

**CONVERSION OF HATCHERY WASTE TO A  
FEASIBLE FEED INGREDIENT FOR POULTRY**

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By

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## ABSTRACT

The study was conducted to determine the suitability of hatchery waste as a cost effective alternative protein source for the local feed industry, while reducing the accumulation of hatchery waste in commercial poultry hatcheries. Broiler hatchery waste, collected from CIC hatchery was autoclaved under  $1.76 \text{ kgcm}^{-2}$  pressure,  $125 \text{ }^{\circ}\text{C}$  for 15 minutes. Microbiological analysis was conducted for both raw and autoclaved product. The autoclaved product was oven dried; ground and dried hatchery by products were obtained. Samples were collected for three consecutive hatches within two weeks period. Resulted product was subjected to analysis of proximate composition, free fatty acid content, mineral content and the value of protein in practical commercial feed formulation. Data obtained were statistically analyzed through one sample t-test in Minitab (Version 14.0) computer software at 5% level of significance. The yield (54.27%) of the product was approximately half of the amount of the raw hatchery waste. Hatchery by products was a Calcium rich (21.55%) protein source (23.51%) with 13.76% crude fat, 53.44% total ash, 0.40% Phosphorus, 0.48% Chlorine, 0.31% Sodium and 0.31% acid insoluble ash. Total plate count of the treated hatchery waste ( $5.26 \times 10^3$ ) was significantly less than that value of the raw hatchery waste ( $3.66 \times 10^8$ ). *Coliforms and Escherichia coli* which were detected in most of the raw hatchery waste samples were not detected after the treatment was applied. *Salmonella* were not detected in either forms of the tested hatchery waste. Free fatty acid content of the product has shown a significant increment even after a week period. Non significant difference between the protein content of the product and the waste milk powder was observed. Protein content of the product was significantly greater than that value of copra meal and soy bean flour, while it was significantly lesser than the protein content of blood meal, dehydrated cattle skim milk, fishmeal, meat meal, meat and bone meal, poultry by products meal, hydrolyzed feather meal, soy bean meal, brewer's yeast, poultry offal meal, ground nut meal and gingerly poonac. Calcium content of the product was significantly higher than that value of any other available protein sources. Compare to the other available sources hatchery by products has the highest value of protein in practical commercial feed formulation (12.828).