

FOOD TECHNICAL SERVICES – PROJECT: VENISON CHORIZO

Background:

A supplier of wild venison products, in the early stage of developing a range of cultured cured dried raw ambient stable venison sausages requested assistance with both:

- Process development and understanding what had to be presented as controls and validation.
- Applying for Local Authority approval to make and sell the product.

Both parties were unsure of the processes that would lead to approvable products; we agreed to assist.



Summary of the final process

The process relies upon a series of interrelated steps:

- Mincing and mixing of meat fat and spices and water at the appropriate proportions.
- Adding to that mix, the microbial culture (specific strains of lactobacillus staphylococcus and Pediococcus) with fermentable sugars so that as a ready activated starter it'd quickly begin:
 - o Developing lactic acid with a corresponding fall of the pH,
 - o Competing with & inhibiting resident bacteria (which may include spoilers/pathogens),
 - o Developing colour flavour and texture changes to the meat.
- Then adding curing chemicals (salt, nitrate, nitrite), after which the cultures begin to reduce nitrates into more effective nitrites – so contributing further to the process by:
 - o By inhibiting: a) pathogen/spoilage bacteria and b) oxidation damage to the product,
 - o By creating desired colour and structural (texture) changes to the meat protein.
- By controlling the temperatures and the times that the culture takes to attain predetermined set points of pH - we have controls on specific pathogens.
- The fermenting sausage mixture is filled into skins then hung to continue fermentation/cure. At this stage both air humidity and temperatures are controlled such that:
 - o Air starts moist & warm to aid culture activity, fall in pH and rise in nitrite.
 - o Air then becomes drier, bacterial activity slows, and drying becomes the main activity.
 - o Drying is at rates that avoid the formation of a pellicle resulting in a wet/unsafe core.
- Drying then ends & product packed when the water-activity std is met (microbial activity stops).
- Progress is monitored to ensure safety and quality parameters are met – ie by measuring:
 - o pH
 - o Drying rate
 - o Water activity which is to drop to specified limit before product is considered shelf stable.
- Because ruminant meat is theoretically susceptible to carrying pathogenic acid tolerant E.coli O157, it was thought prudent to positive release on microbe test results.

Process and product approval:

After submitting the application & successfully demonstrating to local the Environmental Health Team:

- That processes and hazard controls were suitable, properly controlled monitored & recorded,
- That we'd validation documents able to support the claims we had made on pathogen controls,
- That appropriate mentoring and product specific Food safety/HACCP training had taken place,
- That there was a thorough and working HACCP and food safety management system in place,

Approval was granted to manufacture and sell ambient stable cultured cured dried venison sausages.

