



ABSTRACT BOOK

2nd International Conference on Animal Husbandry and Life Sciences (ICAHLS)

Tuesday, October 11th, 2022

Faculty of Veterinary Medicine,
Universitas Airlangga

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Effect of probiotic administration of *Bacillus subtilis* and *Bacillus coagulans* isolate on feed intake, body weight, and feed conversion rate in broiler chicken

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ABSTRACT

Probiotics are feed additives in the form of live microorganisms that balance the microorganism population in the digestive tract. This research aims to determine the effect of probiotic administration of *Bacillus subtilis* and *Bacillus coagulans* isolate in improving feed intake, body weight, and decreasing Feed Conversion Rate (FCR) in broiler chicken. The design used randomized block design (RBD) with four treatments and six replications, using twenty-four broiler chickens from 21 to 35 days old. This research consists of four treatments. P0 is the control treatment, which is a group without probiotics. P1, P2, and P3 as experimental treatments consist of probiotic treatment with 2 ml/head/day, 4 ml/head/day, and 6 ml/head/day that have been given orally. Based on the results of the Analysis of Variance (ANOVA), it can be seen that feed intake, body weight, and FCR values in all treatment groups (P1, P2, P3) were significantly different ($p < 0.05$) from the control (P0) group. But there was no significant difference ($p > 0.05$) between P1 and P3. The results showed that the effect of *Bacillus subtilis* and *Bacillus coagulans* as probiotics with a dose of 4 ml/head/day had a noticeable impact on feed intake, body weight, and decreased FCR.

Keywords: *Bacillus subtilis*, *Bacillus coagulans*, probiotic, broiler chicken, feed intake, body weight, Feed Conversion Rate

The level of lead contamination in cattle blood can be a predictor of lead contamination in the soil

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ABSTRACT

Environmental pollution by lead is suspected to increase. Lead contamination in the soil will be absorbed in plants, then cattle and end up in people as beef consumers.. The aim of the study was to examine the level of lead contamination in the cattle blood associated with the level of contamination in the soil, where the cattle were kept. A total of 270 cattle blood and soil samples were examined in this study. Cattle blood and soil samples were taken by purposive sampling method in some cattle farming in Bali island. Examination of cattle blood and soil samples was carried out for the presence of lead using the atomic absorption spectrometry (AAS) method. The results of the examination found lead contamination in twenty blood and soil samples with an average of 0.109 ± 0.080 ppm and 0.239 ± 0.136 ppm, respectively. These data indicate that the level of lead contamination in the soil is higher than that of cattle blood. Regression correlation analysis shows that the level of lead contamination in cattle blood is in line with the level of contamination in the soil. It can be concluded that cattle can be a predictor of lead contamination in the soil on the farm

Keywords: *atomic absorption spectrometry, cattle blood, lead, regression, soil.*

Utilization of Saponin Antinutrients as an additive feed in Animal Feed: In Review

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ABSTRACT

Feed ingredients derived from plants contain antinutrient compounds or ANF which are toxins or poisons so that ANF is a limiting factor for livestock consumption. Saponins are one of the antinutrient components that are found in various types of plants such as *Sapindus rarak* (lerak), *Camellia sinensis* (tea), *Morinda citrifolia* (mengkudu) and *Moringa oleifera* (moringa). Saponins are compounds resulting from secondary metabolites composed of glycosides (sugar components) and aglycosides (non-sugar components). The bond between the glycoside and aglycoside groups in the saponin produces foam or froth so that the saponin has a surfactant. In general, glycosides in saponins are divided into two, namely steroids or triterpenoids. The toxicity of saponins in causing biological effects on livestock productivity varies depending on the type of livestock and the level of saponin concentration consumed by livestock. Poultry are more susceptible to the biological effects of saponins than ruminants. In addition to the negative impact of saponin toxicity, the content of saponins in low concentrations has a positive impact on livestock growth, namely as an additive feed or feed additive to replace antibiotics and as a defaunation agent. The function of saponins as additive feed and defaunation agents is inseparable from the surfactant power in saponins which can increase livestock productivity and feed efficiency through the suppression of the growth of protozoa and pathogenic bacteria in the digestive system. The use of saponins in livestock needs to be processed to reduce the level or concentration of saponins in feed ingredients. Various methods of processing feed ingredients to reduce and eliminate the content of saponins include heating, soaking and boiling. The method of writing reviews and collecting primary data is carried out through literature reviews from various literature sources including books, journals, proceedings and official website.

Keywords: *Feed; Anti-nutrition; Saponins; biological effects; feed additives; defaunating agents*

Feed Source Potention for Organic Meat Production in Indonesia: in Review

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ABSTRACT

Organic products are becoming a world consumption trend along with consumer awareness of the importance of health. The livestock sector is responsible for meeting the nutritional needs of the community, especially protein sources. The purpose of compiling this manuscript is to summarize the potential sources of organic feed to meet the needs of meat-producing farms in Indonesia. The method used in this article is a systematic journal review with descriptive data submission. Based on the literature study that has been carried out, it is known that organic farming in Indonesia has begun to be developed by several meat-producing companies such as CV Rahayu (local chicken), TML Farm (sheep and broilers), Yayasan Bina Sarana Bakti (cattle, sheep, rabbits, chickens, ducks, goose), PT. Wahyu Utama Group (cattle), PT. Indospirit (beef), etc. The quantity of organic feed sources is still lower than conventional livestock feed. Organic land for food products (rice, corn, soybeans) can be used as by-products as animal feed. Based on the data, it can be concluded that the potential of organic feed sources to meet the needs of organic meat-producing farms can be optimized by integrating animal husbandry and organic farming.

Keywords: opportunity, integration, organic farming, healthy product.

Case study of production performance of semi closed house broiler system in tulungagung regency

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ABSTRACT

This study aims to test and analyze the effectiveness of the performance of broiler chickens reared in rack and postal cage models. This research was conducted in Tulungagung Regency using 2 different cage models, namely rack and postal cage models. Data were analyzed using Independent samples T-test. The parameters of this study were feed consumption, PBB, FCR, mortality and IP. The results showed that the use of rack and postal cage models had an effect on feed consumption, PBB and FCR. The rack cage model got better performance of broilers with an average value of feed consumption during rearing 484.82 grams/head, PBB value 367.43 grams/head and FCR value 1.28. Meanwhile, the postal cage had an average feed consumption value of 494.60 grams/head, PBB 343.93 grams/head and an FCR value of 1.36. Rack and postal cage models have no effect on mortality and both have IP values above 400 so that broiler farming in Tulungagung Regency is included in the special category.

Keywords: Broiler Chicken, Cage Model, Production Performance

The potentials of moringa leaf extracts (*Moringa oleifera* Lam.) on in vitro bacterial growth of *Pediococcus pentosaceus* as candidate probiotics

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ABSTRACT

This research aimed to know the potential of kelor (*Moringa oleifera* Lam.) leaf extract on the growth of bacteria *Pediococcus pentosaceus* in vitro as candidate probiotics. This study used kelor (*Moringa oleifera* Lam.) leaf extract and bacteria *Pediococcus pentosaceus* with 4 treatment groups consisting of control treatment (P0), P1 treatment of kelor (*Moringa oleifera* Lam.) leaf extract dose of 0,1%, P2 treatment of kelor (*Moringa oleifera* Lam.) leaf extract dose of 0,2%, P3 treatment of kelor (*Moringa oleifera* Lam.) leaf extract dose of 0,3%. At the end of treatment, each colony is calculated using the method *Total Plate Count*. The results were analyzed by *Analysis of Variance* (ANOVA) then followed by Duncan test. The results showed kelor (*Moringa oleifera* Lam.) leaf extract at a dose of 0,1%, 0,2%, 0,3% can increase the growth of bacteria *Pediococcus pentosaceus* ($p < 0,05$). The mean growth colony of bacteria *Pediococcus pentosaceus* in the treatment of P0 was $1,2 \times 10^2$ (CFU/ml), followed by P1 treatment of $1,5 \times 10^2$ (CFU/ml), and P2 treatment was $2,5 \times 10^2$ (CFU/ml) while the highest was found in P3 treatment of $2,9 \times 10^2$ (CFU/ml).

Keywords: *Moringa oleifera* leaf extract, prebiotic, probiotics, *Pediococcus pentosaceus*

Potency of *Bifidobacterium sp.* and *Guazuma ulmifolia* Lamk. Leaf Extract on Performance and Internal Quality of Quail Eggs (*Coturnix coturnix japonica*)

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ABSTRACT

Quail farm has a great opportunity as poultry farming businesses in Indonesia because it has a short biological cycle and a high metabolic rate than other poultry. The success rate of a livestock business can be determined from feed and maintenance management. This study aims to determine the effect of adding *Bifidobacterium sp.* and *Guazuma ulmifolia* Lamk. leaf extract into drinking water on quail production performance (feed consumption, feed conversion ratio, egg production) and egg quality (egg mass, Haugh Unit, yolk colour). This research was an experimental study using completely randomized method with 96 female quails (*Coturnix coturnix japonica*) which were randomized into four treatments and six tests, each containing four quails. The treatment was given 0.2% (2 ml/liter of drinking water) for each *Bifidobacterium sp.* and *Guazuma ulmifolia* Lamk. leaf extract. Data collection of this research was carried out on the last week of the research period. The adding of *Bifidobacterium sp.* and *Guazuma ulmifolia* Lamk. leaf extract of 2 ml/liter of drinking water each had a significant effect ($p < 0.05$) on feed consumption, feed conversion ratio, egg production, egg mass, and yolk colour. The combination has a potency to increase the value of Haugh Unit but not significantly ($p > 0.05$).

Keywords: *Bifidobacterium sp.*, *Coturnix coturnix japonica*, *Guazuma ulmifolia* Lamk., Health, Internal Egg Quality, Production Performance.

Sensory Quality of Quail Eggs Fed Ration Containing Flour and Extract of Daun Sirih (*Piper Betle*)

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ABSTRACT

Betel leaf is a herbal plant that has antimicrobial properties and contains useful active substances. Now betel leaf is widely used as a feed additive in livestock rations. The purpose of this study was to examine the effect of betel leaf powder extract on the sensory quality of quail eggs. The study was conducted for 2 months. The design used was a completely randomized design with 3 treatments. Data were analyzed using Kruskal Wallis. The observed variables were hedonic test and hedonic quality test, each of which consisted of 5 scales. The indicators are egg yolk color, egg white color, aroma, taste and texture of quail eggs. The results showed that the administration of betel leaf flour had a significant effect on egg yolk color in the hedonic test and significantly on aroma and texture in the hedonic quality test for quail eggs but did not significantly affect the egg white color, aroma, texture, and taste variables in the hedonic test. as well as on the hedonic quality test on the yellow and white color variables, and the taste of quail eggs. Panelists considered that the color of egg yolks given betel leaf flour was more preferable than the betel leaf extract. Likewise, in the hedonic quality test, the treatment of giving betel leaf flour gives a texture that tends to be more chewy than other treatments. The conclusion of this study is that the administration of 1% betel leaf flour showed better sensory quality results.

Keywords: organoleptic test, panelist, piper betle, quail eggs

Effect of lysine and methionine on body weight gain and feed conversion rate between broiler from young parent and from old parent

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ABSTRACT

A study was conducted to determine the effect of difference age of broilers parent and provision of lysine and methionine on performance of male broiler. The animals experimented in this study were twenty (20) male *Cobb* broilers from young parent and twenty (20) male *Cobb* broilers from old parent. The design of experiment used was Complete Randomized Design Factorial Pattern consisting of two factors with two levels in each factor and ten replications in each level. POL0 was broiler from young parent without lysine and methionine in their drinking water; POL1 was broiler from young parent with lysine and methionine in their drinking water; PIL0 was broiler from old parent without lysine and methionine; PIL1 was broiler from old parent with lysine and methionine. The data were analyzed with Univariate Analysis of Variance statistic method. The result indicated that there was no significantly difference ($p > 0,05$) in the treatment of difference age of broilers parent and the lysine and methionine treatment in increasing cumulative weight gain of broiler; treatment of difference age of broilers parent and the lysine and methionine treatment has significant effect ($p < 0,05$) in reducing the feed conversion rate of broiler.

Keywords: lysine, methionine, broiler, body weight gain, feed conversion rate

The meat and bone ratio of male local rabbit feeding of fermented rumen content

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ABSTRACT

Rabbit is one of the meat-producing livestock to free people from hunger. This study was to determine the effect of giving fermented rumen contents as feed ingredient for rabbit feed on the ratio of meat and bones. This research used 20 local rabbits (*Oryctolagus cuniculus*) 3 – 4 months ages that divided into four treatments and five replications per treatment. Four different treatment were, P0 was rabbit complete feed contain 40% hay; P1 was contain 20% fermented rumen content; P2 was contain 40% fermented rumen content; P3 was contain 60% fermented rumen content. The data were analyzed using Analysis of Variance (ANOVA) Statistical Method and continued with Duncan Multiple Range Test. The result showed there were significant difference ($p < 0,05$) on meat and bone weight, but not significant difference ($p > 0,05$) on the ratio of meat and bones. The conclusion showed that fermented rumen content in feed formula with concentration 40% can be used to increasing meat and bone weight, but fermented rumen content in feed formula with concentration 20%, 40% and 60% did not affect to the ratio of meat and bones.

Keywords: fermented rumen content, the ratio of meat and bones, rabbit.

Business Effects Analysis of the Combination of Probiotic and Teak Leaf Extract of the Netherlands (*Guazuma upmifolia lamk.*) on Cholesterol, HDL, LDL on Japanese Quail Egg Yolk (*Coturnix coturnix japonica*)

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ABSTRACT

This study was conducted to determine the effect of the combination of probiotics and Dutch teak leaf extract (*Guazuma upmifolia lamk.*) on cholesterol, HDL, LDL in Japanese quail egg yolks (*Coturnix – coturnix japonica*) and business analysis. The type of research used is research true experimental, post test only control group design. The design used in this study was a completely randomized design (CRD) with a total of 4 treatment groups (P0, P1, P2, and P3) and a total of 6 replications. Group P0 (control) was not given probiotics and Dutch teak leaf extract, P1 was given probiotics 2ml/liter of drinking water, P2 was given 2ml of Dutch teak leaf extract/liter of drinking water and P3 was given 2ml of probiotic + Dutch teak leaf extract of 2ml/liter of drinking water. This treatment lasts for 30 days. The results showed cholesterol levels at P0 429.41 mg/dl, P1 343.73 mg/dl, P2 227.48 mg/dl and P3 179.86 mg/dl. Based on the results of the analysis showed that there was a significant difference ($p < 0.05$) on total cholesterol levels in each treatment. The lowest total cholesterol levels during the research process sequentially starting from P3, P2, P1 and P0. LDL levels P0 55.75 mg/dl, P1 47.96 mg/dl, P2 119.57 mg/dl, and P3 74.38 mg/dl. Based on the results of the analysis showed that there was a significant difference ($p < 0.05$) on LDL levels in each treatment. The lowest LDL levels during the research process in sequence starting from P1, P0, P3, and P2. HDL levels P0 20.58 mg/dl, P1 18.08 mg/dl, P2 41.01 mg/dl, and P3 26.50 mg/dl. Based on the results of the analysis showed that there was a significant difference ($p < 0.05$) on HDL levels in each treatment. The lowest HDL levels during the research process sequentially starting from P1, P0, P3, and P2. Business analysis using The lowest LDL levels during the research process in sequence starting from P1, P0, P3, and P2. HDL levels P0 20.58 mg/dl, P1 18.08 mg/dl, P2 41.01 mg/dl, and P3 26.50 mg/dl. Based on the results of the analysis showed that there was a significant difference ($p < 0.05$) on HDL levels in each treatment. The lowest HDL levels during the research process sequentially starting from P1, P0, P3, and P2. Business analysis using contribution margin the research scale obtained the results of P0 of Rp. 132,000, P1 of Rp. 151,800, P2 of Rp. 105,000 and P3 of Rp. 91,800. The results of this study indicate that the largest business analysis can improve the P1 treatment with a contribution margin value of Rp. 151,800.

Keywords: Cholesterol, HDL, LDL, Japanese Puyu, Dutch Teak Leaves

Effect of Insemination Time on Pregnancy Rate and Progesterone Profile of Ettawa Crossed Breed Goats

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ABSTRACT

This study aims to define the right time for insemination, which results in a high pregnancy rate in Cross Breed Etawa (PE) goats. Artificial insemination fixed time is challenging to detect in, especially in goats. This study takes three different insemination times without observing the estrous sign first. A total of 30 non-pregnant PE goats were used in this study. Estrous synchronization was done using a twice injection of prostaglandin F2 alfa (PGF2 α) intramuscular (IM) with an interval of eleven days. The thirty female goats were divided into three trial groups. Group I was carried out on "early to inseminate" (48 hours after the second injection of PGF2 α), group II received a "good to inseminate" trial (66 hours after the second injection of PGF2 α), and group III was carried out "late to inseminate" (84 hours after the second injection of PGF2 α). Insemination is done through vagino-cervix using two straws of frozen semen each (100 million sperm cells). Progesterone hormone profiles have been examined using the enzyme-linked immunosorbent assay (ELISA) technique at the time of insemination (day 0), days 7, 14, and 21 after insemination. Group I had six pregnant goats (60%), group II had seven pregnant goats (70%), and group III had six pregnant goats (60%). Group I had two does with twin fetuses (33.33%), group II had three does with twin fetuses (42.85%), and group III had one doe with twin fetuses (16.66%). Progesterone concentration remains low in non-pregnant goats and increases in pregnant ones.

Keywords: Etawa Crossbreed Goat, Estrous synchronization, Insemination, Progesterone profile

FMD's Vaccination Effect to Basic Semen Quality Parameter of Bali Cattle (*Bos sondaicus*) Semen-Donor Bulls

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ABSTRACT

This study aims to determine the effect of post-FMD's vaccination on the basic semen quality of Bali cattle bulls (*Bos sondaicus*). The data used in this study are semen collection data from 25 heads mature Bali Cattle bulls at the National Artificial Insemination Centre (NAIC) - Singosari from June 8th to 22nd (pre-vaccination) and from June 23rd to July 13th (post-vaccination). The paired sample t-test was performed to compare response variable of individual motility (%), abnormality (%), spermatozoa concentration ($\times 10^6$ cell) and semen volume (ml) from regular semen collection in post and pre-vaccination group. The results showed no significant different in semen individual motility ($t(74) = -1.72, p = 0.95$), abnormality ($t(74) = 2.06, p = 0.98$), spermatozoa concentration ($t(74) = -4.35, p = 1.00$), and semen volume ($t(74) = -0.11, p = 0.54$) in Bali cattle bulls before and after vaccination. This study concludes that the FMD's vaccination program in Bali Cattle bulls does not have the potential to reduce the basic semen quality for Bali Cattle frozen semen production.

Keywords: *Bali Cattle, FMD's, Post Vaccinal Effect, Semen Quality*

The quality of Buffalo Sperm (*Bubalus Bubalis*) in Tris Egg Yolk Diluent with Addition of Different Levels of Mangosteen Peel Extract (*Garcinia Mangostana* L.)

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ABSTRACT

Buffalo semen has antimotility properties by giving mangosteen peel extract which is expected to minimize antimotility because xanthone compounds can act as a counterweight. The purpose of this study was to determine the quality of buffalo sperm in tris egg yolk diluent added with mangosteen rind extract at different levels. his research was conducted using an experimental method using a completely randomized design consisting of 4 treatments and 4 replications. Parameters observed were motility, abnormalities and intact plasma membrane. The results of observations of buffalo sperm motility did not affect the motility of buffalo sperm which had been diluted in egg yolk tris diluent with the addition of mangosteen rind extract. The results of this study showed no significant effect on motility ($P>0,05$) P1 58.75%, P2 58.75%, P3 58.75% and P4 57.50%. The results of the study had a very significant effect on Abnormality ($P<0,01$) P1 27.25%, P2 25%, P3 29.25% and P4 31.50%. The results showed a very significant effect on the Whole Plasma Membrane ($P<0,01$) P1 70%, P2 72.50%, P3 69% and P4 66.75%. The conclusion of this study is that the addition of 5% mangosteen rind extract in egg yolk tris diluent did not affect the sperm motility of the mud buffalo but could minimize the increase in the abnormality of the buffalo sperm and minimize the decrease in the intact plasma membrane of the buffalo sperm.

Keywords: abnormalities; buffalo; intact plasma membrane; mangosteen skin; motility.

Diluent Levels and Storage Time are Different Against Abnormality and MDA of Entog Cement at Room Temperature

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ABSTRACT

During the storage of entog cement, there is a decrease in quality along with with the treatment of storage time and the level of diluent to cement. The aim of this study was to determine the MDA content of entog semen in dilution and storage were different at room temperature 27°C. This research used in the level of dilution of Glutinous semen with a long-time store differently at room temperature 27°C. In this study, the parameters of the mass motility of spermatozoa were used individual motility, spermatozoa abnormalities, MDA activity test. A total of 5 adult mutton tails ranging in age from 1.5 to 2 years, 3 males and 2 females, healthy and have a high libido are used as research livestock and housed individually. The research method used is the method experimental with split plot pattern. The first factor as the main plot is the dilution level which is 0 (A0); 5 times (A1); 10 times (A2) and 15 times (A3), the second factor as a subplot is the storage time 0 (B0); 60 minutes (B1); 120 minutes (B2) and 180 minutes (B3) stored at room temperature 27°C with 3 repetitions. Results of this study were the best results are abnormalities occurred at a dilution rate of 5 times with a shelf life of 60 minutes, and MDA on without dilution or control with a shelf life of 120 minutes.

Keywords: abnormality, cement, diluent level, entog, storage time

Detection of anti-mullerian hormone gene using real-time PCR in indonesian's local cow

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ABSTRACT

AMH protein (Anti-Mulerian Hormone) has an important role in fertility in mammals including for cows. This protein is one of the markers in fertility. AMH protein titer in Blood volume can reflect the number of preantral follicles and correlate with the number of mature follicles. Reverse transcriptase - quantitative PCR (RT qPCR) is one of the technologies for the detection and mRNA quantification is the gold standard. This study aims to detect AMH mRNA marker in bovine serum as an evaluation of fertility in cattle. The benefits of this research is to obtain amh mRNA markers in the blood that correlate with AMH protein. A total of 200 mg of bovine tissue (cow lolite collection) was extracted using extraction genomics TIAM kit and kits. Forward and reverse primers are designed using NCBI primer software with targets the amh and act (Actin) genes. Meltcurve is performed to find the primary pair that produces a single-pack yield curve. The selected primary candidate is then synthesized. All reactions qPCR using a CFX 96 touch machine (Biorad, USA). mRNA detection test using Sample serum (4) aged 1 year and fresh tissue (2) with RNA extraction using Aurum Our RNA extraction (Biorad, USA). Results: The primary design results resulted in a pair of forward primers and reverse targeting the M13151.1 amh gene (forward: 5'-CCTTGCTGAGGTTCCAGGAG-3' and reverse 5'-AGGGTAAGGGCTAACCCAGG-3') and act (forward: 5'-AGAGCAAGAGAGGCATCC-3' and reverse 5'-TCGTTGTAGAAGGTGTGGT-3'). The amh and actin amplicons are 217bp long at amh targets with positions at nt 683 – 880 and 103 bp at positions 214 – 314 in the actin gene. These 2 amplicons show a single melting pattern with a melting point of 93.5°C at target amh and a temperature of 85°C in actin. Gradient PCR results produce qPCR annealing and melting temperatures single curve at 70°C and 65°C for actin primers. The result is not significant melt peak between umelt and laboratory tests. The laboratory test produces a melt peak point at 90°C at amh and 82°C on actin primers. Conclusion: The optimization of the amh primary assay that we did was optimum by producing the best reaction efficiency with %E amh and actin are: 102% and 109% but the results of our RNA extraction are not optimal so that the high inhibitor can affect performance field testing.

Keywords: AMH, RT-qPCR, Fertility, Beef Cattle

The effect of okra (*Abelmoschus esculentus*) pods ethanol extract on mice (*Mus musculus*) preantral and antral follicle numbers exposed by carbon black

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ABSTRACT

This study aims to determine the preventive effect of okra (*Abelmoschus esculentus*) pods ethanol extract on the mice (*Mus musculus*) ovarian preantral and antral follicle numbers exposed to carbon black. This study used 25 mice which were divided into 5 groups. The negative control group (C-) and the positive control group (C+) were given aquadest orally, while the treatments groups T1, T2, and T3 were pretreated with okra pods ethanol extract orally with a dose of 4 mg/20gBW, 8mg/20gBW and 16 mg/20gBW. Later the C+, T1, T2, and T3 were exposed to 1064 mg/m³ Carbon Black for 6 hours/day for 30 days. The results of the study showed that there was a significant difference between control group C- (18.20c±2.28; 11.20d±0.83), C+ (8.60a±1.14; 5.00a±1.00) and treatment group T1 (12.60b±2.70; 8.00b±1.22), T2 (15.20bc±4.76; 8.80bc±2.04) and T3 (17.80c±2.77; 9.80cd±0.83) (p<0.05) in ovarian preantral and antral follicle numbers. The result showed no significant difference (p>0.05) between the T3 and C- groups on the preantral and antral follicle numbers. It can be concluded that okra pods (*Abelmoschus esculentus*) ethanol extract can maintain the preantral and antral follicle numbers in mice exposed by carbon black.

Keywords: Okra pods (*Abelmoschus esculentus*) ethanol extract, Carbon black, Ovarian preantral follicles, Ovarian antral follicle

The Effect PG-600 Doses In Beef Cattle Suffering Persisten Corpus Luteum Treated With PGF2 α And hCG To Onset Of Estrous And Pregnancy Rate

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ABSTRACT

This study was aimed to determine the effect of gonadotropin (PG-600) doses in beef cattle which were suffering persistent corpus luteum (PCL) treated with prostaglandin F2 α (PGF2 α) and human chorionic gonadotropin (hCG) to onset of estrus and pregnancy rate. The sample was used twenty beef cattles aged 3 years that had been calving, were not pregnant, diagnosed with PCL, were injected with 25 mg PGF2 α intra-muscularly. Cattles were divided into four treatment groups. Group P0 was injected with 100 IU hCG, while P1 group was injected with a combination of 100 IU PG-600 and 100 IU hCG, and P2 group was injected with a combination of 150 IU PG-600 and 100 IU hCG, meanwhile P3 group was injected with a combination of 200 IU PG-600 and 100 IU hCG intra-muscularly. The PGF2 α and PG-600 injections were carried out on the same day PCL was diagnosed. Meanwhile, the injection of hCG was carried out at the same time as the AI after the cattles got symptoms of estrous. The pregnancy examination was performed 60 days after AI through USG. The results showed that all treated cattles were diagnosed as estrous and pregnant. Each groups had 100% estrous rate, but the pregnancy rate had different results. The pregnancy rate of P2 and P3 groups were higher than P0 and P1 groups. It can be concluded that the combination of giving PGF2 α 25 mg, PG600 150 IU and hCG 100 IU is more effective and shows a high pregnancy rate in beef cattle which were suffering persistent corpus luteum (PCL).

Keywords: PG-600, PGF2 alfa, hCG, Pregnancy rate, and Persisten Corpus Luteum.

Supplementation of Green Tea Extract in an Egg-Yolk Citrate Skimmed Milk Extender on Sapudi Ram's Spermatozoa Quality at a Cold Temperature (5°C)

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ABSTRACT

The research purpose is to determine how supplementation of green tea extract (GTE) in an egg-yolk citrate skimmed milk extender (EYCSME) affects motility, viability, and plasma membrane integrity of *Sapudi* ram's spermatozoa at a cold temperature (5°C). This is experimental research with three diluted *Sapudi* ram semen being treated with GTE whilst another one was not. They were observed microscopically, calculated, and analyzed using One-way Analysis of Variance and Tukey HSD if $p < 0.05$ (Susilawati *et al.*, 2015) every 24 hours until motility reaches 30%. GTE-treated groups (T1, T2, T3) had a real significant on spermatozoa quality ($p < 0.05$). The results showed T3 (0.20% GTE) was the best group. Effect of T3 on day 1 storage motility, viability, and plasma membrane integrity is $84.17\% \pm 0.91$, $86.11\% \pm 2.33$, and $65.39\% \pm 2.71$. The lowest percentage of motility, viability, and PMI was obtained from the no added GTE in EYCSME (T0) respectively being $37.22\% \pm 8.61$, $62.94\% \pm 3.11$, and $29.77\% \pm 4.01$. This study concludes supplementation of GTE in an EYCSME can maintain *Sapudi* ram's spermatozoa quality at a cold temperature (5°C). The dose of 0.20% GTE gives a better effect in maintaining motility, viability, and plasma membrane integrity than lower concentrations in the long span of 5 days at 5°C.

Keywords: EGCG; egg-yolk citrate skimmed milk; green tea extract; *Sapudi* ram; spermatozoa quality

Cytological Appearance of Vaginal Mucus and Estrous Duration of Etawah Crossbreeds Goats After Repeated Used of Controlled Internal Drug Released (CIDR)

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ABSTRACT

The use of controlled internal drug released (CIDR) has been widespread for estrus synchronization, but application to small livestock is still rare due to the relatively high price. The purpose of the study is to know the use of repeated CIDR on cytological appearance of vaginal mucus and estrous duration of Etawah crossbreed goats. This research was carried out at Faculty of Animal Husbandry, Padjadjaran University. This study consists of three treatments (T1 = administration of CIDR for 10 days, T2 = administration of the first repeated CIDR for 10 days and T3 = administration of the second repeated CIDR for 10 days) with six replications. Parameters observed were cytological appearance of vaginal mucus and estrous duration. The results showed that cytological appearance of vaginal mucus cells from all treatments had the same tendency where on day 2 was dominated by superficial cells and day 3 was followed by an increase in keratin cells, with the average of estrous duration were 77.66 hours (T1), 59.53 hours (T2) and 41.91 hours (T3). Cytological appearance of vaginal mucus after repeated use of CIDR showed similar appearance. The used CIDR until three times able to induce estrus with shortest estrus duration of 41.91 hours.

Keywords: estrous synchronization, etawah crossbreed goats, vaginal mucus.

Differences of oocyte collection methods on oocyte quality and in vitro maturation rate of buffalo oocytes

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ABSTRACT

The present study was conducted to determine the effect of different oocyte collection methods from buffalo ovaries on the quantity, quality and in vitro maturation of oocytes. The number of ovaries used were 118 buffalo ovaries. The oocyte collections were grouped based on three methods (aspiration, slicing and slicing after aspiration). Oocytes were evaluated based on cell cumulus compactness and cytoplasmic status. Maturation was carried on the *Tissue Culture Medium-199* (TCM-199) media with Penstrep, *Pregnant Mare Serum Gonadotrophin* (PMSG), *Human Chorionic Gonadotrophin* (hCG) and 3% BSA. Oocyte maturation is conducted in incubator with 5% CO₂ concentration and 38,5° C temperature for 24 hours. Oocyte maturation rate is classified into *Germinal Vesicle* (GV), *Germinal Vesicle Breakdown* (GVBD), Metaphase I (MI), Anaphase/Telophase (A/T) and Metaphase II (MII). Based on statistical analysis, the collection methods had a significant effect ($P < 0.05$) on the number and quality of collected oocytes. Slicing was the best collection method among the other methods in this research. Futhermore, the different of oocyte collection methods had no significant effect ($P > 0.05$) on oocyte maturation rate. Therefore, it can be concluded that the different collection methods significantly affected the number and quality of buffalo oocytes.

Keywords: collection methode , oocyte quantity, oocyte quality, maturation rate.

Potential of red ginger (*Zingiber officinale var. rubrum*) extract on histopathological description of white rat (*Rattus norvegicus*) liver induced by Monosodium Glutamate (MSG)

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ABSTRACT

This research aimed to know the potential of red ginger extract (*Zingiber officinale var. rubrum*) on the histopathological description of white rats (*Rattus norvegicus*) liver which were induced by monosodium glutamate (MSG). Twenty-five male white rats (wistar strain, 2-3 months old, 100-150 grams) were used and divided into five groups. This group consisted of the negative control group (K-) was given only 1% CMC-Na orally, the positive group (K+) was induced by MSG 5 g/kgBW 1 ml, after 1 hour 1 ml CMC Na 1% was given orally, the treatment groups were P1, P2, and P3 with MSG 5 g/kgBW as much as 1 ml orally, after 1 hour red ginger extract was given in successive doses (P1) 50 mg/kg BW, (P2) 100 mg/kgBW, (P3) 200 mg/kgBW. The rats were adapted for seven days before the treatment. The treatment was done for 42 days. The result showed that the mean of hepatocytes that underwent degeneration in K(-), K(+), P1, P2, and P3 were respectively 0,72, 3,12, 2,16, 1,60, and 1,12. Meanwhile the mean for hepatocyte underwent necrosis in K(-), K(+), P1, P2, and P3 were respectively 0,76, 3,12, 1,84, 1,45, and 1,36. Based on the statistical analysis, it showed that there was a significant difference ($p < 0,05$) between those treatment. It could conclude that red ginger extract could be used to reducing degeneration and necrosis in hepatocyte of white rats that induce by monosodium glutamate (MSG).

Keywords: red ginger extract, monosodium glutamate, degeneration, necrosis, hepatocyte

Survey of the availability of antibiotics for animals that can be categorized as prescription drugs in poultry shops and pet shops in Balikpapan city

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ABSTRACT

Antibiotics are one of the prescription drugs that can only be provided by veterinary drug depots. This is related to preventing the inadvisable use of antibiotics which can leave residues and lead to resistance. This study aims to determine the availability of antibiotics for animal that is sold freely without a veterinarian's prescription in the poultry shops and pet shops of Balikpapan City. The survey conducted in six sub-districts of the city showed eight business units consisting of poultry shops and pet shops available for antibiotics. The types of antibiotics found were macrolides (23,08%), tetracyclines (46,15%), and sulfonamides (30,77%). Data analysis with Chi-Square showed a significant difference between the hypothesis and the research result. The result showed that only a few poultry shops and pet shops in Balikpapan City provide antibiotics for animals that can be categorized as prescription drugs freely with a 90% confidence level.

Keywords: Antibiotics, Balikpapan City, Poultry shop, Pet shop

Empathic love therapy and spiritual motivation of ARV adherence in adolescents with HIV

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ABSTRACT

Adolescents with HIV do not comply with taking medication because they are busy with activities and parents forget to remind them. Adolescents only get health education to take ARVs, but are still not compliant because they do not get empathy and lack of motivation to take medication. The purpose of this study was to explain the effect of empathic love therapy and spiritual motivation on adherence to taking ARV drugs in adolescents with HIV. This study uses quasy experimental with One Group Pretest-Posttest Design. The sample was selected using purposive sampling method. A sample of 150 respondents who received ARV. Instruments using the Morisky Medication Adherence Scale and SOP ELT and spiritual motivation. Data analysis using Wilcoxon Signed Ranks Test. The results of this study were of statistical tests obtained a value of = 0.000 ($\rho < 0.05$), which means that there is an effect of ELT and spiritual motivation to taking ARV drugs. ELT and spiritual motivation affect medication adherence. The study is expected to be one of the therapeutic options in increasing adherence medication.

Key Words: ELT, spiritual motivation, adolescents, ARV

Antibacterial Activity of Flavonoid Compound in Malacca Leaves (*Phyllanthus emblica*) Against *Staphylococcus aureus*

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ABSTRACT

Flavonoids are the active compounds of Malacca leaves. Flavonoids are useful as cytotoxic, antiviral, antifungal, antioxidant, anti-inflammatory, antiproliferative, anticarcinogenic, antibacterial, antiallergic, analgesic, and antipyretic activities. *Staphylococcus aureus* is one of the gram-positive bacteria with a diameter of 0.7-1.2 µm, cocci-shaped, facultative anaerobes, non-sporing, and immobile. This research aims to determine the antibacterial activity of flavonoid compounds from malacca leaves (*Phyllanthus emblica*) against the growth of *S. aureus* bacteria and to determine the concentration of flavonoid compounds in Malacca leaves (*P. emblica*) which can inhibit the growth of *S. aureus* bacteria. With the Experimental Lab method, consisting of 6 treatments, 4 concentrations (10%, 20%, 40%, 80%) flavonoid compounds of malacca leaves and 2 controls (positive control with chloramphenicol and negative control with aquadest) with each 3 repetitions. The average inhibition zone measurement of 10% concentration is 10.60 mm, 20% concentration is 17.71 mm, 40% concentration is 19.40 mm, 80% concentration is 20.51 mm, while the average inhibition zone measurement of control positive is 25.21 mm with a negative control is 00.00 mm. From the results of the research, the concentration of flavonoid compounds in Malacca leaves (*P. emblica*) was directly proportional to the diameter of the inhibition zone, which is higher the concentration used, the largest diameter of the inhibition zone that would be produced.

Keywords: *Phyllanthus emblica*, *Flavonoid*, *Staphylococcus aureus*, *Antibacteria*, *Chloramphenicol*.

Toxicity Test of Flavonoid Compounds from Ethyl Acetate Extract of Malacca Leaves (*Phyllanthus emblica*) with Brine Shrimp Lethality test (BSLT) method

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ABSTRACT

Flavonoids are a group of polyphenolic compounds produced in plants as secondary metabolites. Flavonoid have favorable biochemical effects on multiple diseases (cardiovascular disease, atherosclerosis) as well as other bioactivities (antiinflammation, antimicrobial). Studies have been conducted that aim to isolate the active compounds contained in malacca leaves and analyze toxic properties by the Brine Shrimp Lethality Test (BSLT) method in *Artemia salina* Leach shrimp larvae. This research began by extracting malacca leaf powder (*P.emblica*) with ethyl asetat solvent. The technique used is maceration. Ethyl asetat extract is concentrated and fractionated, and toxicity tests are carried out. Extracts from the evaporation results are further fractionated using solvent petroleum ether, diethyl ether and ethyl acetate. Then the ethyl acetate fraction is hydrolyzed by being reflaged with 7% sulfuric acid (H₂SO 4.10ml / gr of residue) for two hours, then the filtrate is extracted with ethanol solvent. The obtained fraction is washed with aquades until neutral and dried by means of laying out in a vacuum desiccator. The toxicity test results showed that the flavonoid compound of malacca leaves was not toxic with a value of LC₅₀ > 1000 ppm, an increase in the concentration of the extract is followed by an increase in the average mortality of larvae.

Keywords: *Phyllanthus emblica*, BSLT, *Artemia salina* Leach.

The effect of aromatic ginger (*Kaempferia galanga L.*) extract on the histology of male mice (*Mus musculus*) lungs exposed to cigarette smoke

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ABSTRACT

The purpose of this study was to determine the protective effect of aromatic ginger (*Kaempferia galanga L.*) extract on the histological damage of male mice lungs exposed to cigarette smokes. Twenty male mice were divided randomly into five groups of treatment (n=5). The treatments of this research were C- (normal mice), C+ (mice exposed to cigarette smoke without being given aromatic ginger extract), T1 with extract dose 150 mg/kgBW, T2 with extract dose 300 mg/kgBW, T3 with extract dose 600 mg/kgBW. The data were test with Kruskal Wallis – Mann Whitney, and the result show there were significant different ($p < 0,05$) between treatment groups. The result also showing treatment (T2) with 300 mg/kgBW extract dose is best to protect from the histological damage of male mice lungs. This study has proven that aromatic ginger extract has the potential to reduce histological damage in mice exposed to cigarette smoke.

Keywords: Mice (*Mus musculus*), Extract of Aromatic Ginger (*Kaempferia galanga L.*), Cigarette Smoke Exposed, Historical Damage, Lungs.

Technique Transrectal Ultrasonography for Early Pregnancy Diagnosis on Gayo Mares

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ABSTRACT

Ultrasound is a diagnostic tool that widely applied in the field of veterinary science. This study aims to determine the sonography of gayo mare uterus in early pregnancy using transrectal ultrasonography. Six estrus gayo mares and two gayo stallions were used in this study. Teasing estrus was done using stallion, and then mated when they reached the maximum estrus score. Pregnancy diagnosis was carried out days 21, 30, and 50 using transrectal ultrasonography. Data was reported descriptively. The results showed that 3 gayo mares were diagnosed as pregnant. Sonographic imaging of pregnant gayo mare's uterus on day 21 was anechoic appearance of pear-shaped embryonic vesicles (2.55 ± 0.06 cm), and hypoechoic appearance of thickening on one side of the endometrium. On the 30 day, a hypoechoic image of the embryo (0.80 ± 0.01 cm) in the middle of the uterine cornua. Day 50 showed hypoechoic imaging of foetus (HD= 0.69 ± 0.02 cm, BD= 1.05 ± 0.03 cm) and presence of placentation. It was concluded that early detection of gayo mare's pregnancy on the 21 day was in the form of a pear-shaped embryonic vesicle, on the 30 day the embryo was in the middle of the embryonic vesicle, and the 50 day of the presence of foetus and placenta.

Keywords: early pregnancy, embryonic vesicle, gayo mares, ultrasound

Screening of Pathogenic and Non-Pathogenic Bacteria Isolated from Maggot Digestive System

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ABSTRACT

Maggot is one of the fly larvae with a high protein content of up to 30-45%, so that maggots can be used as an alternative animal feed ingredient. As one of the sources of animal feed raw materials, insects-based feed must also be safe from contaminants of microorganisms, including pathogenic bacteria. Therefore, this study aims to isolate and determine the screening of pathogenic and non-pathogenic bacteria from the digestive system of maggots. Maggots are cultivated on media based on animal fecal waste and organic waste for \pm 2 months. Then, isolation and purification of bacteria using nutrient agar media and hemolysis tests are carried out on blood agar media and Gram staining. Eighty-seven bacterial colonies with various morphological characteristics were successfully isolated from the maggot digestive system. Most isolated bacteria are classified as Gram-negative bacteria with a bacilli form. Based on the results of the hemolysis test, as many as 16% of bacterial isolates are indicated by pathogenic bacteria because of their ability to hemolyze blood. However, only about 2% showed β -hemolysis. Thus, it can be concluded that the screening results of non-pathogenic bacteria are still more numerous compared to pathogenic bacteria present in the maggot digestive system.

Keywords: Animal feed, hemolysis, insects, maggot, protein BS

Isolation and Identification of Pathogenic Bacteria Caused Secondary Infection in Bovine Liver Infected by *Fasciola gigantica* Based on 16S rRNA Gene Analysis

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ABSTRACT

Fasciolosis is an animal disease caused by worm infection, namely *F. gigantica*, usually this worm infects ruminant animals such as cattle, goats, and sheep. *F. gigantica* infection can cause a decrease in the immune response so that livestock become more susceptible to being infected with other microorganisms. The appearance of pathogenic bacteria can cause foodborne disease in humans who consume the bovine liver infected with fasciolosis. Therefore, this study aims to isolate and identify pathogenic bacteria in the liver of cows infected with *F. gigantica* based on the analysis of the 16S rRNA gene. Isolation and screening of pathogenic bacteria using Blood Agar media, followed by Gram staining, then DNA extraction, amplification using the polymerase chain reaction (PCR) method, and molecular identification. Based on the results of hemolysis test screening, four bacterial isolates were obtained (S1.1-A, S2-A, S2-B, and S3-A), which is a Gram-positive bacterium in the form of a bacil. As result of DNA extraction and PCR amplification resulted in the four bacterial isolates showing a specific single band at a size of ~1400 pb, indicating the 16S rRNA gene. Based on the bioinformatics analysis, the four bacteria have similarities with the database of pathogenic bacteria in GenBank. Therefore, it can be concluded that in the internal tissues of the liver of cows infected with *Fasciola*, several pathogenic bacteria were identified.

Keywords: Fasciolosis, foodborne disease, hemolysis, PCR

In Silico Studies for Genetic Dependency Identification of SOX9 Among Cancer Cell line for Bone Metastases Cancer Drug Development

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ABSTRACT

Cancer is currently one of the world's leading health problems, including in Indonesia. Cancer cells spread from their original location to the bone in various types of cancer. Almost all cancers can spread to the bone, but breast, prostate, and lung cancer have a higher rate of bone metastases than other cancers. Sry-related HMG box 9 (SOX9) is one of the cancer biomarkers associated with the initiation and progression of bone cancer metastases. SOX 9 is a transcription factor that regulates various biological processes and is involved in cell fate determination and stem cell maintenance. In the drug development process, it is necessary to determine the right cell line based on the genetic dependency of the gene or protein of interest. This approach is required to select the appropriate cell line based on the requirements during the screening process of the various types of available cell lines. In this research, an in silico study was carried out by screening cell lines using the Depmap R-Package, beginning with cell lineage and continuing with cancer type. The cancer objects that were screened were breast cancer, prostate cancer and lung cancer. The Depmap R Package showed that SOX9 had the highest expression level based on lineage in colorectal, pancreatic, and gastric cancer cell lines and the lowest in blood, lymphocyte and plasma cell lines. In addition, SOX9 expression with a TPM range of 2-6 was also found in lung, breast and prostate cancer. This result indicates that the cancer type expresses quite a high SOX9 level. Expression of SOX 9 based on cancer types ranging from breast cancer was found in HCC38 cells with 6.25 TPM. Meanwhile, prostate cancer in WPE1NA22 cells with 5.26 TPM and lung cancer cells in cell line NCIH1048 with 7.51 TPM. In conclusion, based on genetic dependency screening for cancer cell lineage, SOX9 is known to play a key role in the bone metastases proses for cancer. Furthermore, choosing the right cell line with high SOX9 expression will help the process of laboratory experiments.

Keywords: In Silico; Cancer; SOX9; Metastases; Drug Development

Microstructure and regional distribution of the sebaceous gland in the skin of the african straw-coloured fruit bat, *Eidolon helvum*

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ABSTRACT

Bats are known reservoirs of viruses of major zoonotic importance including filoviruses and coronaviruses, with the fruit bat, *Eidolon helvum*, specifically identified as a reservoir for filoviruses. These bats pose a risk to humans especially through viral dissemination via skin contact since such viruses have been detected in skin glands. The microstructure, histochemistry and regional distribution of sebaceous glands in the cheek, withers, croup, ventral abdomen, anal region, wing membrane, intercrural membrane and foot pad of the fruit bat were therefore investigated in this study. Sweat glands were absent. The secretory acini of the sebaceous glands contained polygonal mononuclear cells while the ducts opened either into hair follicles or directly on the skin surface. The glands of the withers and ventral abdomen showed a positive Alcian blue-Periodic Acid Schiff reaction, indicating an abundance of glycoproteins, proteoglycans, hyaluronic acid and/or glycogen. Glands were absent in the wing membrane of all animals as well as in the foot pad of 80% of animals sampled but had the highest density in the anal region, ventral abdomen and cheek. The risk of disease spread via the skin glands of the fruit bat is therefore greatly diminished if handling is restricted to the wings.

Keywords: Sebaceous glands, *Eidolon helvum*, skin, fruit bat, zoonotic diseases

Foramen magnum and dental osteometry of Balami, Uda, and Yankasa breeds of sheep

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ABSTRACT

The objective of this study was to evaluate and compare some skull osteometries. A total of 60 each of Balami, Uda, and Yankasa sheep (30 adult males and 30 adult females) were used in this study. The skulls were macerated using a hot water technique. Then 7 parameters were measured using a digital Vernier caliper. The obtained data were analyzed in SPSS by ANOVA ($P < 0.05$). The mean foramen magnum height (FMH) was highest, medium, and lowest in Balami (2.1 ± 0.1 cm), Uda (1.9 ± 0.1 cm), and Yankasa (1.8 ± 0.0 cm) breeds, respectively, and vice versa in the foramen magnum index (FMI). The foramen magnum width (FMW) was similar in Balami and Uda but higher than in Yankasa (1.8 ± 0.1 cm). The FMH, FMW, and FMI were similar within sexes of the same breeds in Balami, Uda, and Yankasa. The mean dental length (DL), oral palatal length (OPL), and length of the upper molar row (LUM) were highest and lowest in Balami and Yankasa, respectively, while the mean length of the upper premolar row (LUP) was highest and lowest in Balami and Uda, respectively. The (DL), (OPL), (LUM), and (LUP) were higher in males than females in Balami and vice versa in Uda and Yankasa.

Keywords: Foramen, Magnum, Dental, Osteometry, Sheep



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CERTIFICATE OF PARTICIPATION

is hereby presented to

Deden Sudrajat

as *Oral Presenter*

on the Veterinary International Conference "*2nd International Conference on Animal Husbandry and Life Sciences (ICAHLS)*" on October 11th, 2022
that was organized by the Faculty of Veterinary Medicine, Airlangga University



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