



Introduction

Wheat distiller's dried grains with solubles (wDDGS) are a by-product from bioethanol production with their potential for use in livestock diets. Raw materials such as wDDGS used in feed formulations of broiler diets can have a highly variable effect on the chemical composition and quality of poultry meat (Snezana *et al.* 2010). Nutritionally, chemical composition of broiler muscle is an important element in determining the quality features of poultry meat (Suchy *et al.*, 2002).

Objective

This paper studied changes in the chemical composition of breast, thigh and leg muscles of broiler chickens as influenced by feeding wDDGS based diets supplemented with enzymes.

Methods



Pic1: Ground DDGS sample

- ❖ A completely randomized design with 3 x 2 factorial arrangement (3 wDDGS levels; 0, 15, 30% and 2 enzyme levels; -, + enzyme containing endo-1, 4-beta-xylanase of 9200 U/g, alpha-amylase of 1600 U/g and subtilisin as protease of 16000 U/g, @ 0.25 kg /tonne.
- ❖ Four replicate groups of 7 birds each per six treatments were raised in floor pens using the experimental diets.
- ❖ At 42 days of age, 2 birds per replicate were killed, defeathered, skinned and eviscerated to obtain muscles from breasts, legs and thighs. The muscles were minced and analysed for their chemical composition.

- ❖ The data were statistically compared for the effects of wDDGS, Enzyme and wDDGS x Enzyme interaction at $P < 0.05$.



Pic 2: Samples of cut parts and dressed broiler chickens

Results

- ❖ It appeared that inclusion of 15% wDDGS supported high protein % in breast muscles as influenced by enzyme inclusion ($P < 0.05$). Similarly, enzyme inclusion also influenced higher ash content of breast and thigh muscles.
- ❖ The wDDGS x Enzyme interaction was significant ($P < 0.05$) for the protein content of breast muscles which had greater protein for 30% wDDGS with enzymes than 30% wDDGS without enzymes.
- ❖ However, no significant effects were observed between the chemical constituents of leg muscles.

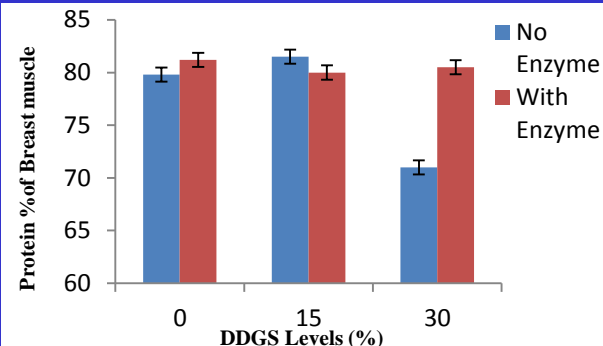


Fig1: Interaction of DDGS levels & Enzymes on Protein content of Broiler Breast Muscles

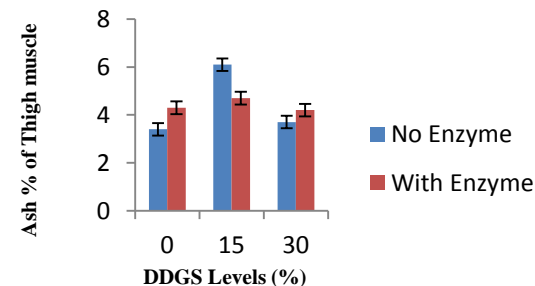


Fig2: Interaction of DDGS levels & Enzymes on Ash content of Broiler Thigh Muscles

Conclusion

We found considerable influence of the experimental diets with enzyme addition on protein and ash contents of broiler muscles.

References

- ❖ Snezana B-B, Milun, D.P, Petrovic D., DoskovicV, and Rakonjac S. (2010) 'Broiler meat quality: Proteins and lipids of muscle tissue', *African Journal of Biotechnology*, 9(54).
- ❖ Suchy, P., P. Jelinek, E.Strakova, J.Hucl (2002) 'Chemical composition of muscles of hybrid broiler chickens during prolonged feeding', *Czech J. Anim.Sci.*, 47(12).

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