

FLAVOURING OR NATURAL FLAVOURING?

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NOTES OF GUIDANCE TO MAKE THE RIGHT CHOICE IN THE DEVELOPMENT OF HERBAL PREPARATIONS

The use of flavourings by men has always been important in cooking and food as well as in the pharmaceutical field to make food and medicines more palatable.

If it is true that "the more disgusting syrups are, the better they work", it is also true that hiding unpleasant smells and flavours means a more acceptable taste for consumers and therefore, greater success in sales.

In the herbal sector various herbs are used to flavour a preparation, in addition to their normal functions.

A typical example is the use of anise, peppermint and licorice (the list is endless) in herbal teas in association with certain herbs that are not very palatable, but which have spe-

cific properties.

In order to make preparations pleasant, herbs are often used to flavour products technically more developed than herbal teas, such as syrups, powders, chewable tablets and other medicines.

What are the flavourings a chemist has at his disposal to flavour a preparation?

It would be useful to understand only the aspects we are interested in of the legislation concerning herbs, commenting on and expressing concepts through practical examples.

The law which regulates the herbal sector is the Decree no. 107 dated 25/01/92, which relates to the Directive 88/388 of the European Council dated 22/06/88 harmonising legislation of the Member States relating to flavourings, the raw materials used to produce them and their use in food products.

"Aromatic preparations" are products, more or less concentrated, formed by the whole substances obtained from materials of vegetable or animal origin by means of physical process, including distillation and extraction with solvents or by enzymatic or microbiological process.

The article no.8 of this Decree establishes that the word "natural" can only be used for herbs whose flavouring component contains exclusively "natural flavouring herbs" and "aromatic preparations", as defined in article 2 of the same Decree. Even blends of natural flavouring substances and aromatic preparations are considered natural flavouring. The "natural flavouring substances" are chemical substances with flavouring properties, obtained from material of vegetable or animal origin, by means of physical process, including distillation and extraction with solvents or by enzymatic or microbiological process.

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An example of a natural flavouring substance is purified anethol extracted from the essential oil of anise.

Examples of aromatic preparations are: essential oil of anise, soft vanilla extract and gentian dyeing.

As defined in article 8, it is possible to classify as natural flavouring all essential oils, all herbal extracts, more or less concentrated, and also substances such as natural vanillin, natural anethol and natural menthol, isolated and purified from material of vegetable origin.

In addition to natural flavouring substances and aromatic preparations (which we have named natural flavouring), the Decree no. 107 also defines other classes of flavouring, and in particular "non-natural flavouring substances" and "artificial flavouring substances", "processed food flavouring" and "smoking flavouring".

Leaving aside the two last classes of flavouring substances, since they are used exclusively in the food industry, we will completely cover what the Decree establishes for non-natural flavouring substances and artificial flavouring substances (article 2).

The **non-natural flavouring substances** are chemical substances with flavouring properties, obtained from chemical synthesis and chemically identical to substances naturally found in a product of vegetable or animal origin.

The **artificial flavouring substances** are chemical substances with flavouring properties, obtained from chemical synthesis, but which are not chemically identical to substances naturally found in a product of vegetable or animal origin, as such substances have never been found in nature.

Examples of non-natural flavouring substances are anethol, vanillin or menthol, obtained by chemical synthesis and not isolated from vegetable material.

Examples of artificial flavouring substances are ethyl vanillin or ethyl-beta-naphthol, substances synthesized in the laboratory and never found in nature.

Decree no. 109 concerning the labelling of food products, defines the above-mentioned classes of flavouring as "flavouring" and not as "natural flavouring", which are formed, as described above, by natural flavouring substances, aromatic preparations and their association.

At this point we can try to explain how the definitions established by the Decree can be transformed into practical terms.

Let us take for an example the analysis of an essential oil of peppermint, obtained from steam distillation of the plant leaves.

From the analysis, we can see that the essential oil is, for example, made up of 80 different substances, present in specific proportions.

Since it is an aromatic preparation, if we want to use the essential oil of peppermint to flavour a herbal preparation we can state on the label that it is a "natural flavouring" and, in this case, "natural flavouring of mint", as it comes entirely from peppermint.

However it is also possible to obtain a flavouring with an excellent "Mint taste", producing it entirely in laboratory. It is sufficient, for example, to blend only 25 substances (the more typical ones) from the 80 that form the essential oil of peppermint.

In this case, if the 25 substances that form the flavouring are natural flavouring substances, the flavouring is still classified as "natural flavouring". The 25 substances do not have to be isolated from peppermint; it is sufficient that they have been isolated from

material of vegetable origin. The same flavouring, chemically and organoleptically identical to the above, can be produced in the laboratory by blending the 25 substances which have been obtained individually by chemical synthesis.

In this case the label must indicate "flavouring" and not natural flavouring, and the flavouring is defined as "Identical Natural" since it is an imitation of natural flavouring (as in the above case!) made by blending substances present in nature but synthesized in the laboratory.

The same can be said even if only one of the 25 flavouring substances used is not natural. We hope to have explained through these examples and the previous definitions how legislation defines the concept of "Natural".

The stricter naturalists would maybe have preferred that the designation of "natural flavouring" could only be used for aromatic preparations, while the less severe would think that the single natural flavouring substances, their blends or their blends with aromatic preparation offer enough to guarantee the protection of what it is natural. One fact is certain: at the moment Decree no.107 irrefutably

forbids defining "natural flavouring" anything that is not of natural origin.

As we have previously said, if the chemical composition of a non-natural flavouring is identical to the one of a natural flavouring but the raw materials are not natural, the flavouring cannot be considered as natural.

The Decree obliges the producer of flavouring to label each flavouring so that the chemist can understand its exact composition, if it is made up of natural, synthetic, artificial flavouring, aromatic preparations, processed or smoking flavouring, or blends of the classes listed. It is also compulsory to declare if additives (preservatives and coloring....) solvents and diluents permitted for flavouring are present in the product and listed in annex I of the Decree.

All these specific details which have to be compulsory provided by the producer of flavouring will inform the chemist about the naturalness and the validity of the flavouring.

Nowadays, especially in the food sector, the research and the development of new flavourings concentrates on natural products which were wrongly considered until a few years ago as an inferior

product to Identical Natural flavourings.

To confirm what we have said, we can end with an example: it is possible to flavour a herbal preparation in an excellent way even using some aromatic preparations which are usually used for other purposes, maybe transforming them slightly to make them more suitable. It is possible to flavour an aqueous liquid preparation with orange by simply using its essential oil, making it miscible in water.

In fact, it is easily possible to eliminate the terpenes, which are responsible for the immiscibility from the essential oil, by simply dissolving oil in ethanol and lowering the alcoholic content to 60°, under agitation, after adding water.

After a period of rest, the terpenes will separate on the surface and they will move away from each other, and therefore we will have obtained a natural orange flavouring, perfectly miscible in the aqueous preparation.

Who could have said that we would obtain a wonderful "muscat" natural flavouring from a soft extract of the well-known elder tree flowers, produced in the laboratory?

Trying is believing!