



A MULTIDISCIPLINARY APPROACH TO IMPROVE THE STABILITY OF VINEGAR-BASED CONDIMENTS

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Cycle XXXV

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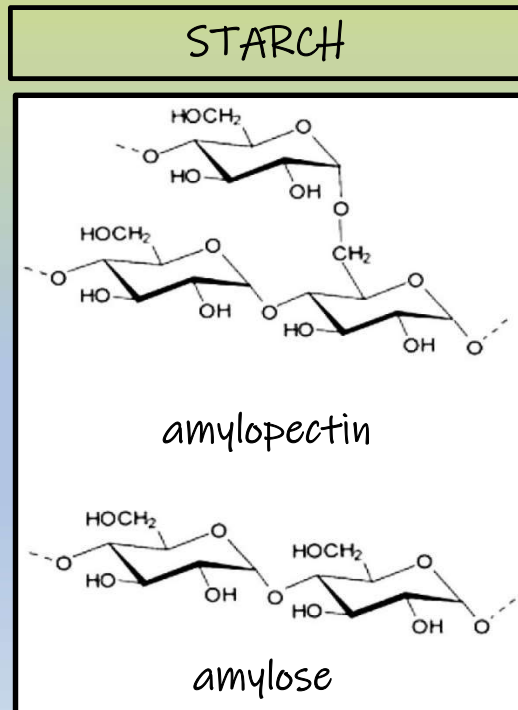
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Literature and field experience

- Vinegar-Based condiments are not affected by pathogen microorganisms due to the characteristic of the matrix (low pH and high acidity).
- Vinegar-Based condiments are usually stable foodstuffs but in certain conditions can be affected by fermentation process due to the presence of yeasts that are connected to the nature of the matrix.
- The control of the viscosity (a new physical-chemical parameter) avoid this kind of fermentation. The viscosity level requested in the foodstuff is inversely proportional to the yeasts concentration in the product.

Viscosity (this new parameter)

- How the viscosity can be increased and adjusted: with the addition of starch, in particular modified starch.
- Modified starch composition: blend of amylose and amylopectin (glucose polysaccharides).
- Behavior in the liquid phase of the matrix: the starch granules interact with the water present in the matrix, hydrating themselves and swelling, this weakens the hydrogen bond and the foodstuff becomes viscous and gelatinous.
- Stabilizing effect: this new structure although do not lower the aw value create a hostile environment that contrasts and blocks the yeasts growth, stabilizing the foodstuff.



Quantify the guard levels of the 2 principal actors of these particular equilibrium (yeasts concentration and starch addition in the foodstuff).

Evaluate the eventual different behavior of principal yeast families linked to the matrix in relation with the starch addition and the viscosity increase.

Study the eventual modifications of the other principal chemical characteristics of the foodstuff (for example: acidity, density, sugars content, etc...) in relations with the stability of the product:

CAUSE or CONSEQUENCE
of the behaviour of the yeasts in relation with the starch.

TARGETS

THANK YOU