13.08.2008.

[29] Case 319/05: Judgment of the Court (First Chamber) of 15 November 2007. Commission of the European Communities v. Federal Republic of Germany. Official Journal of the European Community C8/3, 12 January 2008.

The EC highlighted the complexity and different approaches by national authorities and the limited scientific information available on other substances. It also indicated that a number of new or recent legal instruments, adopted or in the process (including the NFR, NHCR, FFR) would already harmonise part of the aspects relating to these products.

Finally, the EC pointed out that, in general terms, despite certain limitations, mutual recognition is a useful instrument for facilitating the free movement of the products concerned.

The EC therefore concluded that the legal instruments described in its report already constitute a sufficient legislative framework for regulating this area and it did not consider it opportune to lay down specific rules for substances other than vitamins or minerals for use in foodstuffs.

However, since substances other than vitamins or minerals, including substances derived from plants, are now being added to ordinary foodstuffs and not only to food supplements, the Commission did not rule out the possibility, at a later state, of carrying out a supplementary analysis to the report, examining the conditions for the addition of these substances to foodstuffs in general.

The current status created by the application of the NHCR to botanicals is further described in Sect. 2.2.6.

2.2.6 Borderline with Medicinal Law: Traditional Herbal Medicinal Products

Botanicals are also used in medicinal products for their medicinal purposes. The EU legal system accepts this dual use, provided a product is in conformity with the legal framework chosen.

In principle, medicinal product legislation is based on pre-marketing approval of individual medicinal products. This is based on the demonstration of safety, quality and efficacy. For some medicinal products, efficacy can be demonstrated on the basis of bibliographic evidence showing well-established use. However, for herbal medicinal products, a specific legislation was adopted in 2004: Directive 2004/24/EC relating to herbal medicinal products (the Traditional Herbal Products Directive (THMPD))[30]. The reason is that no traditional medicinal product could have been authorized under the MPD existing at the time, mainly due to limitations of available data on efficacy.

For this reason for a traditional herbal medicinal products (THMPs) it has to be demonstrated that the product is "non toxic under the specific conditions of use and the pharmacological effects and efficacy are plausible on the basis of long term use

[30] Directive 2004/24/EC of the European Parliament and of the Council of 31 March 2004 amending, as regards traditional herbal medicinal products, Directive 2001/83/EC on the Community code relating to medicinal products for human use. Official Journal of the European Union: L136/85 30 April 2004.

and of available experience". By this the legislation specifically accepted that efficacy requirements for herbal traditional medicinal products are lower than for the other categories of medicinal products.

A licence as THMP according to Directive 2004/24/EC can be granted, in general, only for products present on the market for at least 30 years, of which 15 years in a EU Member State. To this end, any products containing the same active substances, regardless of excipients, with the same or similar indications, dosage and posology equivalent and identical administration routes are considered equivalent.

In a number of MS certain botanicals are not permitted for use in FS but are restricted to medicinal products under the THMPD rules. This is despite these botanicals being accepted for use in FS in other MS and therefore MR should apply. In most cases no reasons are given for such practice and in a number of cases MS have been challenged before the CJEU and have lost these cases. Nevertheless, product classification issues remain a reality despite such extensive case law.[31]

To distinguish the borderline between food and medicinal products, the Court of Justice of the EU has established extensive case law.

The main principles established by the CJEU in its various judgments can be summarised as follows:

- Member Sates have the competence to determine whether a certain product is a medicinal product or not, but have to base that decision on a case-by-case assessment of all of the product's characteristics, particularly its composition, its pharmacological properties as they may be ascertained in the current state of scientific knowledge, the way in which it is used, the extent to which it is sold, its familiarity to the consumer and the risks that its use might entail. This means that a decision cannot be taken solely on the basis of the composition, the form or the nature of the ingredients of a product but must be based on all of its characteristics.
- All products that are presented as having therapeutic or preventative effects in relation to diseases should be subject to medicinal law in order to be able to ascertain the efficacy of the product in relation to its claimed effects on the basis of the clinical studies performed. It is the aim of medicinal law that if efficacy cannot be established, a marketing licence can effectively be refused.
- However, medicinal law is not intended to cover products that have an effect on the body or health but are not presented for the treatment, prevention of cure of diseases. The concept of a physiological effect is not specific to medicinal products only but is also among the criteria used for the definition of food supplements. Products having an effect on the human body, but which do not significantly affect the metabolism and thus do not strictly modify the way in which it functions, cannot be considered as medicinal products by function. This is the case with many botanicals and botanical preparations.

[31] www.curia.eu. Relevant cases include: C112/89, C60/89), C219/91, C369/88, C290/90, C227/82, C211/03, C319/05, C140/07, 88/07, C27/08, C308/11.

– The fact that a risk to health may be present is not sufficient to classify a product as medicinal by function. The legal framework of food (GFLR) and national legislation in place contain sufficient provisions to ensure the safety of any food, including botanical food supplements.
– The fact that similar products are registered as medicinal products is also not a determining factor to consider all similar products as medicinal products.

A correct implementation of both food and medicinal law and observance of these principles established by the CJEU would already eliminate many problems that hinder the free movement of botanical food supplements in the EU.

2.3 Legal Framework For Botanicals in Selected Non-EU Countries

Given that the regulatory situation relating to botanicals is so diverse in the EU Member States, it should not be a surprise that in non-EU countries there are even less similarities. Botanicals have traditionally been used in food and medicinal products and regulations have evolved over time to cover such traditional use.

2.3.1 ASEAN (Association of South-East Asian Nations)

The 10 countries of the ASEAN have developed common regulatory requirements for food supplement products. One of the areas for harmonisation is the development of a list of prohibited active ingredients. In future, botanicals widely used in food supplements in certain ASEAN countries will likely be available in all of the ASEAN countries.

2.3.2 China

Food supplements are regarded as “health food” in China. Health food is regulated according to the Administrative Measures for Health Food Registration and Filing”, which was recently implement on 1st July 2016 and other relevant regulations, which will be issued by the China Food & Drug Administration (CFDA).

According to this new regulation, there will be two routes of product placement: Registration and Filing (notification).

Registration is applicable for

- Health Food with ingredients not on the Health Food Raw Materials Catalogue list (intended health claims are on the permitted list)
- Health Food imported into China for the first time (excluding Nutrient Supplements containing vitamins and minerals)

Whereas Filing (notification) is applicable for:

- Health Food with ingredients on the Health Food Raw Materials Catalogue list (intended health claims are on the permitted list)
- All Nutrient Supplements containing vitamins and minerals listed on the Health Food Raw Materials Catalogue list

Currently, the CFDA is still developing the list of ingredients Health Food Raw Materials Catalogue that qualify for the fast track Filing (notification) route. So far, they have only issued a draft list of permitted vitamins and minerals ingredients for public consultation.

Though it is still not clear when will the botanical ingredients be included in the catalogue, it is likely that the CFDA will consider the following types of botanical ingredients (mainly Chinese herbs), which were previously permitted for use in Health Food in the catalogue.

- Ingredients that can be used in health food—e.g. ginkgo leaf, ginseng, saffron;
- Ingredients that can be used in both conventional food and medicine—e.g. cinnamon, mint, ginger, dates, Chinese wolfberry.

Those botanical ingredients that are not on the list will be subject to the full registration process.

2.3.3 Customs Union of Belarus, Russia and Kazakhstan

2.3.3.1 Eurasian Economic Union (EAEU) of Belarus, Russia, Kazakhstan, Armenia and Kyrgyzstan

According to the Customs Union Technical Regulation TR CU 021/2011 "On safety of foods", food supplements are defined as natural (or identical to natural) biologically active substances, including pro-biotic microorganisms, designed to be taken with food, or made part of food products

Food supplement ingredients may originate from herbs, animals and minerals and can be produced by chemical or biochemical processes.

Food supplements must not contain: strong, narcotic or poisoning substances and herbal substances which are not permitted for use in medicines and/or foods and doping substances from the WADA list. In addition, there are regulatory restrictions on food supplements intended for children. There is a list of

botanicals which are allowed in food supplements and herbal teas for children of 3–14 years of age.

The TR CU 021/2011 "On safety of foods" specifies the list of 339 botanicals (Annex 7) which are not allowed in food supplements. The document also bans use of specific animal products, synthetic analogues of natural substances of medicinal plants, human tissues, some microorganisms and fungi.

2.3.4 Latin America

2.3.4.1 Argentina

In Argentina, food supplements are designated by law as 'suplementos dietarios' (dietary supplements) and are regulated under the Article 1381 of the Argentine Food Code (CAA) (in the overall Chapter XVII on 'Dietetic Foods').

As a general principle, food supplements are subject to a pre-market authorisation (valid for 5 years) .The Argentine food supplements legal definition explicitly provides for the possibility of using herbal ingredients in food supplements. Such products should however additionally contain vitamins, minerals, amino acids, fibre, proteins etc. in order to comply with the legal definition of food supplements laid down in Art. 1381 CAA.

'Disposición' ANMAT N° 1637/2001 contains two annexes relating to herbal ingredients used in food supplements:

- Positive list of 35 herbs and other substances of plant origin that can be used in food supplements.
- List of 118 herbal ingredients prohibited for use in food supplements.

In addition to this regulation on herbals, the plants regulated under the Food Argentine Code are also permitted to be used in food supplements since their food use is acknowledged. Guarana (*Paullinia cupana*) is for instance one of these plants regulated under the CAA and allowed to be used in food supplements in Argentina.

In practice, the Argentine authorities ANMAT (the National Administration of Medicines, Foods and Medical Technology) seem to follow a rather restrictive approach when assessing imported food supplement products containing botanicals at the time of food product registration (stability issues). The tradition of use of herbs in medicinal products in Argentina—and overall in Latin America—is not to be neglected.

Argentina is currently revising its regulation on dietary supplements, including the list of permitted botanical ingredients. In 2015 the revised regulation was under public consultation, where the list of permitted herbs was proposed to be included in the CAA and the information to be submitted at the time of requesting the inclusion of a new herb was also detailed. The sanitary authorities are still drafting the new regulation.

2.3.4.2 Brazil

In Brazil, various regulations cover foods presented in the form of tablet, capsule, powder and powder to be diluted. The regulation "Portaria n°32/98" applies to vitamin and/or mineral supplements only. The concept of food supplement with combination of vitamin and/or minerals with other substances such as herbs does not exist.

Plants/herbs can be regulated under the drug or food law, depending on their traditional use. On one hand, plants under the medicine umbrella can fall in one of the following two categories:

- "Fitoterápicos" (phytotherapeutics);
- "Drogas vegetais" (plant drugs), also commonly known as "medicinal plants of popular tradition".

The difference between these two is that plant drugs can be distributed in their integral form, in pieces, crushed or in powder, and that phytotherapeutics are marketed in pharmaceutical forms.

On the other hand, herbs/plants falling under the food umbrella are covered by the ANVISA Resolution n°16/99 on "New Foods and Ingredients". In Brazil, "New Foods and Ingredients" are defined as: "foods or substances with no history of use in Brazil, or foods with substances already in use, but that will be added to foods or used at levels much higher than those currently observed in foods used in a regular diet".

Various plants, mainly preparations of vegetables and fruits, and other bioactive substances in a dose form have been approved as "New Foods".

Nutrients or non-nutrients associated with any vegetal species that are included in the list of "phytotherapeutics" or "medicinal plants of popular tradition" cannot be regarded as food. Therefore, these will not be able to be marketed as a "food supplement" product.

Brazil is currently revising the "Portaria n°32/98" in order to develop a single piece of regulation for food supplements, which would address all types of permitted ingredients, including botanicals.

2.3.5 United States

The Dietary Supplement Health and Education Act (DSHEA) was signed into law in 1994 creating a new regulatory framework for dietary supplements as a separate category of foods and establishing requirements for safety and labelling.

Under this framework a company is responsible for determining that the dietary supplements it manufactures or distributes are safe and that any representations or claims made about them are substantiated by adequate evidence to show that they are not false or misleading. Dietary supplements do not need approval from FDA before being marketed. Companies that manufacture or distribute dietary supple-

ments containing "new dietary ingredients" are required to submit pre-market safety notifications. Dietary supplements containing only ingredients that are "not new" used previously as conventional foods before the law of 1994 are exempt from the notification requirement. FDA can take regulatory action to remove unsafe products from the market, including products containing new dietary ingredients for which there is inadequate evidence of safety in a pre-market safety notification.

A company does not have to provide FDA with the evidence it relies on to substantiate "structure/function claims" as a statement of nutritional support or effectiveness before or after it markets its products. FDA has published guidelines on "substantiation" of "structure/function claims" for use by manufacturers that want to substantiate a structure /function claim by the application of a substantiation standard of competent and reliable scientific evidence to claim about the benefits and safety of dietary supplements. Within 30 days of making a structure/function claim, the manufacturer/distributer must notify FDA of the wording of the claim. "Health claims" (e.g. reduction of risk of disease) can only be made under the authorisation of a specific regulation, which may be initiated by a petition to FDA. If a manufacturer or distributor wishes to claim that a product be used to diagnose, treat, cure or prevent a disease then the product by law is a drug and must meet the requirements for drugs. The U.S. has no separate category for traditional medicines.

In July 2011 FDA published draft guidelines on how to comply with the regulatory requirement to provide a pre-market safety notification for dietary supplements containing new dietary ingredients. This draft contains criteria on how to determine the identity of plant-based ingredients and how to use history of use or other evidence to demonstrate the safety of plant based ingredients.

2.4 The Regulatory Framework for Safety Assessment

2.4.1 Safety Management in the EU

Botanicals are not subject to a systematic pre-market safety assessment in the EU. The horizontal food legislation in place, both harmonised and national and the long history of use of many botanicals, covered by positive and negative lists, together with the Rapid Alert System for Food and Feed (RASFF) and a national notification system, constitute a substantial legal framework consistent with the requirements of food safety.

Safety is covered by many legal texts that are fully applicable to BFS. This includes:

– The GFR containing obligations to ensure that food put on the market is safe, notification whereby the competent authorities must be informed in cases where a food may not be in conformity with the food safety requirements and companies must have procedures in place to be able to recall or withdraw such products from

the market. Additionally, full traceability of the product and all of its ingredients—the tracking of the food/food ingredient from 'farm to fork'—is mandatory.
- The NFR, ensuring that foods and food ingredients, including new botanicals, which have not been used for human consumption to a significant degree within the EU prior to May 1997, are subject to a pre-market authorisation procedure, involving an assessment of the safety of these foods following an application for authorisation.
- The FFR, establishing in Article 8, a procedure to be used in cases where a substance other than vitamins or minerals, or an ingredient containing a substance other than vitamins or minerals, is added to foods or used in the manufacture of foods under conditions that would result in the ingestion of amounts of this substance greatly exceeding those reasonably expected to be ingested under normal conditions of consumption of a balanced and varied diet and/or would otherwise represent a potential risk to consumers. In such cases, on its own initiative or on the basis of information provided by the MS, the EC may take a decision, following an assessment of available information by EFSA, to include the substance in Annex III of the FFR. This will make it possible to draw up a list of substances whose use in foods is prohibited, restricted or under EU scrutiny. Yohimbe (Pausinystalia yohimbe (K. Schum.) Pierre ex Beille) and Ephedra ssp. Have already included in this annex.

A number of tools also are in place at EU level to help enforcement ensure the safety of the food chain.

- The GFR and the Official Controls Regulation 882/2004 (OCR) specify the obligations of enforcement authorities in terms of food safety[32].
- Furthermore, safeguard clauses in many of the applicable EU legislation allow Member States to take action in case of unexpected emerging safety risks. This means that when, as a result of new information or reassessment of existing information, there are detailed grounds for establishing that a product endangers human health, a MS may temporarily suspend or restrict its availability/use, even if it fully complies with the relevant EU legislation. It must inform then the other MS and the EC, who must then examine the grounds for the decision and deliver its opinion and take any appropriate measures.
- The RASFF, created by the GFR provides for an effective tool to monitor and communicate health risks among the Member States[33]. Rapid Alert notifications are sent in a number of cases, including when a food or feed presenting a serious risk is on the market and when immediate action is required. Alerts are triggered

[32] Regulation (EC) No 882/2004 of the European Parliament and of the Council of 29 April 2004 on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules. Official Journal of the European Community L165/1, 30 April 2004.

[33] Commission Regulation (EU) No 16/2011 of 10 January 2011 laying down implementing measures for the Rapid alert system for food and feed. Official Journal of the European Community L6/7, 11 January 2011.

by the Member State that detects the problem and initiates the relevant measures, such as withdrawal/recall. The notification aims to give all the members of the network the information to verify whether the product concerned is on their market, so that they also can take the necessary measures. The Commission publishes on its website a weekly overview of Rapid Alert notifications, information notifications, and border rejections.[34]

2.4.2 Safety Management at National Level

There is no systematic safety approval of botanicals for use in foods in the EU and there are no specific requirements for botanicals in the FSD.

Still the FSD has given MS the possibility to impose a notification procedure by which companies are required to inform the authorities of the marketing of a product by means of the product label.

The way in which this notification is applied differs between the MS. In some cases it is a well developed and managed system by which the authorities request more detailed information, assess the information and take actions as appropriate (e.g. in Belgium, France, Italy). In other MS the notification acts as information for enforcement authorities to monitor the market. Five of the MS have not even considered it necessary to impose this notification (Austria, Netherlands, Slovenia, Sweden, UK).

Although it is not permitted for MS to impose a pre-market authorisation process for such products, in the MS where notification requirements are extensive, it nevertheless acts as a sort of pre-market verification as most companies await the assessment of the authorities.

Furthermore, the use of botanicals falls under national law and a number of risk management measures have been applied to botanical food supplements by specific MS. These are mostly under the form negative lists (containing botanicals the use of which is prohibited) and/or positive lists, including botanicals that are allowed, with or without conditions of use, maximum levels and/or advisory labelling statements.

Guidance and conditions for appropriate processing and quality assurance, based on the FHR, often developed by the sector and approved by authorities may complement these national lists and notification requirements. This is important as botanicals can carry inherent safety risks that can be managed by appropriate processing and quality assurance, for example:

– The harmful components may be associated only with one of the plant's components (e.g. the leaves, fruits, seeds, roots). Removing it makes the plant fit for consumption, as is the case with potatoes, where the leaves are toxic but the tubers valuable foods.

[34] http://ec.europa.eu/food/safety/rasff/index_en.htm.

- A plant may be used as raw material for the production of additives, flavours, and functional food ingredients using processing techniques such as isolation, extraction and purification and appropriate controls to remove undesirable components. For example it is generally accepted that the oil from the borago species is acceptable for food use when it can be demonstrated analytically that the oil does not contain pyrrolizidine alkaloids.
- A plant may be subjected to a treatment that inactivates or destroys the undesirable components. For instance, it is well known that it is necessary to cook beans (Phaseolus vulgaris) at adequate temperature to destroy the phytohaemaglutin or lectins they contain.
- A plant may show harmful effects at high doses but not at a lower dose. Assessment of the dose and ways in which to ensure that such doses are not exceeded are part of the safety assessment. Some Member States have established maximum levels for plant components.
- A plant may show undesirable effects for specific population groups, even when used in an appropriate way, or it may interact with other foods or medicinal products. In such cases the labels of the botanical products carry appropriate warning information.
- Undesirable properties may be restricted to one single species of an entire plant family. In such a case appropriate methodology or measures are required to make sure that the toxic species is identified and separated from other members of the same family and contamination thus avoided.

Finally, another tool that is increasingly established to help ensure safety of FS is a system for nutrivigilance. Such a system collects information about adverse effects experienced by users of FS and other products. In that way causal relationships can be identified and where appropriate enforcement steps taken.

The combination of these measures in combination with EU and national law are considered a strong framework ensuring the safe use of BFS.

2.5 The Regulatory Framework for Benefit Assessment

2.5.1 Nutrition and Health Claims in the EU

Since 2006 all nutrition and health claims made on foods, including food supplements are subject to a pre-marketing authorisation after an assessment of the scientific justification by EFSA.

The criteria for this assessment have not been specified in the law. The only requirement is mentioned in recitals 17 and 23 of the Regulation, which state respectively that “Scientific substantiation should be the main aspect to be taken into account for the use of nutrition and health claims and the food business operators using claims should justify them. A claim should be scientifically substantiated by taking into account the totality of the available scientific data, and by weighing

the evidence" and that "Health claims should only be authorised for use in the Community after a scientific assessment of the highest possible standard. In order to ensure harmonised scientific assessment of these claims, the European Food Safety Authority should carry out such assessments."

The methodology EFSA would apply was not disclosed until after the adoption of the law, when EFSA published guidance on how to compile a submission. This guidance and the learnings from the opinions published showed that, apart from essential nutrients, EFSA only accepted human intervention studies as sufficient justification for a claim.

In assessing the scientific evidence, EFSA verifies the following elements:

- That the food/constituent is well defined and sufficiently characterised.
- That the claimed effect is well defined, is a beneficial physiological effect for the target population, and can be measured in vivo in humans.
- That a cause and effect relationship is established between the consumption of the food/constituent and the claimed effect in humans (for the target group under the proposed conditions of use), by considering the strength, consistency, specificity, dose–response, and biological plausibility of the relationship.
- That the quantity of the food/constituent and pattern of consumption required to obtain the claimed effect could reasonably be achieved as part of a balanced diet.
- That the wording of the claim reflects the scientific justification provided.
- The conditions or restrictions of use of the food and whether additional statements or warnings that should accompany the health claim on the label and in advertising are required.

It is clear that EFSA focuses extensively on the validity of end-points used (biomarker, physiological or clinical effect) and the size of effect.

This has proven problematic for botanicals as such studies have not been required before, not under national, nor under medicinal regulations. When EFSA therefore started its assessment of the submitted health claims for botanicals, it delivered only negative opinions.

2.5.2 Standard for Scientific Assessment Vs. Tradition of Use

Botanicals are also used in medicinal products by virtue of the THMPD. In this legislation the problem of the scientific justification of the benefits of botanicals was directly addressed. The Regulator excluded such products from the requirement of demonstrating efficacy if traditional use for 30 years (of which 15 years in the EU) could be demonstrated.

Or as it is stated in whereas 5: "The long tradition of the medicinal product makes it possible to reduce the need for clinical trials, in so far as the efficacy of the medicinal product is plausible on the basis of long-standing use and experience. Pre-clinical tests do not seem necessary, where the medicinal product on the basis of the information on its traditional use proves not to be harmful in specified conditions of use."

Table 2.2 Accepted indications for medicinal products in HMPC monographs and for foods in EFSA opinions

THPM Monograph indications	EFSA beneficial physiological effects
Symptoms of temporary fatigue and sensation of weakness	Reduction of tiredness and fatigue is
Symptomatic relief of digestive disorders such as dyspepsia […], bloating and flatulence	Reduction of gastro-intestinal discomfort is
For relief of mild symptoms of mental stress	Resistance to mental stress might be
Used to aid sleep	Reduction of sleep onset latency and improvement of sleep quality might be
For relief of […] heaviness of legs related to minor venous circulatory disturbances	Maintenance of elasticity and strength of the venous walls is
For the prophylaxis of migraine headaches after serious conditions have been excluded	Relief from stress-induced headache is
For the relief of minor symptoms in the days before menstruation (premenstrual syndrome)	Reduction of menstrual discomfort is
For the relief of menopausal complaints such as hot flushes and profuse sweating	Reduction of menopausal discomfort is
For the treatment of habitual constipation or in conditions in which easy defecation with soft stool is desirable	Changes in bowel function such as reduced transit time, more frequent bowel movements, increased faecal bulk, or softer stools may be

Thus THMPs can be registered on that basis and are permitted to claim their intended use without the reliance on intervention trials showing an effect on appropriate biomarkers or physiological or clinical functions.

This tradition of use is specific for botanicals, given their long-standing use. The Herbal Medicinal Product Committee (HMPC) within the European Medicinal Agency (EMA) has since then developed over 100 monographs in which they describe the traditional benefits and the conditions of use of the products based on tradition of use. The outcome of this work shows that the traditional effects of many plants described can be classified as beneficial physiological effects, rather than effects that relate to the treatment or prevention of disease. Table 2.2 gives examples of such claims and shows the similarity of the effect described in the monographs as compared to effects for which EFSA has confirmed these are beneficial health effects.

Because of this inconsistency, the European Commission decided in September 2010 to stop the assessments of health claims for botanicals. Indeed, given that all assessments would have resulted in negative opinions because tradition of use was not accepted, this would have led to the prohibition of any health benefit communication for botanicals used in food supplements, while at the same time, the same effects could continue to be used on THMPs solely on the basis of tradition of use.

To date, these claims for botanicals in food and food supplements have remained on hold and the Commission has started in 2013 discussions with the Member States on what route to take to solve this problem:

– Either continue with the assessments as foreseen, leading to the probable rejection of all claims.
– Either to exempt botanicals and accept tradition of use by changing the Claims Regulation or developing a new legislative framework for these products. In this latter case, it would also be possible to address specific aspects of safety and quality.

In 2015 this discussion has been formalised in a study covered by the Commission's better Regulation initiative. This so-called REFIT (Regulatory Fitness and Performance programme) assessment will gather views on the above and assess the consequences of each of the proposed scenarios.

This assessment is carried out by an independent contractor and is scheduled to start in September 2016, with the report expected end 2017.

On the basis of this report, the Commission is expected to come forward with a proposal. In the mean time, consumers still can be informed about the traditional benefits of botanicals on food supplements labels.