**وه‌زاره‌تی خوێندنی باڵا و تۆێژینه‌وه‌ی زانستی**

**Ministry of Higher Education &**

**Scientific Research**

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| **پرۆپۆزەلى توێژینه‌وه‌ بۆ به‌ده‌ستهێنانی بروانامه‌ی دکتۆرا PhD Research Proposal** | | |
| **ناونيشانی پرۆپۆزه‌لی تۆێژینه‌وه‌ی پێشنیازکراو 1. Title of PhD Research Proposal**  **The efficacy of Using Olive by-product and Probiotic supplementation on Growth Performance, Carcass, Gut Microbiota, Intestinal Histology, Blood** **Characteristics and Immune Function of Broilers** | | |
| **زانیاری گشتی 2. General information** | | |
| Name and surname  of the supervisor 1 | Dr. Rebin Aswad Mirza | ناوی سیانی سه‌رپه‌رشتیار 1 | |
| Scientific title | Assistant Professor | پله‌ی زانستی سه‌رپه‌رشتیار 1 | |
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| College / faculty | Agricultural Engineering Sciences | کۆلیژ / فاکه‌ڵتی/سكول | |
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| Name and surname  of the supervisor 2 )If it is available) |  | ناوی سیانی سه‌رپه‌رشتیار 2  ئه‌گه‌ر هه‌یه‌)) | |
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| College / faculty |  | کۆلیژ/ فاکه‌ڵتی/سكول |
| university's name |  | ناوى زانکۆ |
| **3. Summary (Abstract) of PhD research proposal**  This should be not more than 200 words and not less than 75 words.  This study will be conducted in field of Animal Resources Departments in College of Agricultural Engineering Sciences, Erbil. Kurdistan Region of Iraq or any other local place outside College.  Chicks of will be obtained from authorized hatcheries in Kurdistan. This study will be conduct in two experiment. The first trial will be working with different level of olive cake by-product with different level of probiotic supplementation to investigate the effect of these product alone and their interactions on growth performance gut health of broilers at 42 days of age. | | |
| 4. Introduction  To be completed by the primary supervisor: an overview of the proposed research project, focusing on the background of the project and rationale for the research.  INTRODUCTION: ­  Feeding costs account for about 70% of the total cost of poultry production. In developing countries, feed resources are limited, and the problem became more difficult after the use of grains and oilseeds for biofuel and biodiesel production, respectively. Therefore, it is necessary to find new, non-traditional, low-cost  feedstuffs to decrease the overall cost of poultry production (Al-Harthi et al. 2011). Cultivation of olives in Saudi Arabia has increased in the northern area in Hail, Jouf and Tabouk due to several health benefits of olives (Amici et al. 1991). The residues after oil extraction are estimated to be 30–40% of olive seeds (Nefzaoui 1993). These residues are a rich source of oil 6.8% (Amici et al. 1991; Sadeghi et al. 2009).  In addition, utilisation of olive by-products in animal nutrition can enrich animal products with unsaturated fatty acids and improve animal product quality (Molina-Alcaide and Yanez-Ruiz 2008). In the literature, olive cake (OC) was added at 5–10% to broiler diets without adverse effects on growth performance, carcass characteristics, inner body organs and blood hematology (Abo-Omar 2005; Zangeneh and Torki 2011). However, a higher level of OC negatively affects nutrient digestibility (Abo-Omar 2000). Olive cake cell walls consist of non-starch polysaccharides (NSP) that contain xyloglucan and xylan–xyloglucan complexes (Coimbra et al. 1995) and glucuronoxylans with xylose/glucose at the ratio 7:1 (Domingues 2002). The performance of poultry and pigs is advisedly affected by the presence of dietary NSP (Coimbra et al. 1995).  For several decades, probiotics have been used to improve feed utilization by farm animals, and they have played an important role since the ban on using antibiotics as growth promoters in animal feed in the European Union in 2006.  Moreover, yeast can be used as a practical means to improve the utilisation of agricultural by-products in animal nutrition and to reduce environmental pollution and the cost of feeding (Ayanwale et al. 2006;\_Swia˛tkiewicz et al. 2014). However, the effect of yeast depends on the dietary composition and nutrient profiles of animal feeds (Onifade 1998). | | |
| **5. Research objectives**  Clarify the research objectives and planned methodology to meet the challenges of the project. Include details of the research plan and relate to the previous work carried out by others.  To investigate the effects of olive cake by-product with or without probiotic in the first experiment and olive oil by-product with the best treatment in the first experiment will be used in the second experiment on the following parameters of broiler chickens:   1. The body weight gain, final body weight, feed intake, feed conversion ratio and survival rate of broiler chickens raised during the period of 42 d of age. 2. Inner organs ratios (Intestine and Caecum) to live body weight of broiler chickens raised during the period of 42 d of age 3. - Immune organs ratio (Spleen and Bursa) of broiler chickens. 4. - Blood Lipid profile (Triglyceride, mg/dl Cholesterol, mg/dl HDL, mg/dl LDL, mg/dl HDL/LDL ratio VLDL, mg/dl). 5. - Blood Characteristics (Heterophil, Lymphocyte and H/L ratio). 6. - Histology of Intestine and Bursa of Fabricous. 7. - Gut Microbiota (*Lactobacillus* spp. and *E. coli*) 8. - Meat quality via the study of chemical analyses, colours and structure of meat. 9. - Economic feasibility of each treatment in the experiments.   ‌ | | |
| **6. Methodology and data collection**  In this section the supervisor should describe the methodology of the proposed research  This study will be conducted in field of Animal Resources Departments in College of Agricultural Engineering Sciences, Erbil. Kurdistan Region of Iraq or any other local place outside College.  Chicks of will be obtained from authorized hatcheries in Kurdistan. This study will be conduct in two experiment. The first trial will be working with different level of olive cake by-product with different level of probiotic supplementation to investigate the effect of these product alone and their interactions on growth performance gut health of broilers at 42 days of age.  The effects of inclusion of olive cake by-product (OC) at 0, 4, 8 and 12% in broiler diets were investigated during 42 d of age. Each level of OC will fed with or without probiotic supplementation at levels 0.2 and 0.4 g/kg. Thus, the experimental design will be in a factorial arrangement that included four concentrations of OC by three concentrations of probiotic (without additive control, 0.2 and 0.4 g/kg probiotic supplementations). Each diet will be feed to three replicates of 10 male birds each.  The effects of different level of olive oil by-product with the best treatment of the olive cake by-product (OC) with probiotic supplementation in the first experiment in broiler diets will be investigate during 42 d of age.  The treatments will divided into three treatment. Control (T1) the best treatment of the olive cake by-product (OC) with probiotic supplementation in the first experiment, T1 + half percent change of oil by of olive oil by-product (T2) and T2 + total change of oil by olive oil by-product (T3).  Each diet will be feed to three replicates of 20 male birds each. Growth performance, European production efficiency index (EPEI), blood lipid constituents, inner body and lymphoid organs were studied. | | |
| **7. Scope and limit to the research**  Details of anticipated problems and proposed resolutions | | |
| **8. Duration and timeline**  The practical part which involves two experiments each need between two to three months to rearing broilers including some lab tests during experiment after take the samples and bring them to the lab for further working. Laboratory work will need 8 to 12 months. | | |
| **9. Conclusions**  The project supervisor summaries the research objectives and clarify their expected findings; include why the research has scientific value.  The results will be significant or not in broiler fed on different levels of olive cake by-product with probiotic than birds fed on control diets. But maybe it has economic feasibility compare control group in both experiment. Also the feed utilization, carcass composition, blood parameters and gut health will be better in supplementation of Olive by-product and probiotic compare to the control group. | | |
| **10. References** سەرچاوەکان  **REFERENCES:**  Abo-Omar J. 2000. Effect of different levels of olive pulp on the digestibility of broiler chicks. Bethlehem Univ J. 12:34–40.  Abo-Omar J. 2005. Carcass composition and visceral organ mass of broiler chicks fed different levels of olive pulp. J Islamic Univ Gaza. 13:75–84.  Amici A, Verna M, Martillotti F. 1991. Olive by-products in animal feeding: improvement and utilization. Opt M\_editerran\_eennes – Ser Semin. 16:149–152.  Ayanwale BA, Kpe M, Ayanwale VA. 2006. The effect of supplementing Saccharomyces cerevisiae in the diets on egg laying and egg quality characteristics of pullets. Int J Poult Sci. 5:759–763.  Coimbra MA, Rigby NM, Selvendran RR, Waldron KW. 1995. Investigation of the occurrence of xylan-xyloglucan 518 M. A. AL-HARTHI complexes in the cell walls of olive pulp (Oleaeuropaea). Carbohydr Polym. 27:277–284.  Domingues MR. 2002. Structural characterization of underivatised olive pulp xylo-oligosaccharides by mass spectrometry matrix-assisted laser desorption/ionisation and electrospray ionization. Rapid Commun Mass Spectrom. 16:2124–2132.  Molina-Alcaide E, Yanez-Ruiz DR. 2008. Potential use of olive by-products in ruminant feeding. A review. Anim Feed Sci Technol. 147:247–264.  Nefzaoui A. 1993. Etude be utilization des sous-product de Olivier en alimentation animale en Tunisia Animal Production and Health Division FAO. Roma. No. 1, pp: 5–59.  Onifade AA. 1998. Proposing fortification of foods with yeast for optimal nutrition value and salubrious effects. NutrFood Sci. 4:223–226.  Sadeghi H, TeimouriYnsari A, Ansari-Pirsarai Z. 2009. Effects of different olive cake by-products on dry matter intake, nutrient digestibility and performance of Zel sheep. Int J Agric Biol. 11:39–43.  Swia˛tkiewicz S, Arczewska-Włosek A, J\_ozefiak D. 2014. Immunomodulatory efficacy of yeast cell products in poultry: a current review. World’s Poult Sci J. 70:57–68.  Zangeneh S, Torki M. 2011. Effects of B-Mannanase supplementing of olive pulp-included diet on performance of laying hens, egg quality characteristics, humoral and cellular immune response and blood parameters. Global Vet. 7:391–398. | | |
| **11. General notes:** هەر زانیارییەکی گشتی دیکە کە سەرپەرشتیار بە گرنگی بزانێت | | |
| **12.**  **په‌سه‌ندكردنی پرۆپۆزەل له‌ لایه‌ن لیژنه‌ی زانستی به‌ش**  ژماره‌ی كۆنووسی كۆبوونه‌وه‌:  رێكه‌وتی كۆبوونه‌وه‌:  بریار: په‌سه‌ند كرا په‌سه‌ند نه‌كرا    ناوی سیانی و واژووی لیژنه‌ی زانستی به‌ش  واژوو:  ناوى سه‌رۆكی لیژنەى‌ زانستی به‌ش مۆری به‌ش  واژوو:  ناوى سه‌رۆكی به‌ش: | | |
| **13.**  **په‌سه‌ندكردنی پرۆپۆزەل له‌ لایه‌ن ئه‌نجومه‌نی كۆلێژ/فاکەڵتى**  ژماره‌ی كۆنوسی كۆبوونه‌وه‌:  رێكه‌وتی كۆبوونه‌وه‌:  بریار: په‌سه‌ند كرا په‌سه‌ند نه‌كرا  واژوو:  ناو راگری كۆلێژ: مۆری كۆلێژ | | |

**تێبینی:** تكایه‌ فۆرمه‌كه‌ ته‌نها به‌ یه‌ك زمان (زمانی توێژینه‌وه‌) پڕ بكرێته‌وه‌.