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Formulation and development of low cost pet food using fish processing waste

D B O Malaweera[1], W N M N Wijesundara[1], N P Edirisinghe[2], J K Vidanarachchi[1*] and H W Cyril[1]

[1]*Department of Animal Science, University of Peradeniya. Peradeniya,*

[2]*Apallo Marine International (Pvt) Ltd, E.P.Z, Block 9 C, Wathupitiwala, Nittambuwa.*

This study was designed to develop a semi-moist type adult dog food using fish processing waste and to assess its keeping quality, overall acceptability and digestibility when stored at room temperature (28 °C) in vacuum packaged material. A basic semi-moist adult dog food formulation was prepared by using fish processing waste such as fish-saw-dust, skin, gonads, dark meat and bones. Bread crumb powder, corn flour, soy flour, carrot, Mukunuwenna (*Alternanthera sessilis*), salt, sodium trypolyphosphate, citric acid, vitamin E and rice bran also were added (AAFCO, 1994). Aerobic and anerobic contents and the initial histamine level was measured on day one (AOAC, 1996) and pH, 2-thiobarbituric acid reactive substances (TBARS) and water holding capacity (WHC) were determined for four week of storage at weekly intervals.

Six local cross bred adult dogs were caged individually and feeding trials were conducted to determine palatability and digestibility of pet food. The formulated pet food was within the standard ranges for crude fibre, ash content and crude fat requirements of adult dogs. The crude protein and crude fat percentage in the semi-moist pet food were higher than ($P<0.05$) in the control diet and it exceeded the requirements of the minimum standard of AAFCO (1994) adult dog nutrient profile. TBARS, pH and WHC of pet food were within the acceptable range and no changes were observed ($P>0.05$) within the four weeks of storage at 28 °C.

Negative results for the commercial sterility test indicated the absence of anaerobes and aerobes and flat sour organisms. The histamine level at the initial stage of the pet food sample was 2.3 mg/kg which was within the acceptable range. Digestibility and overall acceptability in the semi-moist pet food was higher ($P<0.05$) than that in the control diet.

Through the cost analysis, it was verified that fish processing waste such as fish-saw-dust, dark-meat, bones, skin and gonads with appropriate preservative compounds could be utilized for the production of a low cost semi-moist adult dog food.

janakvid@pdn.ac.lk Tel: 0812395325