



United Nations  
Foundation for the Global Compact

Dear Madam/Sir,

Soley Biotechnology Institute is not a commercial company. Soley Institute is a Non-Profit Scientific Organization that established in 18 countries. Soley Institute has been working on new biotechnological researches/developments with almost 500 scientists and almost 2000 staffs for 16 years.

The fact that the shelf-life of cheeses which are fresh and low salted is too short is widely known. The reason of this situation is the ability of bacteria and fungi in the air to reproduce quickly on the surfaces of cheeses and cause them to decay. There would still be the problem of short shelf-life of cheeses which are fresh and low salted, even if they are stored in cold temperature.

There have been studies and researches for decades to find a remedy to address this problem. Cheese manufacturers did not prefer to use these remedies because those remedies had some synthetic ingredients in them, they were expensive, were not approved by dairy product regulations nor were they able to provide the necessary protection.

Due to achieving aims of lowering salt ingredients on cheeses against health issues, cheese industry was suffering to find new ways to prevent cheeses for long shelf life.

High Salinity means Unhealthiness  
Cheesemakers do not need to use too much salt for cheese protection

As you know, beside the taste, salt usage is for microbial and fungal prevention. If the fresh type (non-ripened) cheese does not contain high level of salt content (on it or in it), its shelf life is up to 1-3 weeks even at cold conditions. Also, if a brine solution has low salinity, because of the osmotic pressure, water assault into cheese tissue and break down the cheese formation. Without salt; air contact, bacterial and fungal impact, light, water denaturize the cheese very soon.

Soley Institute purposed to find a way to prevent water penetration into cheese without high salinity and to prevent microbial formation on cheese because of low salinity. So, we needed to find a formula that attaches to ONLY cheese surface without penetrating into cheese to protect it.

By the new developments on nanotechnology that has developed in recent years, we started a R&D with almost 20 Million Dollars. Also, this way had to be with secure substances.

Since the product is active when it is introduced with calcium molecules, it provides longer shelf-life and longer lasting-quality even as using it by like 1/1000 ratios.

We finalized our studies with success after 4 years of researches. Soley Biotechnology Institute has developed an X-12 protection product, containing natural compounds by using nanotechnology and has made it possible to extend the shelf-life of fresh cheeses by 3 to 10 times.

The X-12 induced water has the ability to cover the whole surface area of the cheese, by creating a layer on it and preventing it from any decay by forming a barrier between the air and the surface of cheese. Also there is no longer decay of cheese caused by storing it in brine water for too long.

Thanks to the nanobiological substances, X-12 has an ability to stick only to the texture of cheese (calcium molecules) which makes redundant in the use of brine water process.

 United Nations Foundation for the Global Compact	<a href="http://www.cheesebio.com">www.cheesebio.com</a> <a href="http://www.soleybio.com">www.soleybio.com</a>	Official Partner of  <b>World Algae Producers &amp; Researchers Association</b>
	 <b>WFCC</b> World Federation for Culture Collections	

By some organic nano-wire style substances, X-12 product forms a matrix like gel type binder solution. Into this matrix gel, we also added some organic preservatives and organic antioxidants. When you add X-12 into water, it forms a barrier working only on cheese surface. So, cheesemakers do not need to use high salinity brine for cheese protection/shelf life issues.

Thus, X-12;

Prevents the desiccation of cheese Increases the shelf-life of cheese up to 3-10 times

Provides an isolation by covering all surfaces of cheese

Protects the cheese from all kinds of fungi and bacteria

Prevents the excessive absorption of water

Organizes the shape of cheese

Prevents the shedding of outer surface of cheese

Prevents the cheese from the effects of light (UV and IR)

Prevents the loss of taste of cheese

Prevents the loss of calcium and protein in cheese

Prevents the rusting of cheese

Prevents early swelling and late swelling problems

Prevents faulty of eye/hole formations

Prevents faulty skin/tissue formations

In fact, making jelly brine solution and applying it as cheese brine for slowing down penetration of liquids into cheese is not a new method. Jelly solutions prevent the osmotic pressure between cheese tissue and the liquid since cheese cannot soak liquid phase. Because of some suspicious and inorganic ingredients/substances that make jelly brine solutions, in the practical applications industry were not able to use these kinds of techniques.

For more information: <http://en.cheesebio.com>

Thank you.

Best Regards,  
Nazan Calisir Kizililsoley  
Soley Biotechnology  
General Manager



**X-12 Ingerdients:**

Rosmarinus officinalis extract – Super critical CO2 extraction - FDA Regulation: SP/ESO, GRAS - 182.10, 182.20

Salvia officinalis extract - Super critical CO2 extraction - FDA Regulation: ESO/SP, GRAS - 182.10, 182.20

Astaxanthin - Super critical CO2 extraction - FDA Regulation: EAF - 472-61-7

Eucheuma cottonii extract - Super critical CO2 extraction - FDA Regulation: MISC, EMUL, STAB, REG, GMP, FS, See carrageenan - 172.620

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Psidium guajava extract - Super critical CO2 extraction - FDA Regulation: FDA Regülasyonu: Guava - ESO, GRAS, GMP - 182.20  
 Ribes nigrum extract - Super critical CO2 extraction - FDA Regulation: FDA Regülasyonu: Currant black, buds & leaves - FL/ADJ, REG, GMP, In conjunction w/flavors - 172.510  
 Silver nitrate – Stabilized Nano-particles - FDA Regulation: REG, Used as an antimicrobial agent, in an aqueous solution with hydrogen peroxide, in bottled water. Silver nitrate NTE 17 ug/kg in the treated bottled water, and hydrogen peroxide NTE 23 mg/kg. - 172.167  
 Zinc chloride – Pharma Grade - FDA Regulation: NUTR/DS, GRAS, GMP - 182.5985, 182.8985  
 Zinc oxide – Stabilized and fixed Nanowires + Nano-particles - FDA Regulation: NUTR/DS, GRAS, GMP - 182.5991, 182.8991  
 Myrrh – Nano-particles type - FDA Regulation: FL/ADJ, REG, GMP, 172.510  
 Sodium alginate – Food Grade - FDA Regulation: GRAS, REG - 184.1724, Boiler Water Additive - 173.310  
 Glycerin – Pharma Grade - FDA Regulation: MISC, GRAS/FS, GMP, Part 169, Food Flavorings, 182.1320

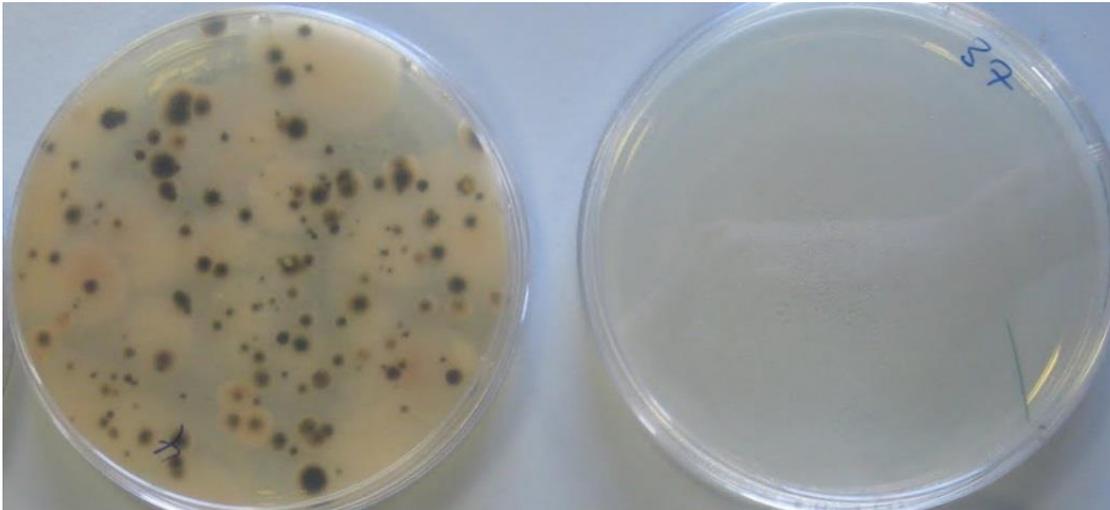
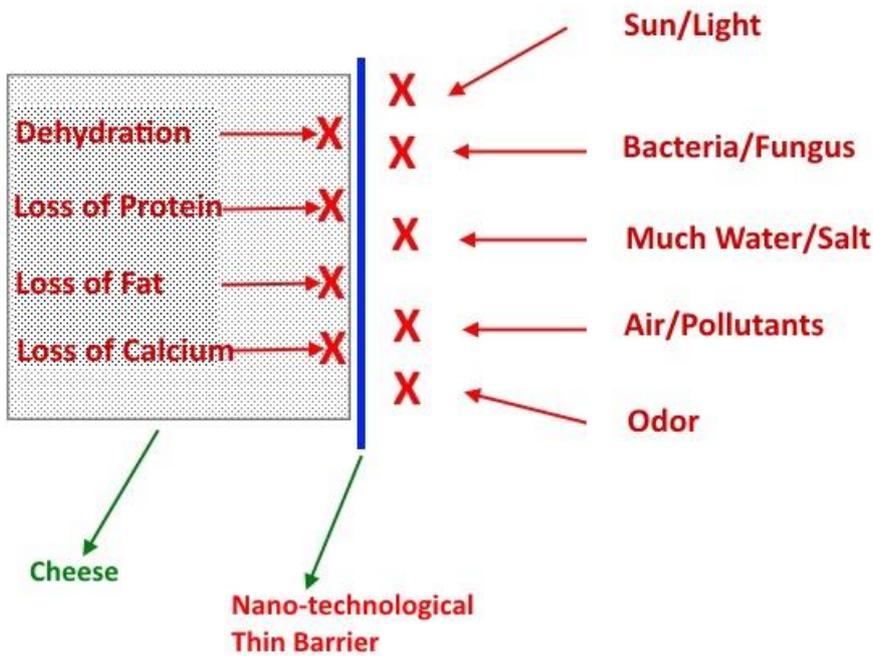


Culturing of Cheese Tissue for 15 days at outside without X-12



Culturing of Cheese Tissue for 15 days at outside with X-12

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White Cheese Tissue Culture without X-12  
for 7 days at outside

White Cheese Tissue Culture with X-12  
for 7 days at outside