NATAP® NATALAC® NATASAN™

High-soluble Natamycin | Natamycin-Lactose Blends | Natamycin Coating

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NATURAL YEAST & MOLD INHIBITOR

Fungus in food is a major challenge for global food manufacturers. Natamycin is permitted worldwide as a highly effective antifungal solution. Unlike most antimicrobials, Natamycin is effective at low concentrations and active over a wide pH range (3-9). Because natamycin is used at very low dosage(1-10 ppm), the cost-in-use may be comparable to synthetic preservatives and significantly lower than other natural inhibitors.

Natap® presents the highest standards of pure soluble Natamycin confirming to E235, it minimizes dosage and residues as health food additive. Natalac® is a classic, well-known brand of natamycin as active ingredients for dairy industry. And Natasan™ is a perfect Natamycin coating to form complete surface treatment for solid foods.

Key benefits

- Yeast and mold inhibition
- Shelf life extension
- Cost-efficiency
- Green label

Brand

NATAP®
High-soluble Natamycin

NATALAC®
Natamycin-Lactose blends

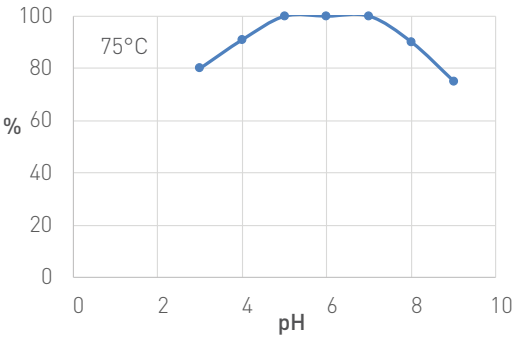
NATASAN®
Natamycin Coating

Natap® Minimum inhibitory concentration

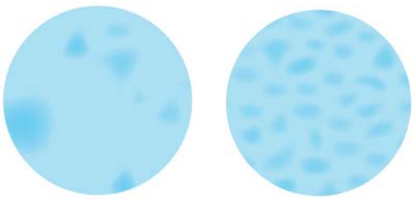
Target organismes	MIC (mg/kg)
Molds	
Aspergillus sp.	1-5.0
Botrytis cinerea	1-25
Fusarium sp.	10
Gtoeospodum album	2.5
Mucor mucedo	1.2-5
Penicillium sp.	0.6-13
Rhizopus oryzae 4758	10
Yeasts	
Brettanomyces bruxellensis	1.5
Candida sp.	1.5～2.0
Hansenula polymorpha	1.0
Kloeckera apiculata	3.0
Saccharomyces sp.	1.-5.0
Torulopsis Sp.	2.0-3.0

NATAP®
High soluble natamycin

Stability
Natap® is stable and effective between pH 3-9, at 75 °C, the experimental studies also show that Natap® can endure 100°C for 5 minutes.



Solubility
Conventional natamycin has a low solubility and rapid sediments in liquid, therefore reducing effectiveness when applied on or in foods. Innovative Natap® has a higher solubility and dense distribution by minimizing natamycin crystal size.



Conventional natamycin

Natap®

Table 1 Natap® applications

Ingredients		Applications	Diagnosis	Dosage
NataP®	Breads and rolls	Bread	Growth of mold	1-5 μg/cm²
	Cookies	Crumpets, flapjacks, and pikelets		
	Dough products	Pastry (moon cakes)		
	Juice	Grape juice, apple juice	Yeast fermentation	40-60 mg/L
		Orange juice	Growth of mold and yeast	25 mg/L
	Alcoholic drinks	Fermented wine	Growth of *Brettanomyces*	40 mg/L
	Condiment	Salad dressings	Growth of mold and yeast	20 mg/kg
	Dairy products	Dairy desserts, dips and snacks	Growth of mold and yeast	20 mg/kg
	Cheese	Soft to hard cheese	Growth of mold	40 mg/kg
	Fermented milk	Yogurt	Overgrowth of yeast	10 mg/kg
	Fresh fruits	Banana	Fungal diseases	25 mg/kg
		Pineapple	Fungal diseases	400 mg/kg
		Orange	Growth of mold	200 mg/kg
	Fresh vegetables	Mushroom	Dry Bubble Disease	100 mg/kg
	Processed fruits	Fruit and vegetable preparations	Growth of mold	40 mg/kg
	Dried meat	Dry, cured sausage	Growth of mold	40 mg/kg
	Fermented meat	High-acid fermented sausage		40 mg/kg
	Cooked cured meat	Fried meat, barbecue, sausage, ham		40 mg/kg

Bread
Mold growth occurs in a few days in humid condition during the storage of bread. Study shows that adding 2μg/cm² Natap® is effective to control the mold growth.

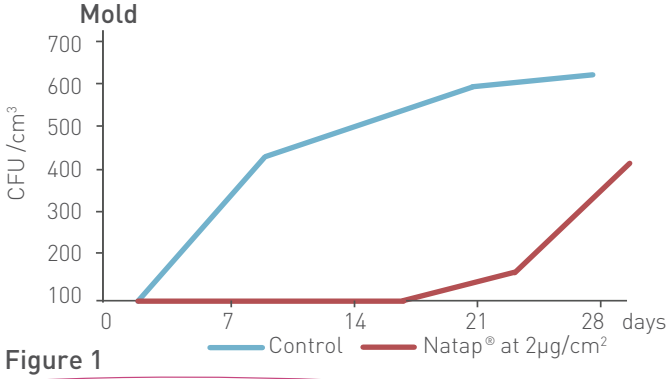


Figure 1

Sausages
Mold growth on the surface of sausages is generally undesired. Figure 2 shows that Natap® at 100mg/kg is efficient in the suppression of mold growth on dry sausage.

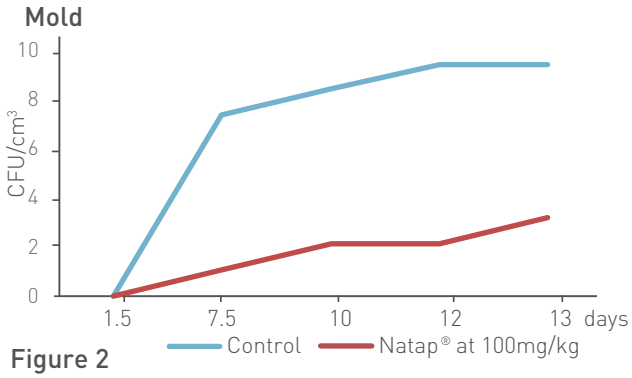


Figure 2

NATALAC®

Natamycin-Lactose Blends

Yeast and mold are a major cause of spoilage of dairy, Natalac® is a classic, well-known inhibitor worldwide that has been upgraded to high-soluble natamycin as active ingredient, and further to increase its antifungal efficacy and save the cost-in-use for dairy industry.

Table 1 Natalac® applications

Ingredients	Applications	Diagnosis	Dosage
Natalac®	Dairy products	Dairy desserts, dips and snacks	Growth of mold and yeast	20 mg/kg
	Cheese	Soft to hard cheese	Growth of mold	40 mg/kg
	Fermented milk	Yogurt	Overgrowth of yeast	10 mg/kg

Yogurt

Figure 3 shows that 10 mg/kg Natalac® or 5 mg/kg Natap® was added in yogurt, yeast and mold were completely inhibited.

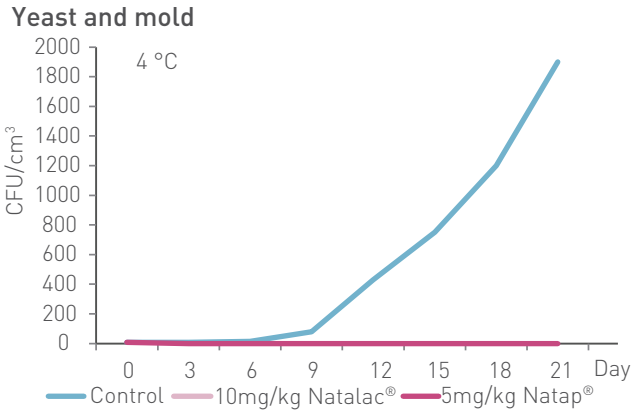


Figure 3

Semi-hard cheese

Figure 4 shows that 20mg/kg Natalac® or 10mg/kg Natap® effectively inhibits the growth of total yeasts and molds on semi-hard cheese.

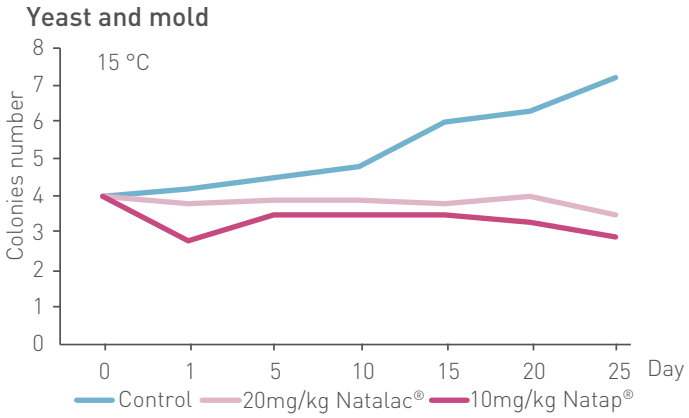


Figure 4

NATASAN™

Natamycin Coating

Mold growth occurs on the surface of foods. Natamycin, in the form of dense crystal, does not have the ability to cover food surface for exerting antifungal activities. Natasan™ is a perfect Natamycin coating by minimizing the natamycin crystal linked though mushroom juice power to form transparent, ultra-thin mesh coating suitable for food surface treatment.

Table 1 Natasan™ applications

Ingredients	Applications	Diagnosis	Dosage
Natasan™	Fresh fruits	Apple	Growth of blue mold	25 mg/kg
		Banana	Growth of crown mold	200 mg/kg
		Pineapple	Fungal diseases	400 mg/kg
		Orange	Growth of grey and blue mold	200 mg/kg
	Fresh vegetables	Mushroom	Dry Bubble Disease	100 mg/kg
	Dried meat	Dry, cured sausage	Growth of mold	40 mg/kg

Orange

Green mold disease of orange, caused by *Penicillium* sp., can cause extensive postharvest losses. Figure 5 shows that application of Natasan™ concentrations significantly decreased decay rate.

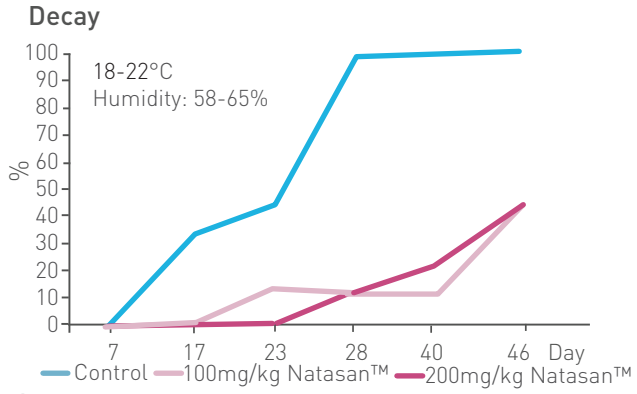


Figure 5

Banana

Crown rot disease of bananas, caused by *Colletotrichum musae*,*Fusarium* spp. and *Lasiodiplodia theobromae* can cause extensive postharvest losses. Figure 6 shows that application of Natasan™ concentrations significantly decreased disease severity.

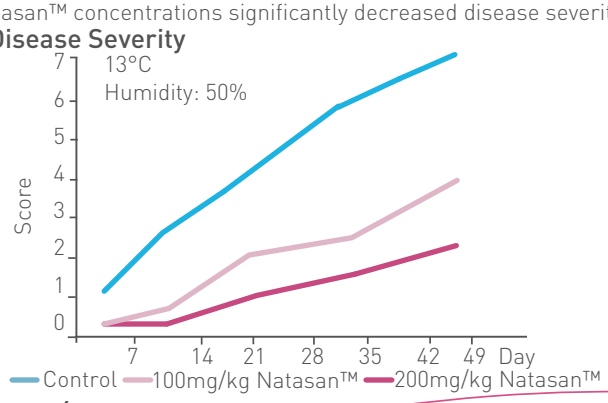


Figure 6