

REPORT:

Evaluation of LIQUIDNATURE in cheese sauce and assessment of its influence on the microbiological stability of the product.

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1. JUSTIFICATION AND OBJECT OF THE STUDY

The use of preservatives to prevent food deterioration has seen a great evolution during the last years mainly due to a significant increase in the demand of healthy and natural products and with less chemical additives. Therefore, currently there is an increasing demand for natural preservatives with high antimicrobial properties.

LIQUIDNATURE (DOMCA SA) is a mixture of natural plant extracts with antimicrobial efficacy for food preservation purposes. The object of this study is the evaluation of its effectiveness in the control of microorganisms in cheese cream.

2. METHODOLOGY

Challenge test

The methodology of *Challenge Test* was used in order to verify the potential of the product LIQUIDNATURE as clean-label preservative in cheese cream. The cream was inoculated with different pools of strains. This type of test allows the study of the capacity of microorganisms to survive or grow in the food product under specific conditions. To do so, an analytical monitoring system was established during a period of time.

The shelf life studies allow the evaluation of microorganism's capacity to grow and survive in foodstuffs under certain conditions. To do so, an analytical monitoring system is conducted during the time of preservation. The application of this kind of tests is recommended when a change in (its composition, production or preservation) foods which are already commercialized is planned.

Treatments

The cheese cream samples were received in units of 2 kg. After the control at reception of their temperature and pH, different batches were treated with LIQUIDNATURE and Potassium Sorbate at 1500 ppm. A control batch without any treatment was also included. Each analysis was made by duplicate.

Monitorization

Sampling was made during a period of 20 days at different times of preservation (0, 1, 5, 10 and 20 days). The samples were kept refrigerated at 4 ± 1 °C.

Microorganisms

The microorganisms tested were isolated from different sauces and are related to their deterioration. Five strains of *Staphylococcus* spp. were pooled. The strains of yeast were inoculated in Manitol Saline Agar and incubated at 30°C during 2 days. Different cocktails were prepared and adjusted to the final concentration desired in the food product (approximately 10^2 and 10^3 cfu/ml).

3. RESULTS

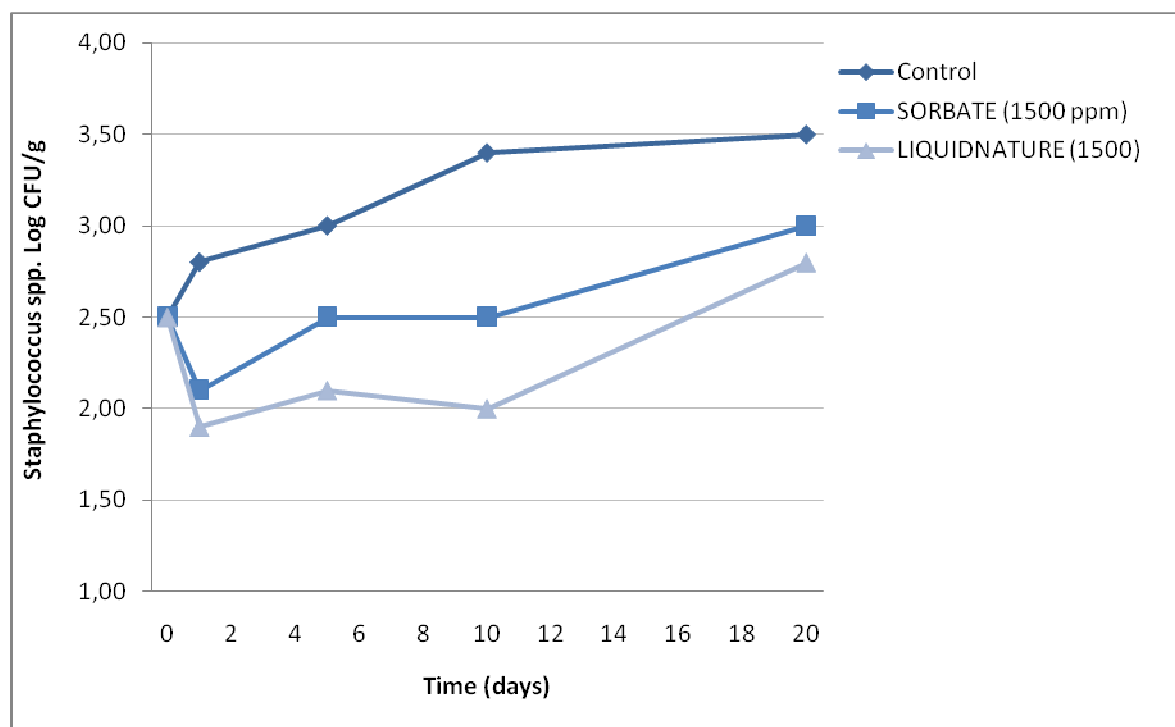


Figure 1. Evolution of *Staphylococcus* spp. in cheese cream with different treatments.

4. COMMENTS

Based on the results of this study it can be concluded that LIQUIDNATURE is an excellent product for the control of undesired growth of *Staphylococcus* spp. in cheese cream, showing even better results than synthetic preservatives such as potassium sorbate.

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