

PLANTERIA® CF

IN OAT MILK



KEY BENEFITS

- Inhibit Total Plate Count (TPC)
- Inhibit Yeast & Mold
- Improve microbial & oxidative stability
- Cost effective
- Shelf-life extension
- Clean Label

	Plantéria® CF
Code	0701
Registration Number	Clean Label
Organoleptic impact	Little Bitter Flavor
Source	Non-GMO, renewable
Thermal Stability	Up to 121°C
Applicable pH	3-9
Recommended dosage	0.3-1.0 g/kg
Packing Size	1KG, 20KG
Appearance	Honey colored liquid
Labelling	Citrus Fruit Extract
Solubility	Water Soluble

NATURAL TPC INHIBITOR IN OAT MILK

Plant-based food products have been in greater demand in recent years due to health, environmental and animal welfare reasons. In particular, the market for alternative plant-based dairy beverages is rapidly evolving, bringing many challenges and opportunities for manufacturers trying to match dairy performance with complete and authentic products. These food products, such as oat milk, are rich sources of nutrients for many microorganisms, which may affect the quality and safety of the product during its shelf life.

To change the pattern of chemical preservatives, at Handary we provide Plantéria® CF a natural plant extract solution. It is a natural organic compound derived from citrus fruits and is used primarily as a multi-hurdle antioxidant and antimicrobial in a variety of foods. Plantéria® CF meets consumer demands for friendly labeling and works towards naturally extending the shelf life of food products. It has been widely accepted as a clean-label anti-microbial alternative to synthetic preservatives.

Moreover, Plantéria® CF has been proven to effectively inhibit the growth of bacteria, yeast and spoilage molds over the shelf life of oat milk, without compromising its quality, freshness and sensory characteristics.

OUR BRANDS

PLANTERIA® CF Citrus Fruit Extract



CASE STUDIES

Intrinsic factors of oat milk, such as high-water activity and pH (6-7) favor the growth of bacteria, yeasts and molds. Although oat milk is usually pasteurized and kept in chilled conditions, contamination may occur because of bacterial spore resistance after pasteurization.

Typically, pasteurized oat milk has a shelf-life of less than one month. Therefore, other hurdles such as natural antimicrobials need to be added. Plantéria® CF has been widely used as a clean-label and natural microbial inhibitor to extend shelf-life of foods and beverages.

PLANTERIA™ CF: OAT MILK SHELF-LIFE EXTENSION

To verify the antimicrobial effect of Handary Plantéria® CF, we mimicked oat milk production in our laboratory by simulating the production carried out in the industry. In the first sample, 1 gram of Plantéria® CF was added per kg of oat milk. In the second sample, no preservative was added, characterized as control.

The graphs below show the results for total plate count (Fig. 1) and yeasts & molds (Fig. 2) in pasteurized oat milk. The study compares the difference in microbial load of oat milk between control and treated (with 1g/kg Plantéria® CF) samples at 4°C. It took 34 days for the control sample to reach a CFU of log 7, which is a threshold level that typically determines the end of the shelf-life due to off-odours, off-taste and visual defects. On the other hand, the sample treated with Plantéria® CF is down by 2 log values, clearly indicating a shelf-life of more than 34 days.

This study shows that Handary's Plantéria® CF is an effective natural clean-label solution to increase the microbial stability and the shelf-life of oat milk.

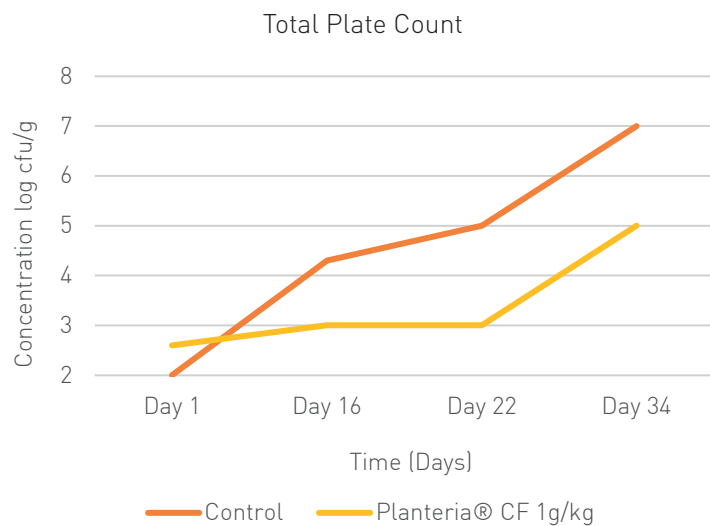


Fig 1. Total Plate Count in oat milk.

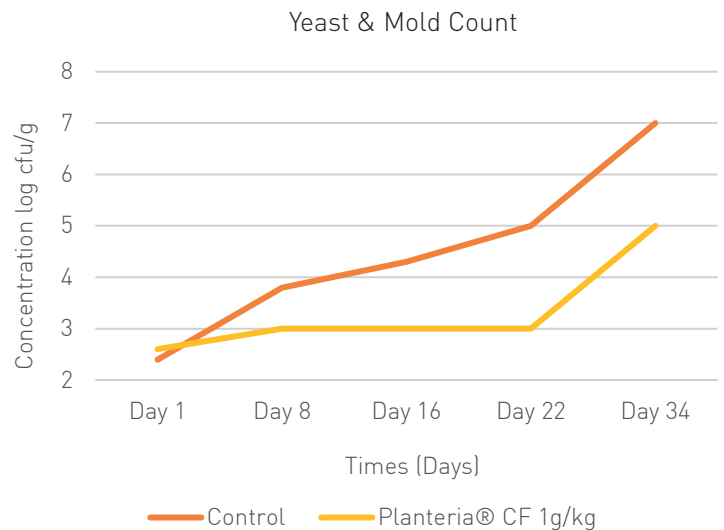


Fig 2. Yeast & Mold Count for Oat Milk

CONCLUSION

Although plant-based beverages used as substitutes for animal milk products are new to the market, these products are here to stay. Hence it becomes important to understand and properly tackle the microbial safety of these products.

This study shows that Handary's Plantéria® CF proves to be an effective natural clean-label solution that increases the microbial stability and the shelf-life of oat milk.



APPLICATION GUIDELINE

The following guideline will assist you to get the optimum solution by using Handary’s Plantéria® CF citrus fruits extract to effectively and naturally extend the microbial stability and the shelf-life of oat milk.

DIRECT ADDITION INTO FORMULATION

Follow the suggested dosages to apply Plantéria® CF directly into oat milk formulation:

Ingredients	Application		Benefits	Dosage
Plantéria® CF	Plant-based Foods & Beverages	Plant- Based Beverages / Animal milk substitutes	Growth control of Total Plate Count and Yeast and Molds	0.3-1.0 g/kg

Plantéria® CF recommended dosages are determined in regard to the final weight of the food/beverage product. The product shall be added in the standard production procedure along with other ingredients of custom oat milk formulation. Dosages ranging from 0.3 – 1.0 g/kg (w/w) of Plantéria® CF can be added depending on the best solution for the process line.

OAT MILK MANUFACTURING PROCESS

Follow the representative production process flow chart of oat milk and the recommended stage of product incorporation to get the best efficiency of Plantéria® CF application.

