ROSEMARY EXTRACT

RANGE PRODUCTS

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INTRODUCTION

Rancidity

The term "rancidity" is often used in a general sense to designate the development of any disagreeable odour and flavour in fats, oils or fatty phases of foods. These changes are produced by chemical reactions such as oxidation and hydrolysis. Prevention of "rancidity" is an important consideration in the processing, preparation and storage of many foods.

Obviously any product which contains fats, even in small doses, is susceptible to rancidness. As an example of the variety of foods to which we refer we can consider: cooked foods, crackers, breakfast cereals, butter, cheese, whole dried milk and eggs, solid and liquid fats, etc.

During the refining process the labile antioxidant components in vegetable oils and fats (mainly tocopherals and its derivatives) are destroyed. Due to this, the oils and fats suffer oxidation. This becomes worse in the case of animal fats which cannot even count on the protection of natural antioxidants.

We can distinguish four types of "rancidity" in fats:

- Hydrolytic rancidity – Caused by the action of the lipases on the fats producing free fatty acids and glycerol. Hydrolytic rancidity is particularly important in butter and products containing milk fat. Since lipase is destroyed by the heat, this type of rancidity is often found in products that are not heated to a high temperature during processing.
- Oxidative Rancidity – This involves the spontaneous taking up of O_2 by unsaturated fatty acids, with the consequent oxidation of the fat. The oxidized fats cause destruction of certain fat soluble vitamins and carotenes.
- Enzymatic Oxidations – Produced by the activity of the lipoxidase which catalyses the peroxidation of unsaturated fatty acids.

Antioxidants

All that has been previously said brings us to the need of using antioxidants in fats, crude oils, fatty foods, etc with the aim of increasing their stability during processing and improving their preservation. To prevent oxidation of cosmetics containing oils and fats it is also necessary the use of antioxidants.

Antioxidants may be divided broadly into two groups: Primary antioxidants and synergists.

- The primary antioxidants operate directly to inhibit autoxidation and are usually made up of polyphanelic compounds which work by donating a hydrogen to the free radical oxidizing fatty acid. Butilhydroxyanisole (BHA) and Butilhydroxtoluene (BHT) are two of the most widely used antioxidants. However, the use of these antioxidants tends towards to decrease beacuase of the existence of some studies about their toxicity.

- Synergists are compounds that by themselves have little effect on the oxidation of fat but they enhance or prolong the antioxidant action of primary antioxidants. They are usually acidic in character. They may act by regenerating primary antioxidants by binding prooxidant metallic ions, or by inhibiting decomposition of hydroperoxides.

Since BORDANTIX is an antioxidant derived from the Rosemary Plant, it has various components with antioxigenic properties. This characteristic causes an additional antioxidant capacity of the constituents themselves and enhances the synergistic effect caused by XXXXXXXXXXXX Due to this, BORDANTIX has an antioxidative acitivity comparable to other synthetic and natural antioxidants available on the market.

As we will prove, it also has and excellent heat stability and remains stable during the most drastic methods employed in the refinement of fats. One of advantages of BORDANTIX over a-Tocopherol and its derivatives, one of the most important natural antioxidants, is the low stability of Tocopherols, which make them difficult to handle.

BORDANTIX offers advantages over phenolic antioxidants, as BHT and BHA, for stabilizing fats and crude oils, apart from the advantages of using a natural product compared with a synthetic product whose use is very restricted as there are still doubts about its safety.

Description:	BORDANTIX POWDER is a natural extract of rosemary, *Rosmarinus officinalis*, of Spanish origin from which nearly all the chlorophyll and all of the characteristic Rosemary odour and flavour has been removed. There is a faint note to cooked herbs which is completely unperceptible at the dosification levels used in its application.	
Composition:	Natural antioxidative substances present in the extract: • Rosmarinic Acid • Carnosic Acid • Rosmaridiguinono • Rosmaridiphenol • Carnosol • Rosmanol	
Stability:	It has an excellent heat stability and does not contain substances dragged by steam. This characteristic makes it extremely suitable for use at the processing temperatures of some food (frying and cooking), ensuring the necessary protection of the processed foods during a long shelf life.	
Specifications:	Appearance:	Yellow to light green powder.
	Water Content:	Less than 3%
	Bulk Density:	Approx. 0.35 – 0.45 g/ml
	Heavy Metals:	Less than 10 ppm (as Pb)
	T.V.C:	Max. 1000 cfu/g
	E Coli:	Not Detected in 1g
	Residual Solvent:	Not Present.
Legislation:	Classification:	100% natural product
	CAS No:	84604-14-8
	FDA 21 CFR:	182.20
	FEMA-GRAS:	2992
	Cof:	List 1 No 406
Application Uses:	Bordantix Powder is more effective when applied before oxidation process begins. For application of Bordantix Powder into oil, a presolution has to be prepared (max dispersion into oil 5%). To prepare the solution heat the oil till 70-80^{O}C and add Bordantix Powder. Afterwards Bordantix Powder has to be completely dispersed into the oil with vigorous stirring during 30 min. This solution has to be added to total oil. This antioxidant can also be used by dispersion in the aromas (essential oils etc.) or spices which are to be used in the foods and by "spray" treatment, previously dissolved in a vegetable oil or an animal fat. This technique is specially recommended when the oxidation takes place on the surface of the foods or is they possess an irregular shape.	

Typical Doses:

Foods	Description	Typical Dose
Fish Products	Fresh Seafood Salted or Dried Seafood Refrigerated Seafood	Dissolve in the soaking solution and soak seafood.
Processed Meat Products	Sausage, Salami Sausage, etc.	Add to raw material and knead.
Oil-Fried Products	Doughnut, pie, instant noodle, snacks, etc.	Add to oil or fat.
Oil & Fat Products	Dressing, Mayonnaise, Margarine, etc.	Add before mixing.
Biscuits	Fried Rice Biscuits, Peanut Butter, Flour Paste, etc.	Add to raw material and knead.
Freeze-dried Products	Freeze-dried soy bean curds, vegetables, seafood, meat, etc.	Add to raw material or freeze dry after soaking in a solution.
Seasoning	Powdered soup, Canned Soup, etc.	Add before mixing.
Drinks	Coffee, Protection of Flavour in Fruit Juices.	Add before mixing.

Packing & Storage

Packing: In kraft board drums with polybag inside of 25 kg nett weight.
Storage: In full and well closed containers and stored in a cool ($25^{O}C$), dark and dry place.
Shelf Life: In original sealed containers 1 year stored in mentioned conditions. When opened, carefully seal polybag.