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UTILIZATION OF INVASIVE CRAYFISH AND SILVER CARP IN SUSTAINABLE WET CAT FOOD FORMULATION

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This study presents the development of a complete wet food formulation for adult cats, enriched with whole spiny-cheek crayfish (*Faxonius limosus*) and bone-in meat of silver carp (*Hypophthalmichthys molitrix*), two invasive and underutilized freshwater species. The main objective was to assess the nutritional adequacy, technological feasibility, and broader sustainability potential of incorporating these alternative protein sources into pet food production. The formulated product contained 10.2% protein, 11.6% fat, 2.29% ash, 0.81% crude fiber, and 71.5% moisture, with a calculated metabolizable energy of 6.04 MJ/kg (approximately 1443 kcal/kg). These parameters comply with the current nutritional guidelines for adult cats set by both the FEDIAF (European) and AAFCO (American) pet food standards. Technologically, both *F. limosus* and *H. molitrix* were shown to be compatible with homogenized wet food systems without the need for added stabilizers. From an ecological perspective, the use of *F. limosus*, a highly invasive species in European freshwater systems, contributes to biodiversity protection by mitigating its impact on native crayfish populations (*Pontastacus leptodactylus*) and juvenile fish stocks, which are under pressure from its aggressive expansion. Similarly, *H. molitrix* has shown ecological disruption in some regions and its controlled exploitation is considered beneficial. Economically, these raw materials are locally available, cost-effective, and currently underexploited, offering an opportunity to lower production costs while promoting circular and ecologically responsible resource use in the pet food industry. The results demonstrate that alternative aquatic ingredients such as invasive crayfish and silver carp can provide nutritionally adequate, environmentally beneficial, and economically viable options in the development of next-generation wet pet food products.

Keywords: invasive species, *faxonius limosus*, wet cat food, sustainable pet nutrition, silver carp

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