

NUTRITIONAL VALUE OF FISH BY-PRODUCTS, AND THEIR UTILIZATION AS FISH SILAGE IN THE NUTRITION OF POULTRY

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EXTENDED ABSTRACT

About one-third of the world catch of fish is not used for direct human consumption but for the production of fishery by-products. As the present world catch is about 75 million tonnes, about 25 million tonnes of fish annually handled and processed in ways other than the fresh, frozen, smoked, canned which are eaten. It is certainly of vital importance that such material be utilized. If not, they will present a big environmental problem.

Virtually all fish contain 15-20% protein and some contain high amounts of oil, so the 25 million tones raw material available represents about 5 million tones of high quality protein and about 1 million tones of oil available as a renewable resource each year.

When fish material is available which cannot be used for human consumption, it is normally converted into fish meal. There are situations however in which it is impossible to process fish material into fish meal. Such a case is Greece where fish by-catch and fish processing by-products cannot be converted into fish meal because 1. There are no fish meal plants 2. The quantities are not large enough to justify a fish meal production plant and 3. The fish processing plant are relatively small and isolated.

Fish silage or liquefied fish protein is a simple way to convert fish by-catch and fish processing by-products into a very nutritious feedstuff for productive and fur bearing animals.

Two experiments, one with rats and the other with egg laying hens were performed to study the nutritional value of fish silage and its effectiveness to partly replace other protein sources in the nutrition of chicken.

The rat experiment showed that fish by-products from the canning industry (whole fish, fish heads from mackerel, sardines and tuna) had very high apparent and true digestibility, high biological value and net protein utilization. Fish offal (viscera) on the other hand due mainly to lower digestibility of protein had lower net protein utilization, which means less retention of protein.

In the egg laying experiment, two levels of fish silage (2,5 and 5,0%) were used as an alternative source of protein. The results showed that feeds containing fish silage gave significantly higher egg production, better eggshell thickness and also feed utilization.

Key words: fish silage, poultry, nutrition