

From Chicken Breast to Salmon Fillets: Performance of Alternative Proteins Across Structurised Meat and Fish Analogues



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Structured meat and fish analogues represent one of the most demanding applications for emerging alternative proteins. This work assessed the functionality of diverse alternative protein ingredients in chicken breast analogues, burgers, fish sticks, salmon analogues, white-fish analogues and prime-cut products manufactured through extrusion, thermo-mechanical processing and 3D food printing technologies.

The resulting products were evaluated for nutritional quality, shelf-life stability, texture, colour and sensory acceptance. Several formulations achieved high protein and high fibre claims while maintaining acceptable sensory quality throughout storage. Fava bean and pea proteins consistently delivered strong performance in fish and poultry analogues, achieving high acceptance levels and desirable textural properties. Microbial proteins demonstrated favourable amino acid profiles and soft texture characteristics. The study confirms the ability of alternative proteins to generate structured products with meat- and fish-like characteristics and highlights key formulation strategies for future industrial applications.

Recommendation: Consider the use of texturized and alternative proteins as a viable route to develop meat and fish analogues with structured textures, high protein content and sensory characteristics that resemble conventional animal-based products.