

CHITOLY™

FUNGAL CHITOSAN



05

Key benefits

- Growth control of fungi, gram-positive and gram-negative bacteria
- Delay of rancidity, browning and ascorbic acid degradation
- Shelf life extension
- Clean-label

MULTI-FUNCTIONAL ANTIMICROBIAL POLYMER FROM MUSHROOM

The growing consumer demand for foods without chemical preservatives has caused all efforts to focus in on the discovery of new natural ingredients. Fungal chitosan is a natural polymer derived from the cell walls of mushroom and has been accepted as aid-processing additive of natural origin.

Chitoly™ AB is a kind of water-insoluble fungal chitosan extracted from *Agaricus bisporus*, and Chitoly™ OM is a kind of water-soluble chitosan extracted from *Pleurotus ostreatus*. Both are can be used as aid-processing polymer to reduce quality loss caused by microbial spoilage, enzymatic or non-enzymatic browning and quick degradation of vitamins during the shelf-life of fresh fruit, vegetable, juice and meat products.

Brands



CHITOLY™ AB
Water-insoluble fungal chitosan



CHITOLY™ OM
Water-insoluble fungal chitosan



Table 1. Applications

Applications		Chitoly™ AB	Chitoly™ OM	Key benefits	
Food categories	Typical cases				
Beverages	Juice	Fresh orange juice	0.12 g/L	Delay rancidity, stabilize anthocyanins and reduce Ascorbic acid degradation	
		Fresh apple juice	0.15 g/L		
		Fresh carrot juice	0.20 g/L		
Culinary	Condiments	Soy sauce	0.1 g/kg	Control yeast fermentation	
Fruits and vegetables	Fresh fruits	Oranges, lemons		5-10 mg/kg	Prevent rot
		Apples, pears		3-10 mg/kg	
		Peach, apricot		10 mg/kg	
		Cherries, lychee		5-10 mg/kg	
		Nectarine		5-10 mg/kg	
		Fig		4-10 mg/kg	
		Avocado, mango		10-20 mg/kg	
		Strawberries		5-10 mg/kg	
		Grape		3-10 mg/kg	
		Tomato		2-10 mg/kg	
		Melon		5-20 mg/kg	
Meat, poultry and seafood	Cooked cured meat	Sausages	0.1-0.3g/kg	Prevent microbial spoilage and fat oxidation	

Case 1: Fresh orange juice

Figure 1 shows that addition of Chitoly™ AB significantly affects the aerobic counts of orange juice (linear and quadratic effects), resulting in a positive effect for the extension of the shelf-life.

Aerobic counts

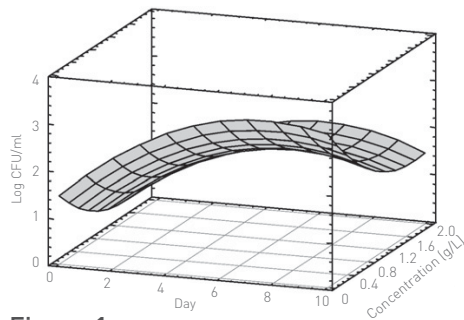


Figure 1

Figure 2 shows that with lower or without Chitoly™ AB the browning potential increased rapidly over storage time, while it remained almost constant in samples with higher chitosan concentration.

Browning

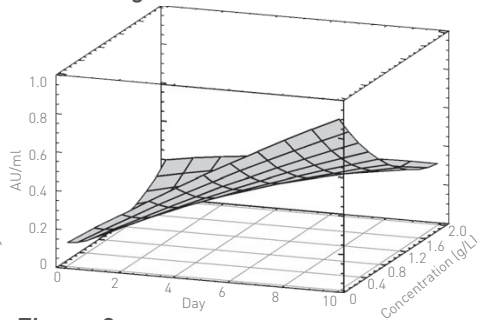


Figure 2

Figure 3 shows that with lower or without Chitoly™ AB concentration did not affect the ascorbic acid content, which decreased in orange juice with higher Chitoly™ AB concentration (quadratic effect).

Ascorbic acid

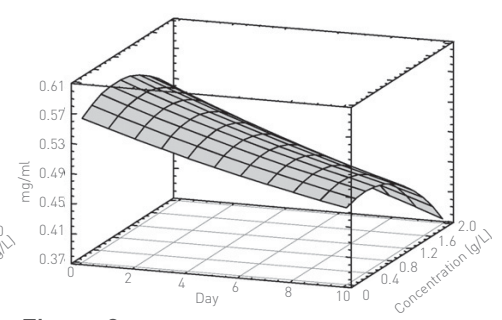


Figure 3

Case 2: Sausage

Figure 4 shows that dipping 1.0% Chitoly™ AB dissolved into 0.5% vinegar onto the surface of sausage effectively inhibits microbial growth and extends the shelf-life.

Total plate count

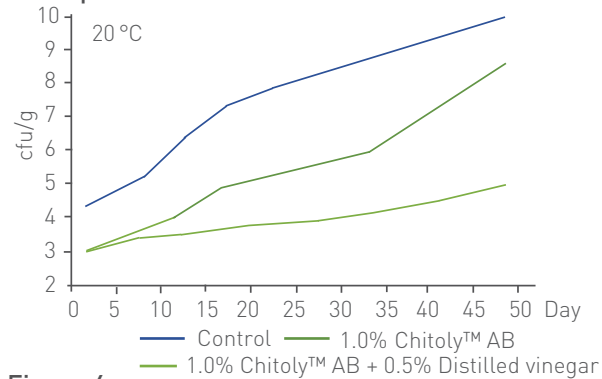


Figure 4

Case 3: Strawberry

Figure 5 shows that strawberry surface was sprayed with 1.0% or 1.5% Chitoly™ OM concentration performed pre-harvest, the decay rate will be decreased up to 40%.

Decay rate

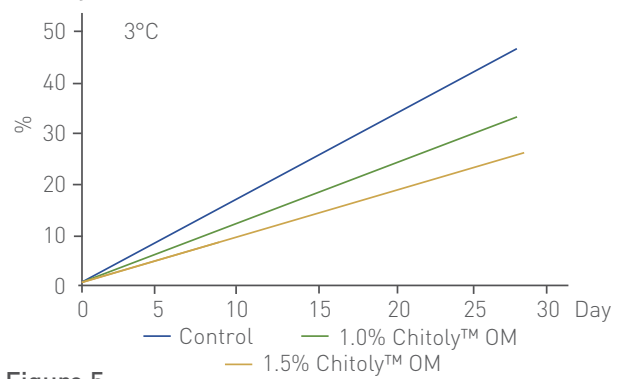


Figure 5