NATAMYCIN

THE INTRODUCTION OF NATAMYCIN

1. INTRODUCTION :

a) Natamycin (INN) , also known as Pimaricin, is a naturally occurring Antifungal agent produced during fermentation by the Bacterium Streptomyces Natalensis, commonly found in soil .

b) Natamycin is classified as a Macrolide Polyene Antifungal and, as a Drug, is used to treat Fungal Keratitis.

c) In China, Natamycin was approved as Food Preservative in 1996 and could be used in Cheese, Meat food, Guangdong-flavor-moon cakes, Cake surface, Fruit juices and easily-mouldy food processing devices etc.

d) Natamycin is approved for use by the FDA and has been widely used in Europe for over 35 years . ADI (Acceptable daily Intake) is 0.0 mg. to 0.3 mg. / Kg. (FAO / WHO, 1994)

2. THE PROPERTIES :

a) It is the **Sole Antifungal** food **Bio-Preservative** approved in the world, which could inhibits the growth of Moulds and Yeasts broadly and high-effectively and is safe to Human Body.

b) The use of Natamycin **does not change** the Nutritional value, Appearance, Flavor and Texture of Foods. Until now, Natamycin has been approved as Food preservative in more than 40 countries and applied widely in Cheese, Meat Food, Cakes, Fruit juice / Sauce / Salad, Salted products and other foods.

c) The residue of Natamycin is less than 10mg/kg.

d) Animal studies on Rabbits, Dogs and Cows indicate that Natamycin has no toxic effects even at high levels of ingestion . In addition, Natamycin was found to have no reproductive or matagenic qualities.

3. THE ADVANTAGES :

a) It extends the Shelf Life of the Food and save the Logistic Cost.

b) It can successfully prevents the growth of potentially harmful Molds and Yeasts .

c) It has no Color , Smell and Taste.

d) It has no influence on Taste , Flavor, Color or Foodstuff.
It has no adverse flavour to Foods (Unlike Sorbic acid which can impart a bitter taste). It has stronger inhibitability compared to Sorbic Acid .

e) It has high efficacy at low concentrations, Replacement or chemicals preservatives.
It does not act against Bacteria – unlike Sorbic Acid . This makes it useful for Food Products such as Cheese and dry sausages in which Bacteria are key to the ripening process .
It meets the consumers demand for Food Preserved with natural ingredients.

f) It has extra safety for consumers due to no reported Allergic or Sensory reactions.

g) It reduces product (Food Product) being recalled resulting from Spoilage (and reduces manufacturing costs)

4. ANTIFUNGAL MECHANISM :

The Antifungal Mechanism of Natamycin is:

The Natamycin could bind the sterols in the cell membrane, and cause the distortion and malfunction of the membrane, whereby essential metabolites leak out and the cell dead. Without these structures (Metabolites) , the fungal cells can not servive .

However, Natamycin could not inhibit the growth of bacteria because it has no sterols exist in the bacterial cell wall and cell membrane.

Generally speaking, 1.0 mg. to 10.0 mg. / Kg. Natamycin is effective enough inhibit the growth of Mould and Yeast , yet the application amount of Sorbic acid is 500 mg. / Kg.

5. SAFETY AND TOXICITY :

Natamycin is nontoxic to human bodies, and no any carcinogenesis, mutagenesis or hypersensitivity reaction (HSR) was observed after its use. Natamycin could not be absorbed in mammalian alimentary canal.

No normal resistance of Moulds and Yeasts to Natamycin was not observed. ADI (Acceptable daily Intake) is 0.0 mg. to 0.3 mg. / Kg.
(FAO / WHO, 1994)

Natamycin is deemed to be a GRAS (Generally Recognized as Safe) substance in USA , and is assigned to be the number E-235- natural preservative in European Union.

6. DIRECTION AND RECOMMENDED USAGE :

The recommended dosage depends on the number of viable yeasts . Natamycin should be diluted 50 or 100 times with juice or wine before addition and then mixed with the juice or wine equably.

Spray Natamycin 4.0 gm. / Lit. suspended solution on the surface of the Meat or dip Meat into the solution. It can prevent the Mould .

If used in Cheese, there are two Methods to prevent the Mould :

1. Dip the piece of the Cheese.

2. Spray on the surface of the Cheese

If choose Dipping and Spraying method, the recommended usage is 5.0 gm. / Lit. Natamycin suspended solution .