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Editorial

Understanding of Fungal Control Against Fermented/Processed Meat Product - A Sustainable Approach

Debashis Dutta*

Mirmadan Mohanlal Govt. Polytechnic, Plassey, India

***Corresponding Author:** Debashis Dutta, Mirmadan Mohanlal Govt. Polytechnic, Plassey, India.

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Food-borne mycotoxicosis is caused by the presence of molds in processed meat products and the intake of food contaminated with molds (microscopic filamentous fungus) and their toxic metabolites. Mold spores are widely distributed in the environment and can be found almost anywhere.

Penicillium spp., Aerobasidium spp., Cladosporium spp., and Eurotium spp. are commonly found in chilled meats including bacon with an intermediate moisture content. Foods with low water activity include dried beef, biltong, especially fermented meats such as dry-cured gammon, salami, and fermented sausage, D. hansenii and Penicillium species have been investigated. Commercial cultures of filamentous fungus, such as non-toxigenic Penicillium species includes P. nalgiovense and P. chrysogenum, are used in the processed meat.

P. chrysogenum strains isolated from dry-cured ham impeded the development of two common predators, A. flavus and P. restrictum, in vitro by generating an antifungal protein, whereas P. nalgoviense from the commercial culture TEXEL PN1 inhibits P. verrucosum proliferation and OTA production. Another study of P. chrysogenum's bioprotective role suggested combining the role of P. chrysogenum CECT 20922 as a bioprotective culture with aw reduction during the ripening period to reduce black spot formation in dry-cured ham. The European Food Safety Authority (EFSA) published a list of QPS (Qualified Presumption of Safety) microorganisms in 2007 to clarify the status of biocontrol agents and biopreservatives and to simplify approval procedures.

This causes important and devastating economic losses to producers upto 50% of root crops, fruits, and vegetables, 35% of fish and seafood, 30% of cereals, and 20% of meat, oil seed, and dairy products. Prevalence is therefore, relevant against variety of contamination in dried/cured meats. Three major stages can indeed be developed to classify fungal contamination factors: In the field, where water, soil, and air are natural fungal niches; (ii) raw materials, such as post-harvest crops, meats, and milk, where the fungal occurrence is related to food management during harvest or collecting, transportation, storage, and packaging; and (iii) food processing during the manufacturing of dairy, bakery, dry-ripened, and drink products.

Mold spores are widely distributed in the environment and can be found almost anywhere. The presence of various moulds identified in fermented meat products such as Sucuk from Turkey, Hungarian Salami, Kantwurst from Austria, Lup cheong from China, Milano Salami from Italy, summer sausage from USA, salami aeros from Greece, Chorizo from Mexico and Spain, Salchichon from Spain, Fuet from Spain, and Pepperoni from Canada and USA is Penicillium sp., Acremonium sp., Mucor sp. Molds were found in the flavorings added to meat during the preparation of fermented raw meat products.

Milled black pepper, nutmeg, garlic powder, and crushed caraway have the broadest spectrum and greatest numbers of microscopic filamentous fungus. The level of contamination varied depending on the season, with summer months having the highest level. Spoilage of meat and meat products results in considerable financial losses for the meat industry because such products are unsafe for human consumption and sensory alterations manifested as a disagreeable odor and taste. The use of antifungal cultures for biopreservation has therefore, captivated the scientific community's interest as a result of the growing social need for preservative-free foods.

In conclusion, antifungal biopreservatives are a growing concern that affects millions of people globally. To raise awareness, it is crucial to educate the public about the symptoms of fungal disease, as well as the steps that can be taken to avoid exposure. By working together, we can help create a safer and more inclusive biopreservative against fermented meat products.

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