

## 20730 | Brewer's yeast as a clean label ingredient for replacement of phosphates in hams

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### Abstract

Phosphates are common additives in the meat industry. They are used to increase the water retention capacity. They act in buffering, emulsification, colour stability, inhibition of lipid oxidation, antibacterial activity and protein dispersing properties. Excessive consumption inhibits absorption of minerals, causes kidney diseases and colorectal cancer.

Brewer's yeasts are sets of strains responsible for beer fermentation. Often *Saccharomyces cerevisiae*, which consume sucrose, maltose and maltotriose, producing ethanol and CO<sup>2</sup>. Studies show that brewer's yeast as a meat food ingredient may produce the same functions as phosphate.

In this study we evaluated the potential use of brewer's yeast to substitute phosphate in meat products. Hams with brewer's yeasts extracts were evaluated for appearance and texture properties. Comparing with control samples, with and without phosphates, and three commercial phosphate substitutes. The impact of different treatments on colour was evaluated by the difference (Delta E test) between two colours in a L\*a\*b\* colour space. The texture properties: hardness, cohesiveness, elasticity, gumminess, chewiness and resilience were evaluated by the TPA test (Texture Profile Analysis) of double compression.

Extracts were obtained through hydrothermal treatment at high temperatures, using an auto-hydrolysis reactor in different temperatures and extraction times (i) only with water and solvent and (ii) with sodium hydroxide as a solvent at two concentrations.

They were tested at 6.5 g/kg, the phosphate concentration in the model matrix, and 13.3 g/kg, the maximum concentration indicated to be added of the commercial phosphate substitutes tested.

Hams produced with brewer's yeasts extracted with NaOH 1M showed no significant differences (p<0.05) to the controls with phosphates and commercial substitutes. Providing similar colour, cohesiveness, elasticity, hardness, gumminess and chewiness. Concluding that these extracts could be an alternative for replacing phosphates in hams.