



CHITO-F

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 Specific treatment based on fumaric acid and chitosan

→ DESCRIZIONE TECNICA

Chito-F is a product in which the synergy of the components carries out an:antimicrobial, bactericidal and bacteriostatic, clarifying and stabilising action.

Chito-F is a product based on Fumaric acid (E297) and oenological chitosan, which allows reducing and in some cases eliminating the unwanted bacterial microbial load in wine; primarily active against lactic acid bacteria, it also helps to fight and decrease the load of acetic acid bacteria and Brettanomyces. While chitosan acts by degrading the cell wall of yeasts and any bacteria present in the medium, causing their death, fumaric acid acts by denaturing DNA and proteins, permeating the membrane.

Chito-F thus plays an important role in the prevention and treatment of contamination due to lactic acid bacteria, facilitating work in the cellar; it allows malic preservation as well as obtaining wines with fewer biogenic amines.

Healthiness and sustainability are the results of its use, where, thanks to the powerful antimicrobial action deriving from the synergy of its ingredients, it allows the use of lower quantities of SO₂ whilst still protecting the wines, as well as representing a valid alternative to lysozyme. Chito-F moreover, does not interact with the colouring matter.

The wines obtained after the addition of **Chito-F** are clean on the nose and free from olfactory deviations of bacterial origin, as well as possessing a natural freshness, given by the acid component and by the malic preservation.

Chito-F is widely used in wines to be aged in wood; in red, white and rosé wines. The action of **Chito-F** lasts over time, over 60 days from application. It is advisable to always reduce the microbial population for longer storage times by using Danmil filter layers and cartridges.

PRACTICAL TESTS USING CHITO-F

Analytical path

A set of wines, contaminated by lactic acid bacteria is used to assess the effectiveness of Chito-F at different dosages.

Analysis methods:

Microbiological analysis, sterile filtration on a cellulose acetate membrane with a 0.2µm porosity. Incubation at 30° C for 7 days, in anaerobiosis on a specific medium for the count of lactic acid bacteria (MRS).

Chemical analysis: spectrophotometric analysis of the quantity of Malic and Lactic acid following use.

Potentiometric analysis: use of a pH probe to assess different acidic contributions in wines treated with progressive doses of Chito-F.





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Analysis: decrease in the lactic population

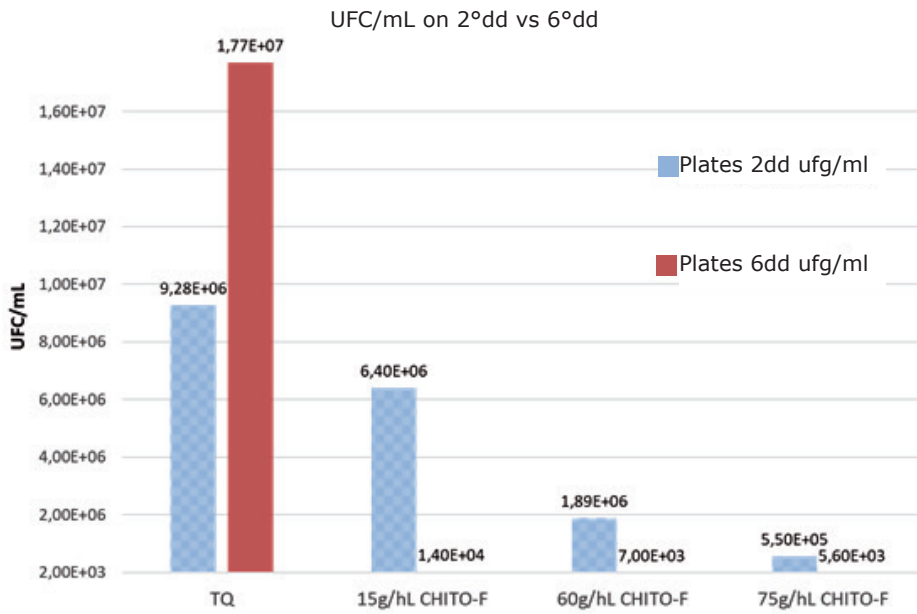


Figure 1- Growth on dish with specific medium for the count of lactic acid bacteria (MRS)

Chemical analysis

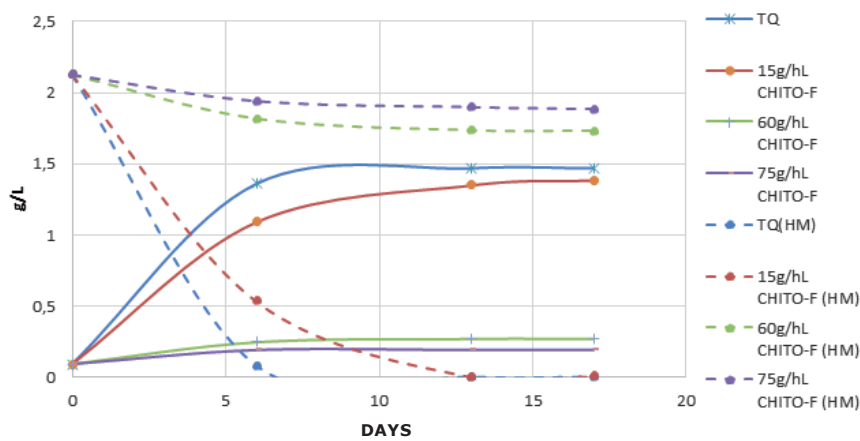


Figure 2- spectrophotometric analysis of the quantity of Malic and Lactic acid following use.





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Potentiometric analysis: dosages of Chito-F on different wines.

| WINES/ TREATMENT | pH 3.2 | pH 3.4 | pH 3.5 | pH 3.7 |
|---------------------|-----------|-----------|-----------|-----------|
| 10 g/hL | 3,20 | 3,39 | 3,47 | 3,68 |
| 20 g/hL | 3,2 | 3,38 | 3,47 | 3,66 |
| 30 g/hL | 3,2 | 3,38 | 3,47 | 3,66 |
| 40 g/hL | 3,2 | 3,38 | 3,47 | 3,66 |
| 50 g/hL | 3,19 | 3,35 | 3,45 | 3,63 |
| 60 g/hL | 3,18 | 3,34 | 3,43 | 3,63 |
| 75 g/hL | 3,08 | 3,3 | 3,40 | 3,59 |

| | pH | Total Acidity (g/L) | pKa (1,2)* |
|----------------------|-------|---------------------|--------------------------|
| Wine as is | 3,14 | 5,1 | |
| Wine as is + Chito-F | 3,082 | 5,6 | pKa1 = 3.03, pKa2 = 4.44 |

Dosaggio di 60g/hL di Chito-F; *costante di dissociazione acida

→ COMPOSITION AND TECHNICAL CHARACTERISTICS

Fumaric acids (E297), Chitosan derived from *Aspergillus niger*.

→ DOSAGE

In wines, depending on the contamination. From 30 to 75 g/hL depending on the case.

→ METHOD OF USE

Dissolve the dose in wine with a ratio of 1:10, adding it to the mass during pumping over. Product containing chitosan, we recommend gently shaking the mass during the first days after application.

→ STORAGE AND PACKAGING

Store in a cool, dry place away from direct light and heat.

1-kg net packages in 5-kg boxes.

