Patent: Genetically modified yeasts with capacity for floating in a liquid medium. Procedure for their procurement and utilisation

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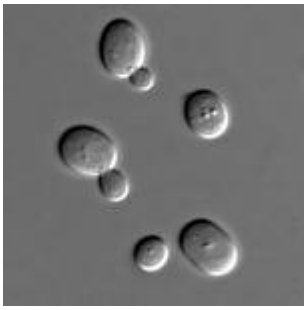

Description

This invention involves attaining the growth of a biofilm (wine yeast), controlling both quantity and quality, through the use of fungi or yeasts having such capacity or lacking it naturally but endowed with it.

Need or problem solved

- Possibility of inducing, controlling and improving the amount and quality of a yeast biofilm, guaranteeing control during its biological growth, as well as a fast development of more veil of flor for new inoculations of butts and flor replacement.
- The fact that industrial yeast grows on a surface producing a biofilm propitiates a simple, effective, fast and low-cost method for separating yeast from the liquid medium in which it grows by a simple collection of this yeast aggregated on the surface.
- It makes it possible to manage the design of specific drugs against human pathogens that are protected from antibiotics by this biofilm, by knowing the proteins involved in their development.
- The possibility of producing biofilms using yeasts makes it possible to consider these microorganisms as an alternative to bacteria in aquatic environmental systems.

Innovative issues/Competitive advantages

- The biofilm created by this invention provides better insulation of the wine contained in the butt, avoiding its oxidation, accelerates the wine metabolism and, consequently, the appearance of the organoleptic components that characterise wine.
- Moreover, the procedure for procurement improves the stability of the biofilm itself during the summer months and, in case of loss, it enables fast regeneration based on the surviving yeasts or of the inoculate grown in the laboratory or added to the butts.
- The patent makes it possible for non-biofilm forming fungi and yeast to acquire this capacity.
- The patent makes it possible to procure strains carrying out this fermentation or metabolic process in the form of biofilm within the liquid-air interphase, in such a way that, once fermentation is complete, the medium used in the lower part of the fermenter is eliminated and a new medium is pumped in, without requiring the removal of the fungus or yeast and without affecting their growth, thus attaining a continuous high-yielding culture.
- S. cerevisiae is the most explored fungus from all points of view. Considering that the formation of biofilms in other fungi, and even in bacteria, shares many common elements with S. cerevisiae, the use of the latter as a model organism can provide a large amount of data.

Types of interested companies

- Wineries
- Food companies
- Pharmaceutical companies
- Waste water processors