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## FLAVOURING THE WORLD. THE FAQ ABOUT SPICES

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Frequently Ask Questions about Spices Ver. 1.0 (Dec. 16, 1995)

Changes since last version

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1 INTRODUCTION

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This FAQ describes basic facts about spices: their nature, storage, and use.

This FAQ is posted montly to the following newsgroups:  
rec.food.cooking, rec.food.veg, rec.food.preserving, rec.answers, and  
news.answers.

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## 2 SPICES

### 2.1 What are spices

Spices are the various strongly flavoured or aromatic substances of vegetable origin, commonly used as condiments or employed for other purposes on account of their fragrance and preservation qualities [1].

### 2.2 Why are spices so tasty?

Spices have two main components [2]:

- \* Volatile oils. Also known as essential oils, they are responsible for the characteristic aroma of spices.
- \* Oleoresins, or non volatile extracts, which are responsible for the typical taste and flavour.

## 2.3 What are some uses of spices (excluding the kitchen)

Some examples on the use of spices:

- \* Antioxygenic properties. Some spices retard the oxydation of fat.
- \* Preserving action. Some spices contain essential oils that are toxic to microorganisms [2]:
  - + Cloves contain plenty of essential oil (15 to 20%); its main component --eugenol, 80 to 92%-- inhibits the growth of microorganisms.
  - + At normal growth temperatures, the mustard's essential oil is toxic to microorganism.
- \* Antimicrobial activity. Black pepper, garlic, cinnamon, nutmeg, cloves, ginger, cumin, and caraway amongst others, are used in India for correcting and a variety of intestinal disorders [2]. In a study, Subrahmanyam, et.al [3] reported the susceptibilities of E. coli to garlic: at a concentration of 20 mg/ml of garlic, the number of organisms per ml. were 17, 22, and 300 after 0, 6, and 24 hrs. respectively; for the same periods, at a concentration of 0 mg/ml, the results were: 17, 3600, and 16800.
- \* Perfumery and cosmetics.
  - + Oils from cardamon, cumin, celery, chive, juniper, and nutmeg are used in different types of perfume [2].
  - + The oil of cinnamon, dill seed, fennel seed, and nutmeg are used in scenting soaps, dental preparations, hair lotions, and others [2].

## 3 PEPPER

### 3.1 What is black pepper?

Black pepper is the whole dried immature fruit of the *Piper nigrum*.

### 3.2 Where is pepper native from?

It is native of the Western Ghats in India, where it is still restricted as a wild plant. Nowadays, it can also be found growing wild in north Burma and the hills of Assam.

### 3.3 Where the name pepper comes from

It is believed that the name comes from the Sanskrit *pippali*, which was the name of the long pepper, *P. longum*, which is now never seen in Europe.

### 3.4 What is green pepper?

It is unripe, but fully developed, pepper which is artificially dried or preserved in ``wet'' form, e.g. brine, vinegar, citric acid.

### 3.5 What is white pepper?

According to Pruthi [2], there are several methods to prepare it:

#### 1. Water steeping and rotting technique

- + From ripening fresh berries. It is the oldest method. Fresh berries are harvested when one or two berries start turning yellow or red. They are submerged for several days, at the eleventh the skin is removed by hand or mechanical methods. The berries --without skin-- are washed and immerse in a bleaching solution. After 2 days, then they are washed and dried.
- + From dried berries. Pepper berries are dried for 7 to 10

days, then submerged for one or two weeks. Again they are washed, bleached, washed and dried.

2. Steaming. Ripening green berries are steamed for 10 to 15 minutes, then a machine removes the skin. Also, the berries are treated with a bleaching solution, then washed and dried.
3. Decortication technique (also known as decorticated pepper) . Created by decortication machines that remove the skin of the dried black peppercorns.

### 3.6 Are there any differences between white and black pepper?

The only significant difference between white and black pepper is in starch and fiber content. The belief that white pepper is milder in flavour than black pepper does not seem to be confirmed by the scientific data [2]. However, there are some differences in pungency --of black and white pepper-- due to geographical origin.

### 3.7 Storage

Pepper can be washed and re-dried before grinding. Store away from sunlight at moderate temperatures and low humidity. Only grinded pepper needs to be stored in sealed containers.

Pepper loses more volatile oils the finer it is grinded.

## 4 CINNAMON

Dried bark of *Cinnamomum verum* (syn. *C. zeylanicm*).

### 4.1 Where does Cinnamon come from?

It is indigenous in Sri Lanka, which still produces the largest quantity and best quality. Seychelles is the second largest producer.

## 5 VANILLA

Vanilla is the fully grown fruit of the orchid *Vanilla fragrans* harvested before it is fully ripe; then it is fermented and cured. The fruits are usually referred to as vanilla beans [4]. Vanilla production is regulated by ISO standard 5565.

### 5.1 Where does Vanilla come from?

Vanilla is native to Mexico, Guatemala and other parts of Central America. At the present time, it grows also in Madagascar, the Seychelles, Tahiti, Réunion and other tropical areas[5]. The first recorded use of the spice in European literature dates back to 1520, when Moctezuma II offered vanilla flavoured chocolate to Hernán Cortés. However, the use of *tlilxochitl* (Nahuatl for vanilla) is earlier documented in the precolumbian literature.

### 5.2 What is Vanillin?

Vanillin is a crystalline phenolic aldehyde  $C_8H_8O_3$  that is the chief fragrant component of vanilla and is used especially in flavouring and in perfumery [6].

Vanillin can now be produced synthetically, and it is much cheaper than natural vanilla.

### 5.3 Products

#### 5.3.1 WHAT IS VANILLA EXTRACT?

Vanilla extract is obtained by macerating the cured beans in a solution of water and alcohol. It might contain sugar or glycerine as sweeteners or thickeners [4].

Conventional vanilla extracts have a minimum ethanol content of 35%, and contain the soluble extractives from 1 part by weight of vanilla beans in 10 parts by volume of hydroalcoholic solution. [4].

#### 5.3.2 HOW DO I DIFFERENTIATE BETWEEN REAL AND UNREAL VANILLA EXTRACT?

``The two best indicators of pure vanilla extract are alcohol content and price. The alcohol content must be at least 35%; synthetics usually have no alcohol or at most, about 2%. Any purchases that cost less than US\$25.00 a quart are most likely synthetic.''[7]

#### 5.3.3 WHAT IS VANILLA FLAVOURING?

Ê It is similar to vanilla extract (see 5.3.1) but contains less than 35% of ethanol per volume.

#### 5.3.4 WHAT IS VANILLA TINCTURE?

It is used exclusively in pharmaceutical applications. It is prepared by maceration from 1 part of vanilla beans by weight to 10 parts of hydroalcoholic solution and contains added sugar. It differs from vanilla extract (see 5.3.1) by having at least a 38% ethanol content.

#### 5.3.5 WHAT IS CONCENTRATED VANILLA EXTRACT AND CONCENTRATED VANILLA FLAVOURING?

They are prepared by removing the solvent from their regular counterparts (see 5.3.1, 5.3.3).

#### 5.3.6 WHAT IS VANILLA OLEORESIN?

It is a semi-solid concentrate obtained by removing the solvent from the vanilla extract. A solution of isopropanol is frequently used instead of ethanol for the maceration. Vanilla oleoresin has lost part

of its aroma --hence its flavour-- during the removal of the solvent.

#### 5.3.7 WHAT IS VANILLA POWDER?

È Powdered vanilla beans. It might be pure, but normally it is adulterated with vanilla oleoresin, sugar, food starch, or gum acacia.

#### 5.3.8 WHAT IS VANILLA-VANILLIN EXTRACT FLAVOURING AND POWDER?

A combination of synthetic vanillin and vanilla oleoresin to create extract and flavouring (see 5.3.1, 5.3.3, 5.3.7).

#### 5.3.9 WHAT IS PERFUMERY VANILLA TINCTURE?

Similar to vanilla extract (see 5.3.1) but prepared with perfumery alcohol, with near 90% ethanol content. It is not intended for consumption.

#### 5.3.10 WHAT IS VANILLA ABSOLUTE?

It is the most concentrated form of vanilla. ``It is 7-13 times stronger than good-quality vanilla beans but it has less well-rounded character'' [4].

### 5.4 Major types of Vanilla

#### 5.4.1 WHAT ARE VANILLA SPLITS?

Whole bean that burst open during fermentation, and are frosted with vanillin crystals [8].

#### 5.4.2 WHAT ARE VANILLA CUTS?

Beans that have been cut into pieces to accelerate the curing process.

This category might include small beans.

#### 5.4.3 WHAT IS MEXICAN VANILLA?

It is supplied in 5 grades (or 7 if intermediate grades are included) of whole beans and in the form of cuts. The top grades of Mexican beans are rarely ``frosted'' with a surface coating of naturally exuded vanillin.[4]

#### 5.4.4 WHAT IS BOURBON VANILLA?

``It has a deeper `body' flavour than Mexican vanilla, but less fine aroma'' [4]. It is produced in Madagascar, the Comoro Islands and Reunion.

#### 5.4.5 WHAT IS INDONESIAN VANILLA?

The main source of Indonesian vanilla is Java. ``Java vanilla possesses a deep, full-bodied flavour and is frequently used for blending with synthetic vanillin'' [4]

#### 5.4.6 WHAT IS SOUTH AMERICAN OR WEST INDIAN VANILLA?

More similar in properties to Bourbon than to Mexican vanilla.

#### 5.4.7 WHAT IS TAHITI VANILLA?

It is obtained from *V. tahitensis* and ``possesses a characteristic aromatic odour and usually has a lower vanillin content than true vanilla.'' [4]. It generally has less flavour than true vanilla.

#### 5.4.8 WHAT IS VANILLONS (GUADELOUPE VANILLA OR ANTILLES VANILLA)?

It is obtained from *V. pompona*. ``Vanillons has a low vanillin content

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and possesses a characteristic floral aroma, bearing similarities to Tahiti vanilla'' [4]. It has a poor flavour and it is normally used in perfumery.

## 5.5 For the do-it-yourselfer

### 5.5.1 HOW DO I PREPARE VANILLA EXTRACT?

Juan San Mames shared the following recipe [9]:

Use one vanilla bean for every 120 ml. of any clear liquor (vodka preferably). With a knife, split the bean open (always put your finger behind the knife). If the bean is hard, just break it into pieces. Then put the bean in the liquor.

Close the bottle and leave it for about two weeks or until the vanilla bean aroma begins to come through.

When you use the extract, if you don't want the vanilla seeds to show with the ingredients, use a coffee filter. You can return the seeds to the bottle. If you make ice cream, you may want to show the seeds in the finished ice cream.

Bruce Steinberg added [10]:

You can shake the bottle several times a week to accelerate the extraction. Brandy may also be used for interesting variations.

According to US regulations, 1 l. of vanilla extract must contain a minimum of 100 gr. of vanilla beans (I reckon that each regular size complete bean must weight between 3 and 5 gr.) of no more or 25% moisture content. Commercial extracts also include sugar and glycerine, to help to ``fix'' the aroma [4].

#### 5.5.2 HOW DO I PREPARE VANILLA SUGAR?

Store 1 or 2 vanilla beans on an air-tight jar of granulated sugar. Allow one month for the flavour to permeate. If the beans are always topped with sugar, the beans last for years. Use this sugar in sweet dishes.[5]

Storage temperature can be raised to 15-21 ^OC without detriment to the flavour quality of the beans.[4]

#### 5.5.3 HOW DO I STORE MY CURED VANILLA BEANS?

Vanilla beans should be stored in open containers at a temperature of about 10 C at a low humidity [11]

#### 5.5.4 HOW DO I USE VANILLA IN MY KITCHEN?

Use vanilla sugar to give a nice flavour to your drinks. It also enhances the flavour of chocolate [5].

Almost any sweet dish will improve its flavour with a touch of vanilla extract.

#### 5.6 Further information

An excellent treatment of the topic can be found at [4].

The Vanilla Information Hotline is available at 408/457-0902 (or fax at 408/457-2521) for any vanilla questions, to request a basic vanilla FAQ (by fax or snail mail), or to get further info on ordering Tahitian and Bourbon beans, extracts, or "The Vanilla Cookbook" itself.

#### 6 SAFFRON

6.1 What is saffron?

Saffron is the dried stigmas of the crocus sativus. It is of orange color and has a strong perfume and a bitter taste. Saffron production is regulated by ISO with standard 3632.

6.2 Why is saffron so expensive?

Every plant has on average 3 flowers; each flower only 3 stigmas. It takes between 200,000 and 300,000 stigmas to make 1 kg. of saffron [5]. Pure saffron, however, has a strong flavour and a pinch is sufficient for most dishes.

Avoid buying powdered saffron, it might be adulterated.

6.3 Why should I not use wooden utensils to work with saffron?

Wood has an absorbing property. Since saffron is expensive you don't want to waste it.

6.4 What is Mexican saffron?

Mexican saffron is the flower of Carthamus tinctorius L. which is an annual herb grown in the temperate regions of Central Mexico. Its quality is quite inferior to real saffron but it has similar coloring properties. It is far cheaper.

6.5 How do I store saffron?

Saffron is sensitive to light and moisture. Keep it in a dark container away from sunlight.

6.6 Where is saffron native from?

It is believed that it is native of both Greece, and Asia Minor.

## 6.7 Further information

Vanilla, Saffron Imports prints a pamphlet called Cooking and & with Saffron, they also have a WWW page ( <http://www.saffron.com/> ) with some facts about saffron, including a photospectrometry report. They can be reached at ``Vanilla Saffron Imports, 949 Valencia Street, San Francisco, CA 94110''.

## 7 WHAT IS CORIANDER/CILANTRO/CHINESE PARSLEY?

Coriander is the common name for coriandrum sativum (fam. umbelliferae). It is an annual plant similar to parsley. It has erect, furrowed solid, branched stems. The alternate bright green leaves are pinnate or bipinnate, the lower ones are broader leaflets than the upper ones, which are finely divided. Coriander seeds are cream to brown spheres of 1-1.5 mm. in diameter. In the culinary argot, it is common to refer to the plant as cilantro and to the seeds as coriander.

### 7.1 How do I store cilantro?

Different people have suggested different methods. Here is a list of the most common ones.

- \* ``bouquet'' in the fridge. Cover loosely with plastic.
- \* ``bouquet'' in the window.
- \* ``airtight container'' in the fridge.
- \* ``wrapping'' in damp towels, inside a plastic bag.

Sophie Laplante ([sophie@cs.uchicago.edu](mailto:sophie@cs.uchicago.edu)) performed some experiments on these different methods for storing cilantro. She found that the

airtight container seemed to keep it edible[sic] for the longest time (3 weeks).

## 8 OTHER SPICES

### 8.1 Is there any substitute to coconut milk?

You can probably find coconut milk in an Asian store, either in liquid or powdered form. If you have no other choice, you can follow this recipe [12]:

- \* Take a handful of shredded coconut and pack it in the bottom of a bowl.
- \* Pour boiling (and I mean a really boiling) water just to cover the packed coconut and let stand until the water is cool.
- \* Strain the coconut shreds and press them in the bottom of the strainer get as much liquid as possible.

The liquid is very close to coconut milk and will impart the flavor very well.

## 9 STORING SPICES

### 9.1 Bay leaves

Bay leaves lose approximately 30% of their volatile oil and 40-60% of their chlorophyll during one year of storage. A good way to evaluate the quality of the leaf is to determine how bright its color is.

### 9.2 Ground spices

Ground spices, with greater surface exposed, tend to lose their volatile oils. They also deteriorate faster than whole spices.

The needs for packaging vary from spice to spice. In general, follow the next guidelines:

- \* Use dark, air tight containers.
- \* Fill the container as much as you can.
- \* Avoid buying ground spices. Grind them yourself using a mortar.

## 10 OTHERS

### 10.1 Disclaimer

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### 10.2 List of Contributors

- \* Hall, Andrew S. <ashall@magnus.acs.ohio-state.edu>, for his recipe to prepare coconut milk.
- \* Laplante, Sophie <sophie@cs.uchicago.edu>, for her research on cilantro storage.
- \* Pforzheimer, Andy <apforz@pfood.win.net>, for his corrections regarding vanilla extract and vanilla splits.
- \* San Mames, Juan <VMPK89A@prodigy.com>, for sharing his knowledge regarding vanilla.
- \* Stafford, Maureen <stafford@csg.uwaterloo.ca>, for proofreading the first draft (version 0.1) of this document.
- \* Steinberg, Bruce <bruces.com>, for his comments on how to prepare vanilla extract.

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Daniel M. German                    "My friends would think I was a nut,  
Peter Gabriel -->                turning water into wine"

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