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UNIVERSITÀ DEGLI STUDI DI
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A MULTIDISCIPLINARY APPROACH TO IMPROVE THE STABILITY OF VINEGAR- BASED CONDIMENTS

University of Modena and Reggio Emilia, Research Doctorate in agri-food
sciences, technologies and biotechnologies

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Cycle XXXV

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Balsamic Glaze - What is it...?

- The Balsamic Glaze, or better the Glaze with Aceto Balsamico di Modena IGP (Glaze with ABM), is a food condiment composed of concentrated grape must, Balsamic Vinegar of Modena and starch. These are its own principal chemical parameters:

Glaze chemical characteristics	
Parameters	Medium value
°Brix	44,60
pH	2,96
Total acidity (%)	2,89
Glucose (g/L)	208,29
Ethanol (g/L)	1,85
Acetic acid (g/L)	26,49

Work in progress....

- To reach the final target of this research work, a preliminary study and test has been made on the intrinsic stability of the Glaze with ABM in different conditions. Has been tested potential contaminations with 5 different strains at different temperatures with different dilution of the Glaze:

- The microbiological growth observed matches with chemical modifications of the principal chemical parameters; in fact has been measured the following variations:

GLUCOSE CONSUMPTION
ETHANOL CONSUMPTION
ACETIC ACID VARIATIONS

- This confirm the two aspects:
 - Avoid the dilution is fundamental
 - Microbiological growth means:
 - product instability
 - product sensorial modifications.

Strain	Dilution 10:0			Dilution 9:1			Dilution 8:2		
Growth T (°C)	28	30	37	28	30	37	28	30	37
<i>A. pasteurianus</i> AB0220	x	x	x	x	x	✓	✓	✓	x
<i>G. oxydans</i> ATCC 621H	x	x	x	✓	✓	x	✓	✓	x
<i>Ga. johannae</i> DSM 13595 ^T	x	x	x	x	x	✓	✓	✓	x
<i>K. xylinus</i> K2G30	x	x	x	✓	✓	✓	✓	✓	✓
<i>Komagataeibacter</i> sp. K1A18	x	x	✓	✓	✓	✓	✓	✓	✓

...the final challenge

Due to the results obtained with this preliminary study through the stress test settled, the final effort is:

QUANTIFY

THE BREAKING DILUTION

according to the different contamination strains and concentration with the temperature variations...

but DILUTION in the GLAZE with ABM means:

VISCOSITY LEVEL



STARCH QUANTITY

THANK YOU