

# EFFA Best Practice Guidance Document on Plant Extracts Rich in Constituents Capable of Performing a Technological Function in Food

## Key messages:

- The use and labelling of flavourings which may contain certain constituents with multifunctional properties (either due to side constituents capable of performing technological functions or dual function constituents) must be assessed based on their technological function in the final food.
  - If the primary intended use is to impart/modify the flavour of the food and the technological effect is secondary then its use may be considered as “not being intended for a technological function”.
  - However if the ingredient has been selectively extracted/enriched to obtain technologically active constituents and its main use is to deliver a technological function other than imparting/modifying the odour and/or taste in the final food then it is considered as additive according to the Food Additive Regulation (EC) No 1333/2008.
- In B2B communication it is the obligation of the Flavouring manufacturer to provide all the necessary information to enable the user to determine subsequent labelling of the final consumer product.
- The intended function in the final food determines the legal status and the consequent labelling of the final products to the consumer.

## 1. BACKGROUND

At the meeting of the Standing Committee on Plants, Animals, Food and Feed (SCoPAFF) on 17 September 2018, the validity of statements pertaining to the use of “*Spinach extracts containing high levels of nitrates used in sausages*” (2006) and “*the use of vegetable broth enriched with nitrite*” (2010) was reconfirmed. The committee also extended the statements to be generally applicable to all plant extracts which, when added to foods, are capable of performing a technological function. Furthermore the committee clarified that “*A number of plant extracts can perform both flavouring and additive functions. When flavourings have a technological function as food additives, the food additive legislation shall apply. In this case the extracts cannot be claimed to be used as flavourings*”.

The above opinion creates uncertainty with regard to the correct interpretation of the Food Additive Regulation respectively Article 3(2)(a) of Regulation (EC) No 1333/2008 on food additives and may challenge the legal status of common food ingredients (e.g. spices like paprika powder/curcuma, lemon juice, vinegar) and flavourings (e.g. spice extracts like rosemary extract and curcuma oleoresin, stevia based flavouring preparations with modifying properties) that have multifunctional properties.

Plant extracts, due to their flavouring properties, have traditionally been used as flavourings in food and beverage products.

The intention of this paper is to make sure that the SCoPAFF statement is not misinterpreted or respectively used to widen the additive definition and also to ensure a common understanding with regard to the use of plant extracts as flavourings.

## 2. DEFINITIONS AND TERMINOLOGY

### 2.1 Flavourings Regulation (EC) No 1334/2008

Article 3(2)(a) defines food flavourings as products "

- (i) *not intended to be consumed as such, which are added to food in order to impart or modify odour and/or taste;*
- (ii) *made or consisting of the following categories: flavouring substances, flavouring preparations, thermal process flavourings, smoke flavourings, flavour precursors or other flavourings or mixtures thereof;"*

Article 3(2)(d) defines flavouring preparations as products "

*"other than a flavouring substance, obtained from:*

- (i) *food by appropriate physical, enzymatic or microbiological processes either in the raw state of the material or after processing for human consumption by one or more of the traditional food preparation processes listed in Annex II;*  
*and/or*
- (ii) *material of vegetable, animal or microbiological origin, other than food, by appropriate physical, enzymatic or microbiological processes, the material being taken as such or prepared by one or more of the traditional food preparation processes listed in Annex II."*

### 2.2 Food Additive Regulation (EC) No 1333/2008

Recital (5) of the Regulation describes when substances should not be considered as food additives as well as when they should be considered as food additives:

*"...However, substances should not be considered as food additives when they are used for the purpose of imparting flavour and/or taste or for nutritional purposes, such as salt replacers, vitamins and minerals. Moreover, substances considered as foods which may be used for a technological function, such as sodium chloride or saffron for colouring and food enzymes should also not fall within the scope of this Regulation. However, preparations obtained from foods and other natural source material that are intended to have a technological effect in the final food and which are obtained by selective extraction of constituents (e.g. pigments) relative to the nutritive or aromatic constituents, should be considered additives within the meaning of this Regulation."*

Article 2(2) defines substances, which are out the scope of the Food Additive Regulation as follows:

This Regulation shall not apply to the following substances unless they are used as food additives:

(...)

***(e) Flavourings falling within the scope of Regulation (EC) No 1334/2008 [on flavourings and certain food ingredients with flavouring properties for use in and on foods].***

(...)

Article 3(2)(a) defines food additives as:

*"any substance not normally consumed as a food in itself and not normally used as a characteristic ingredient of food, whether or not it has nutritive value, the intentional addition of which to food for a technological purpose in the manufacture, processing, preparation, treatment, packaging, transport or storage of such food results, or may be reasonably expected to result, in it or its by-products becoming directly or indirectly a component of such foods"*

The following are not considered to be food additives:

*(ii) foods, whether dried or in concentrated form, including flavourings incorporated during the manufacturing of compound foods, because of their aromatic, sapid or nutritive properties together with a secondary colouring effect;*

### 3. FLAVOURING PREPARATIONS

The Flavouring Regulation does not lay down any specific definition for plant extracts. It also does not refer to the word "extract" in the definition of flavouring preparations. However plant extracts are implicitly accepted through the definition of "flavouring preparation" as they have been obtained via one of the traditional food preparations processes (extraction) listed in Annex II of the Flavouring Regulation (E.g.: basil extract, nutmeg extract.).

According to Article 3(2)(d) of the Flavouring Regulation "flavouring preparations" are "products obtained from food or other material of vegetable, animal or microbiological origin by appropriate physical processes or enzymatic or microbiological processes either in the raw state of the material thus derived or after further processing for human consumption using traditional processes listed in Annex II".

Their production should be in compliance with Article 3(2)(k) of the Flavouring Regulation.

According to Recital (25) and Article 4(b) of the Flavouring Regulation the use and labelling of flavourings must not mislead the consumer.

Furthermore if solvents are used for extraction purposes to obtain flavouring preparations, only those listed in the EU Extraction Solvents Directive 2009/32/EC (as amended) are permitted.<sup>1</sup>

Flavouring preparations are recognised as "complex multicomponent mixtures". This is confirmed by the EU Commission letter DG SANC/E3/SH/km(2013) dated 05/02/2013<sup>2</sup> clarifying that "*Due to the way they are prepared flavouring preparations are complex mixtures containing more than defined volatile flavouring molecules*".

Consequently flavouring preparations can still contain, in addition to the targeted constituents with aromatic/taste properties, side constituents, which are capable of performing technological functions (e.g.; capsanthin/carotenoid in paprika oleoresin, Carnosol/Carnosic acid in rosemary extract).

Such flavouring preparations are not considered as additives because they:

- Comply with the requirements of the Flavouring Regulation;
- Are intended to be used for their flavouring properties as a main purpose
- Are therefore confirmed as out of scope by Article 2(2) of the Additive Regulation;
- Have not been selectively extracted/enriched to provide a deliberate additive function;

as a consequence,

- They are labelled according the requirements of the flavouring regulation in B2B communication.

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<sup>1</sup> EU Extraction Solvents Directive 2009/32/EC (as amended) are permitted.

<sup>2</sup> Commission letter DG SANC/E3/SH/km(2013) dated 05/02/2013

## Specific example of a flavouring preparation containing multifunctional constituents: Rosemary Extract

In the EFSA Opinion adopted on 7 March 2008<sup>3</sup> under the section "Background provided by the Commission" the following information is provided. "Although the entire rosemary (*Rosmarinus officinalis* L.) Plant, excluding the woody portions, may be used, it is normally only the leaves that are commonly used as a culinary herb, flavouring agent and naturally occurring antioxidant. Today, rosemary extracts are increasingly employed not only to provide flavour but also as natural alternatives to synthetic antioxidants for the stabilisation of oxygen-sensitive foods. The antioxidative function is probably caused by several components in the rosemary extracts, which belong mainly to the classes of phenolic acids, flavonoid diterpenoids and triterpenes.

As described above, extracts of the plant rosemary (*Rosmarinus officinalis* L.) can have both flavouring and antioxidative properties. In many cases both functions are utilised within a food, however, it can be the case that some extracts are sold primarily for their antioxidant properties. In such cases the processing of the rosemary extract can be optimised to enhance the antioxidative function and to reduce that of flavouring. It has been stated by the Standing Committee on Foodstuffs that in such cases these products should be considered as food additives and, as such, require authorisation under Directive 95/2/EC on food additives other than colours and sweeteners."

From the above, based on different extraction processes different target constituents will be obtained. Depending on the process and target constituents the resulting extract can either be used as flavouring or as additive E392. Some Rosemary extracts can have both flavouring as well as antioxidative properties therefore it is the primary function (intended use) in the final food that determines their legal status and their consequent labelling in the final products to the consumer.

If it is used for its antioxidative properties then its intended use is as an additive and it has to comply with the requirements of the Food Additive Regulation.<sup>4,5</sup>

If it is used for its flavouring properties it has to comply with the requirements of the Flavouring Regulation.

## 4. REGULATORY STATUS

In order to determine the correct regulatory status (B2B) of plant extracts 2 factors need to be considered:

- selective extraction/enrichment to obtain technologically active constituents
- intended use in the final food.

Based on recital 5 and Article 2(2) of the Additive Regulation it is EFFA's understanding that for flavouring preparations that have constituents which have been selectively extracted/enriched solely for the purpose of imparting/modifying the flavour of the final food, and manufactured in line with the requirements of Article 3(2)(d) of the Flavouring Regulation can still contain, next to the targeted constituents with aromatic/taste properties, side constituents, which are capable of performing technological functions. These are not considered as additives because their intended function in the final food is for flavouring purpose. The Additive Regulation does not apply as they are falling under the scope of Regulation (EC) No 1334/2008 on flavourings.

However it is also EFFA's understanding that according to Article 2(2), if these flavouring preparations are selectively enriched/extracted to obtain constituents that provide technological functions other than taste/aroma, they may not be considered as flavouring preparations. Such ingredients would be regarded as additives and thus fall under the scope of the Food Additive Regulation.

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<sup>3</sup> EFSA Opinion of 7 March 2008: use of Rosemary Extracts as additive [*The EFSA Journal* (2008) 721, 1-29]

<sup>4</sup> See also Regulation (EU) 231/2012 laying down specifications for food additives listed in Annexes II and III to Regulation (EC) 1333/2008

<sup>5</sup> Note different rules apply for the use of extraction solvents in foods (flavourings) and additives (Directive 2009/32/EC)

## 5. LABELLING AND B2B INFORMATION

For B2B communication the information as required according to Article 15 of the Flavouring Regulation must be provided with particular attention to point 1(g) of the article - an *"indication of the maximum quantity of each component or group of components subject to quantitative limitation in food and/or appropriate information in clear and easily understandable terms enabling the purchaser to comply with this Regulation or other relevant Community law"*.

This is further iterated in Article 8(8) of Regulation (EU) No 1169/2011 that *"Food business operators that supply to other food business operators food not intended for the final consumer or to mass caterers shall ensure that those other food business operators are provided with sufficient information to enable them, where appropriate, to meet their obligations under paragraph 2."*

## CONCLUSION

EFFA does not support the classification and labelling of plant extracts as "flavourings" when these are produced by selective extraction leading to a deliberate enrichment of technologically active constituents that deliver a technological effect in the final food.

In B2B communication it is the obligation of the Flavouring manufacturer to provide all the necessary information to enable the user to determine subsequent labelling of the final consumer product. The intended function of an ingredient in the final food determines the legal status and the consequent labelling of it in the final products to the consumer.

## Disclaimer

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EFFA Secretariat

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