

DEDICATION

To My father and Mother,

My brothers and sisters,

My Husband and my beloved daughter

Hanan

&

Beloved son

Ahmed

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List of Abbreviations

FTU/kg	phytase unit
FYT/U	phytase
NC	negative control
PC	positive control
NDF	neutral detergent fiber
NSP	non starch polysaccharides
TAXI	triticum aestvum xylanase inhibitor
NPP	non phytate phosphorus
GI	Gastrointestinal tract
ADF	acid detergent fiber
AME	apparent metabolizable energy
XAP	mixture of xylanase amylase and protease enzyme
NSPDE	non starch polysaccharide degrading enzyme
FCR	feed conversion ratio

Abstract

Three experiments were run to study the effects of dietary microbial xylam 500 (xylanase + amylase) enzyme (Experiment 1), phytase (Nutrase P) enzyme (Experiment 2) and their combinations (Experiment 3) on performance and carcass characteristics of broiler chicks fed on diet containing 10% wheat bran. The experimental design used in each experiment was completed randomized design (CRD). Two control diets were formulated in each experiment, (A) negative control diet (without wheat bran or enzymes) and (B) positive control diet (with 10% wheat bran). In experiment one, two levels of microbial xylam, 500 and 750 g/ton were added to the positive control diet. In experiment two, two levels of microbial phytase, 1000 and 1500 g/ton were added to the positive control diet. In each experiment, 120 seven day-old unsexed Hubbard broiler chicks were used. The chicks in each experiment were allotted randomly in 4 treatment groups ×5 replicates, each of 6 chicks. In experiment three, 4 dietary combinations of xylam and phytase enzymes, (500 and 1000 g/ton); (750 and 1000 g/ton); (500 and 1500 g/ton) and (750 and 1000 g/ton) respectively were added to the positive control diet, using 180 seven day-old unsexed Hubbard broiler chicks, allotted randomly to 6 treatment groups× 5 replicates, each of 6 chicks. All chicks in each experiment were formulated to be isonitrogenous (22.8%) and isocaloric (3100 kcal/kg) according to the recommended dietary requirements for broilers (NRC, 1994). Experimental parameters covered performance, slaughter and carcass data and economic appraised.

The results showed that the addition of microbial xylam and phytase enzymes, individually or in combinations to the diet containing wheat bran improved significantly ($P < 0.05$) the body weight gain, feed intake and feed conversion ratio values of the broiler chicks at different stages of the growth.

No significant differences were observed between wheat bran diets supplemented with the two enzymes, separately or in combinations and the negative control diet in body weight gain, feed intake and feed conversion ratio values of broiler chicks. The mortality rate was not significantly influenced by the dietary treatments.

The results indicated that there were no significant differences among all treatment groups in the percentages of carcass dressing, internal organs (liver, heart and gizzard) commercial cuts (thigh, drumstick and breast) and their percent of separable meat; meat chemical composition (moisture, protein, fat and ash) and subjective meat quality parameters (tenderness, juiciness, flavour and colour) of the broiler chicks.

Economically appraised values were profitability ratio (1.18) of group C. (500g xylam/ton) was the highest of the test groups. Profitability ratio (1.22) of the test group C (1000g phytase/ton) was the highest of the test groups. Profitability ratio (1.06) of the test group E (500 and 1500/g xylam and phytase combinations) respectively was the highest of the tests groups.

المخلص

تم إجراء ثلاثة تجارب لدراسة أثر أنزيم الزايلام 500 المايكروبي (زيلانيز + أميليز) (التجربة الأولى)، الفايترز المايكروبي (نيوتراس P) (التجربة الثانية) ومخاليطها (التجربة الثالثة) على الأداء الإنتاجي وخصائص الذبيحة لدجاج اللحم المغذي على عليقه تحتوي على 10% ردة القمح. صممت كل تجر به بأستخدام النظام العشوائي الكامل. تم تكوين عليقتين قياسيتين لكل تجر به، (أ) عليقه قياسيه سالبه لا تحتوي على ردة القمح أو الأنزيمات، و(ب) عليقه قياسيه موجبه (تحتوي على 10% ردة القمح). من التجربه الأولى تم إضافة مستويين من أنزيم الزايلام المايكروبي 500، 750/جم/طن إلى العليقه القياسيه الموجبه. في التجربه الثانيه تم إضافة مستويين من أنزيم الفايترز المايكروبي 1000، 1500/جم/طن إلى العليقه الأساسيه الموجبه. في كل تجر به تم أستخدام 120 كتكوت لاحم عمر 7 أيام غير مجنس سلالة الهبارد. قسمت عشوائياً إلى 4 مجموعات تجريبية \times 5 مكررات بكل واحد منها 6 كتاكيت في التجربة الثالثة تم إضافة الزايلام والفايترز معاً من مخاليط أنزيميه (500، 1000/جم/طن)، (750، 1000/جم/طن)، (500، 1000/جم/طن) و(500، 1000/جم/طن). إلى العليقه القياسيه الموجبه، غذى بها 180 كتكوت لاحقاً من سلالة الهبارد غير مجنسة عمر 7 أيام. قسمت عشوائياً إلى 6 مجموعات تجريبية \times 5 مكررات لكل منها 6 كتاكيت. جميع الكتاكيت في كل تجر به تم تغذيتها على العليقه التجريبي لمدة 6 أسابيع. تم تكوين كل الأعلاف التجريبية في الثلاث التجارب لتكون متماثلة في البروتين الخام (22.8%) والطاقة الممثلة (3100 كيلوكالوري/كجم) حسب الاحتياجات الغذائية الموصى بها للدجاج اللاحم (NRC, 1999). شملت قياسات التجربة الأداء الإنتاجي، قيم الذبح والذبيحة والتقييم الاقتصادي.

اظهرت النتائج بأن إضافة انزيمي الزايلام والفايترز بصوره منفرده أو مزدوجه في مخاليط مختلفه إلى العليقه التي تحتوي على ردة القمح قد ادت إلى تحسين معنوى ($P < 0.05$) في قيم وزن الجسم المكتسب، العليقه المستهلكه، ومعدل التحويل الغذائى للدجاج اللاحم في مراحل نموها المختلفه. لم تلاحظ اي فروقات معنويه بين العليقه المحتويه على ردة القمح المضاف إليها الانزيمين كل على حدا أو معاً في مخاليط والعليقه القياسيه السالبه

في قيم الوزن المكتسب 'عليه المستهلكه' ومعدل التحويل الغذائي لدجاج اللحم. لم تتأثر معدل النفوق معنويًا بالمعاملات الغذائية المختلفه.

دلت النتائج على أنه لا توجد فروقات معنويه بين مجموعات المعاملات المختلفه في نسب التصافي 'الأعضاء الداخليه (القلب 'الكبد' القانصه)' 'القطع التجاريه (الساق 'الفخذ 'والصدر) ونسب اللحم بكل منها 'مكونات التحليل الكيميائي للحم (الرطوبة 'البروتين 'الدهون والرماد) ' قياسات اللحم الأنطباعيه (الطراوه 'العصيريّه 'النكهه واللون) لدجاج اللحم .

أظهر التقييم الأقتصادي ربحيه نسبيه (1.18) في المجموعه 500 C جم زايلام /طن وكانت الاعلى بين مجموعه الأختبار. الربحيه النسبيه (1.22) لمجموعه الأختبار (1000 جم فاينيز/طن) (c) . الربحيه النسبيه (1.06) لمجموعه الأختبار (500E) و 1500 جم /طن مخلوط الزايلام والفاينيز) على التوالي كانت الاعلى بين مجموعات الاختبار.