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ABSTRACT This study was carried out in large white yorkshire piglets to evaluate the effect of feeding dried tuna waste silage on carcass characteristics. Eighteen piglets were randomly divided into three groups of six animals each. Dried tuna waste silage was used to replace dried fish on protein basis at 0, 50 and 100 per cent, in isocaloric and isonitrogenous grower and finisher rations as dietary treatments T1, T2 and T3, respectively. The feeding trial continued till the animals attained body weight of 70 kg and then animals were slaughtered to study the carcass characteristics. There was no significant difference between animals in the three groups with regard to carcass characteristics which indicates that there was no effect of feeding dried tuna waste silage on carcass characteristics on large white yorkshire pigs.

# KEYWORDS : carcass characteristics, dried tuna waste silage, large white yorkshire pig.

# INTRODUCTION

Profitable pig rearing depends largely on careful breeding and efficient feeding programme. Since more than 75 per cent of the cost of production is accounted for feed, economic formulation of better quality swine ration using cheaper ingredients assumes paramount importance. Being monogastric, their diets must be balanced, with special importance to the essential amino acids. Fish meal is the common animal protein source to balance the essential amino acid profile of the diet. But, due to its escalating price and non availability of good quality fish, it is the need of the hour to find out alternate animal protein sources. . Seafood processing plants generate various kinds of wastes during different stages, which amount to nearly 50 per cent of raw material. Disposal of this waste is a major problem. Tuna waste is one of such bio-waste available in our country which can be utilised as silage to provide good quality protein to animals and to mitigate the environmental pollution in the processing area. The main constraint in the utilisation of fish silage is its high water content which can be rectified by blending with filler materials such as cereals, cereal by-products and crop residues and then drying using conventional dryers. Co-dried fish silage made from different types of fish has been used as protein supplement in livestock and poultry ration. The present study is to find the effect of incorporation of dried tuna waste silage in feed carcass characteristics in pigs.

# MATERIALS AND METHODS

An experiment was carried out for a period of 104 days (upto 70 kg body weight) to study the effect of dietary incorporation of dried tuna waste silage on carcass characteristics in pigs.

## **Experimental Animals**

Eighteen Large White Yorkshire weaned piglets, belonging to the Centre for Pig Production and Research, Mannuthy were used as experimental animals. The piglets were divided into three groups as uniformly as possible with regard to age, sex and weight. Piglets of each group were allotted to three dietary treatments (T1, T2 and T3).

# **Housing and Management**

Piglets were housed in separate pens in the same shed with facilities for feeding and watering. All animals were maintained under identical management conditions. The animals were washed every day in the morning before 10 A.M. and stalls were cleaned twice daily before morning and afternoon feeding. They were allowed to consume as much feed as they could, within a period of one hour and the balance of feed was collected and weighed after each feeding. Fresh and clean drinking water was provided ad libitum in all the pens throughout the experimental period.

crude protein and 3265 kcal of metabolisable energy (ME) /kg of feed up to 50 kg body weight and finisher ration with 16 per cent crude protein and 3265 kcal of ME/kg of feed from 50 kg onwards (NRC, 1998). The three experimental rations were:T1 – Ration containing 10 per cent dried fish (control); T2 – Ration with 50 per cent of protein of dried fish replaced by dried tuna waste silage;T3 – Ration with 100 per cent of protein of dried fish replaced by dried tuna waste silage.

#### **Feeding Trial**

The experimental animals of the three dietary treatments were maintained on their respective feeding regimes during the experimental period. The pigs were weighed at the beginning of the experiment and later on at fortnightly intervals. Daily feed intake also was recorded.

## **Slaughter Data**

On attaining the slaughter weight of 70 kg, animals from each group were slaughtered at Department of Livestock Products Technology, College of Veterinary and Animal Sciences, Mannuthy and data on carcass weight, carcass length, back fat thickness and loin eye area were recorded. Dressing percentage (carcass weight expressed as percentage of live weight) also was calculated. The length of the carcass was measured from the anterior edge of the aitch bone (os-sacrum) to the anterior end of the first rib. The back fat thickness was estimated as an average of the measurement of subcutaneous fat with skin at the level of the first rib, last rib and last lumbar vertebra. Longissimus dorsi muscle at the the tenth intercostal space was cut and traced on a transparent plastic sheet and the area was measured to determine the loin eye area. The dressing percentage was expressed as carcass weight as percentage of live weight.

## **Statistical Analysis**

Data collected on various parameters were statistically analyzed by methods as described by Snedecor and Cochran (1994). Means were compared by Duncan's Multiple Range Test (DMRT).

#### RESULTS

Data on live weight, carcass weight, dressing percentage, carcass length, back fat thickness loin, and eye area of the pigs maintained on the three dietary treatments are shown in Table 3. The carcass weight of pigs belonging to three dietary treatments was 52.00, 54.96 and 49.96 kg and dressing percentage was 70.10, 71.95 and 69.21 per cent, respectively. The carcass length was 65.40, 66.40 and 65.00 cm while back fat thickness and loin eye area were 2.70, 2.70 and 2.68 cm and 27.07, 30.81 and 28.28 sq.cm, respectively for animals of T1, T2 and T3.

## **Experimental Ration**

The animals were fed standard grower ration containing 18 per cent

#### DISCUSSION

#### **Dressing Percentage**

From the data on carcass characteristics presented in the Table 19 it could be seen that the dressing percentage (70.10, 71.95 and 69.21, respectively) of pigs maintained on the three dietary treatments T1, T2 and T3 were statistically similar. Luscombe (1973), Kjos et al. (1999) and Sakthivel (2003) obtained similar dressing percentage (71.09 to 71.81, 71.2 to 72.8 and 71.97 to 72.33, respectively) when growing and finishing pigs were fed diets containing different levels of fish silage.

#### **Carcass Length**

The carcass length (65.40, 66.40, 65.00 cm, respectively) of pigs maintained on the three dietary treatments T1, T2 and T3 were statistically similar. Madhukumar (2002) obtained similar carcass length (65.25 to 66.7 cm) when pigs were fed different levels of prawn waste. Tibbets et al. (1981) recorded carcass length that ranged from 77.7 to 78.3 in pigs fed rations containing different levels of fish silage. Lower carcass length (59.71 to 60.92) was reported by Sakthivel (2003) in pigs fed different levels of cuttle fish waste silage.

#### **Back Fat Thickness**

The back fat thickness (2.70, 2.70 and 2.68 cm, respectively) of the pigs maintained on the three dietary treatments T1, T2 and T3 were statistically similar. Madhukumar (2002) recorded similar values (2.56 to 2.79 cm) when diets containing different levels of prawn waste were fed to pigs. Tibbets et al. (1981) and Wohlt et al. (1994) recorded higher back fat thickness (3.30 to 3.60 and 2.97 to 3.60 cm, respectively) in pigs fed rations containing different levels of fish silage and sea clam viscera, respectively.

#### Loin Eye Area

The loin eye area (27.07, 30.81 and 28.28 sq.cm, respectively) of the pigs maintained on the three dietary treatments T1, T2 and T3 were statistically similar. Tibbets et al. (1981) recorded higher loin eye area (31.70 to 34.50 sq. cm) when diets containing different levels of fish silage were fed to pigs. Madhukumar (2002) and Sakthivel (2003) obtained values that ranged from 21.00 to 24.22 sq. cm in pigs fed rations containing different levels of prawn waste and cuttle fish waste silage, respectively which were lower than that observed in the present study.

#### CONCLUSION

In this study no significant effect was observed on carcass characteristics when large white yorkshire pigs were fed dried tuna waste fish silage. Since it is a cheap animal protein source it can be used as an alternative to dried fish in swine feeding.



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