

Effect of total confinement on the diurnal behavioural patterns and performance of goat's kids

**By
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**6th Scientific Congress, Egyptian Society for Cattle Disease, Fac. Vet. Med.,
Assiut Univ., Nov., 4-6,2001, 316-324**

abstract

Sixteen Baladi kids were allotted into two groups one was kept in an animal house and the other was allowed to graze on pasture from 7:00 a.m. 5:00 p.m. The housed kids were fed concentrates two times per day and green fodder supplement. While, the other group was fed green pasture and after their return from the pasture they fed concentrate. The kids were observed during the daylight a-day per week for 6 weeks. While, the body weight was estimated by weekly weighing of the animals before morning feeding. The obtained results showed that housing of goats in closed house significantly decreased the time spent feeding and significantly ($P < 0.01$) increased the time spent rumination and recumbency with higher frequencies of body care activities than pastured ones. On the other hand, kids in pasture spent significantly longer ($p < 0.01$) standing time and walking frequency which was accompanied by higher frequencies of comfort activities such as tail wagging, ear flicking and foot stamping and social encounters or butting frequency. The diurnal pattern of kids ingestive behaviour indicated that kids in closed house had higher feed time during

late morning period (10:00-12:00 a.m.) while, it was higher during early morning (7:00-10:00 a.m.) for pastured animals. The rumination peaks were during early morning and late afternoon in housed animal and only during early afternoon period in pastured animals. Standing and walking were higher in pastured than housed kids from early morning till the late afternoon (3:00-4:00 p.m.) since the animals were inclined to rest. The body care and comfort activities were higher during first hour of feeding in housed animals and at minimum level in pastured animals. While, the butting frequency was higher in both groups during the first hour of the day (7:00-8:00 a.m.) then declined. The performance of kids was improved in pastured animals than those kept in closed house where the average daily gain during the experiment was higher in the pastured kids than housed ones.

**2nd International Scientific Conference for veterinary Medical
researches, Fac. Vet. Med., Mansoura Univ., April, 8-9,2001,
689-703**

EFFECT OF CASTRATION ON KIDS' BEHAVIOUR AND BLOOD CORTISOL CONCENTRATION

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ABSTRACT

Sixteen male Baladi kids (3½ - 4 months) were allotted into four groups, three of them were castrated by using surgery, Burdizzo castrator and rubber ring and the 4th was kept as control group. The behavioural and blood serum cortisol changes were used to evaluate the stress produced from castration on kids during the first three hours. The obtained results showed that the surgical castration decreased the time spent feeding (5.83 ± 4.12 min/h) during the 1st 3 hours post castration than using Burdizzo (11.25 ± 2.93 min/h) and finally rubber ring castration (15.41 ± 6.00 min/h), while, rumination and drinking were completely stopped.

Both surgical and rubber ring castration methods resulted in more lateral recumbency than Burdizzo or control group. This abnormal recumbency was increased from 1st till the 3rd hour in surgically and Burdizzo method castrated kids while, reached the maximum during the 2nd hour then declined again in rubber ring. On the other hand, the mean time spent standing and the frequency of walking was significantly increased in rubber ring (33.33 ± 6.67 min/h and 5.83 ± 2.36) than Burdizzo

method (25.00 ± 8.32 min/h 4.16 ± 1.82) and surgical castrated kids (25.00 ± 8.32 min/h and 0.41 ± 0.51).

The foot stamping was observed during the third hour after castration. On the other hand the vocalization was recorded only just after castration during the first hour with significantly higher frequency in the rubber ring than surgical and Burdizzo castrated kids.

The blood serum cortisol during the first hour after castration was significantly higher in Burdizzo (5.72 ± 0.57 $\mu\text{g}/100$ ml) compared with rubber ring (4.01 ± 0.80 $\mu\text{g}/100$ ml) or surgically castrated kids (2.70 ± 0.62 $\mu\text{g}/100$ ml). While, during the 2nd hour it was significantly higher in surgically castrated kids (6.05 ± 1.64 $\mu\text{g}/100$ ml) than in Burdizzo (4.64 ± 0.60 $\mu\text{g}/100$ ml) or rubber ring castration (3.19 ± 0.76 $\mu\text{g}/100$ ml). Moreover, during the third hour after castration there was no significant difference between all treated and control group.

**Some factors affecting incidence of cannibalism in *O. niloticus*,
O. aureus and their crossbred.**

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9th Scientific Congress, for Veterinary Medical research, Fac.

Vet. Med., Assiut Univ., Nov., 19-20,2000, 412-423

**SOME FACTORS AFFECTING INCIDENCE OF CANNIBALISM IN *O.*
NILOTICUS, *O. AUREUS* AND THEIR CROSSBRED**

By

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abstract

This work was carried out in two separate experiments. The aim of the first experiment was to estimate the effect of breed, size of fingerlings, size of fries, starvation and density of fish on the incidence of cannibalism in *Oreochromis* spp. This experiment was a three way design according to the size of fingerlings (small, medium and large) and breed of fish (*O. niloticus*, *O. aureus* and their crossbred) and two size of fries in each combination being repeated two times; with and without feeding. The obtained results indicated that *O. niloticus* had higher cannibalistic ratio than *O. aureus* and the lowest cannibalistic ratio was for their crossbred. Moreover, the small and medium size fingerlings cannibalised more fries than large fingerlings. Not only the fingerlings but also the size of fries affected the incidence of cannibalism as the lower size of fries the highly significant increase in the incidence of their cannibalism. Moreover, the feeding of the fries and fingerlings after hatching decreased significantly the incidence of cannibalism of fries by fingerlings. The density of fingerlings in the aquarium affected the cannibalistic ratio where there

were highly significant increases ($P < 0.01$) in the cannibalistic ratio with the increasing of the density. The aim of the second experiment was to determine the minimum size of fingerlings that could cannibalise a yolk sac stage of fries in hormonal sex reversed *Oreochromis* spp. and the effect of contact time between them on the incidence of cannibalism. The fingerlings were allotted according to their weight into five size groups 300, 500, 700, 900, 1100 and 1300 mg, from each group three replicates were operated. The ratio of cannibalism were observed each half an hour for three hours, The obtained results showed that the yolk sac stage fries could be housed safely with fingerlings of size less than 500 mg, however, the increase of fingerlings size than that, specially under starving condition, resulted in losses varies from 3, 9, 17 and 18% with 700, 900, 1100 and 1300 mg, respectively. The time after stocking of the fries with the fingerlings showed that during the three hours after stocking, cannibalism was observed in the large fingerlings (700 mg or more) but the higher rate of cannibalism was observed during the first half an hour after stocking reach to 9% then decreased gradually to 6% at the end of experiment. The obtained results indicate that cannibalism in this species can be greatly reduced among juvenile fish by size grading, reducing density and ad libitum feeding. Moreover, breeders should avoid stocking of yoke sac stage with fingerlings more than 500 mg body weight.

Key words: Cannibalism – Fingerlings – Fries.

The Effect of Light colour on behaviour, Performance , blood parameters, immune response and carcass quality of broiler chickens.

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3rd Scientific Conference for Veterinary Medical
Researches, Fac. Vet. Med., Alex. Univ., October, 12-14, 1999,
Vol. 15 (1) 123-135

**The effect of light colour on behaviour, performance, blood parameters,
immune response and carcass quality of broiler chicks**

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ABSTRACT

Four groups of Hubbard broilers were subjected to white, green, red or blue light from 3 to 7 weeks of age to study the effect of different lighting regimes on their behaviour, performance as well as body composition, blood constituents and immunity. Behaviour estimation was carried out as the percentages of birds engaged in each behaviour pattern, while, body weight and feed intake of chicken were weekly weighing. At the end of the experiment, five birds from each group were slaughtered for estimating blood parameters and carcass quality.

The rearing of birds in a long wavelength (red) light resulted in high feeding, drinking, standing, walking, preening, ruffling, shaking, wing / leg stretch, and aggressive pecking percentages. On the other hand, the short wavelength (blue) light group resulted in low feeding, standing, walking, preening, and aggressive pecking, while, the white light group was intermediate with only higher incidence of dust bathing and exploration. The medium wavelength (green) light group exhibited the lowest drinking, ruffling, shaking, wing / leg stretch, dust bathing, and aggressive pecking. However, this group had higher final body weight, total weight gain (g/day), performance index, better feed conversion ratio and relative growth rate than

the other group. Moreover, the green light revealed in a significantly higher dressing percentage comparing with the other group..

Birds reared in a green light had the highest red blood cells (RBCs) count, packed cell volume (PCV)%, haemoglobin (Hb) content and serum total protein. The same group had the lowest Heterophil % and serum tri-iodothyronine (T_3) hormone. However, Acidophil %, Basophil %, Monocyte %, serum albumin, cholesterol, triglyceride, GOT, GPT, uric acid and creatinine were not affected by the light colour.

The red group had highly significant ($P < 0.01$) head and heart percentages than blue, white and green light group. The blue light reared chicks had significantly gizzard percentages than green, white or red light group. Similarly, the proventriculus % was higher in white and blue group than green and red light groups.

The colour of light management showed a variable effect on the immune system of the birds. The white light group had a higher weight percentage of liver, spleen and Bursa of Fabricus than green, red, and blue groups. The green light group had higher percentage of lymphocyte, serum globulin, Newcastle disease virus vaccine titer and thymus weight than red, blue and white light groups.

The influence of age at castration on carcass quality in sheep

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**50th Annual Meeting of the European Association of Animal Production,
Zurich, 22-26, August, 1999.**

ABSTRACT

28 Fox lambs were allotted into five groups, control group, two early castrated (21 day) and two late castrated groups (56 day) by Burdizzo and surgery. After slaughtered at average 239 day, skinning and evisceration take place and the internal organs and body cavity fat including omental, intestinal, pelvic and kidney fat were removed and weighed.

After chilling for 24 hr., the carcass of each lambs was weighed and divided into two halves, the left side was weighed and the right side was cut into eight retail joints for evaluation of carcass composition, moreover, the components of the loin cut (meat, fat and bone) were separated and weighed. Instrumental colour (L, a and b values) of L. dorsii surface by Chromameters and free fatty acids in prenipheric, subcutaneous and L dorsii fat by chemical analysis were estimated.

The lambs castrated by Burdizzo clamp either early or later had higher body weight and weight gain than control ones, while, that castrated by surgery either early or later had lower body weight and weight gain than control group. However, the entire lambs had higher dressing and neck percentage than castrate ones, and early castrated lambs than late castrated ones.

Early castrated lambs had significantly ($P < 0.0$) heavier breast percentage than late castrate and entire lambs. While, late castrated one had significantly ($P < 0.01$) heavier loin and leg percentages. Surgical castration decreased bone weight in loin than Burdizzo castration and entire lambs. The dimensions of the carcass was not affected by the either castration method or age, except, the L. dorsii area and back length which decreased with early castration than later castration and entire lambs.

The entire lambs had higher L, a and b values than other groups, moreover, early castrated lambs had lower L-value and electrical conductivity after 2 h than late castrated and entire lambs. The fat deposition in intestine, omentum and around kidney was significantly higher early Burdizzo castrated lambs than that by surgery and late castrated lambs by Burdizzo and surgery. On the other hand, the free fatty acids were significantly higher ($P < 0.05$) in the prenephric and subcutaneous fats in entire than early and late castrated lambs.

Impact of shearing on the behavior, blood serum cortisol and productive performance of lambs

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abstract

32 Fox lambs were allotted into two groups (n=16), each group including 8 males and 8 females. One group subjected to shearing by shearing machine and the other was kept as control. Behavioural observation was carried out by hanged video camera a day before shearing.

A complete day behavioural observation was carried out once weekly. Moreover, blood samples collected just before starting shearing and then every 30 minutes for 3 hours continuously.

The obtained resulted showed that shearing of lambs increased the ingestivebehavior; resting behavior, movement activities (standing, walking and running); body care activities (scratching, rubbing and head shaking) and social activities as the butting frequency. On contrary the wall and other exploratory behaviors and jumping activities were decreased. Moreover; sheared males had the highest frequencies of feeding, standing, walking, running, rubbing, head shaking and butting frequency.

The unshorn lambs had highest frequencies of lying, standing time and mounting activities. Moreover; the shorn female lambs spent longer feeding periods than other groups.

Shearing and handling of sheep resulted in elevation of blood serum cortisol of lambs reach its peaks after 90 min then decreased gradually to level lower than that obtained after 180 minutes from shearing and handling. Moreover, although shearing resulted in decreasing body weight of shorn lambs however, within 6 weeks after shearing the shorn lambs attained more body weight than unshorn ones.

Influences of ammonia stress on behavioral, productive and some blood traits of White Leghorn layers

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abstract

30 White Leghorn commercial hens, (50 wk of age), belongs to Institute of Animal Breeding and Management, Martin Luther University, Germany, were allotted into two groups (fifteen bird each) to study the ammonia stress (80-100 ppm) for 4 weeks on the general health indicators (behavior, productive performance, blood picture and blood plasma content).

The results indicated that exposure of White Leghorn layers to high level of ammonia decreased significantly and progressively the feed and water intake, time spent and frequencies of feeding and drinking. Moreover, there was a reduction in the frequencies of the standing, walking, preening, body shaking, dust bathing and wall exploration which was accompanied by decrease in body weight and egg production. On the other hand, there was an increase in the time spent lying and drowsy standing with higher frequencies of lying, ruffling and scratching.

Blood picture analysis revealed a significant decrease in the PCV, HB, MCHC, RBCs count, small lymphocytes, large lymphocytes and total lymphocytes. On the other hand, there were increase in monocytes, basophile, eosinophil, heterophil, and heterophil : lymphocyte ratio. The chemical analysis of blood plasma content showed low level of albumin, globulin, total protein, glucose, phosphorus, and magnesium, with high levels of catabolic by-product such as ammonia, uric acid, creatinine, and total bilirubin and stress hormones as cholesterol. Moreover, liver and kidney function were affected severely this could be recognized by high level of

GPT, GOT, amylase enzyme, creatinine kinase, lactose dehydrogenase, and lipase enzyme.

Influences of shading and hiding objects on the behavioral and productive traits of *Anguilla anguilla* elvers

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Abstract

240 elvers were allotted into 16 groups; eight groups in shaded aquaria (aquaria wrapped with aluminum foil paper) and eight left without shading, from each eight aquaria four were supplied with hiding objects (three cylindrical plastic tubes) and the other groups kept without hiding objects. Each four groups subdivided according to the weight of elvers into small (1gm), medium (3g), large (5gm) and mixed size groups. This design was carried out for behavioral experiment and the same design was applied for productive traits but without combined shaded and hidden groups to reduce the stress of weighing on the behavior of elvers.

Elvers were fed ad libitum commercial fish diet, daily water replacement with overnight stored water for regular cleaning of aquaria from uneaten food particles and fecal material. The behavioral observation was carried out by observer where the number of elvers engaged in each behavioral pattern within each aquarium was recorded. Elvers initial weight and weekly weighing was recorded, while, weight gain, specific growth rate were calculated. The survival rates of elvers in each aquarium were recorded at the end of the experiment. Obtained results would be summarized as:

1. Shading and hiding objects led to pronounced reduction in swimming activities and sporadic resting of elvers. On contrary, significantly increased colonization in hiding objects and group colonization. While, shading only without hiding objects increased sporadic resting on the floor of aquaria and reduce colonization to minimum level.
2. Small sized elvers exhibited significantly more swimming activities and less colonization activity than medium or large sized ones. However, mixing of different size of elvers within each other increased the swimming activity more than other groups, while, colonization activity was reduced.
3. Large sized elvers exhibited higher frequencies of colonization in all treatments while, low levels of swimming and sporadic resting was observed.
4. Elvers in shaded aquaria achieved higher body weights and specific growth rate while, those in aquaria without hiding objects or shading achieved the lowest body weight and weight gain. These differences were obvious throughout the experiment.
5. Although initial weight of elvers in all size weight groups was different the weight gain between different sizes was nearly the same while, the body weight and specific growth rate were significantly higher in large sized group followed by the mixed one.

Survival rates of elvers affected by treatment where, shading groups showed the highest survival rates while those kept in aquaria with hiding objects were the next, however, the lowest survival rate was observed for those kept without shading or hiding objects. Moreover, rearing large sized elvers achieved higher survival rates than medium or small sized elvers while, mixing small and large elvers reduced the survival rate to the lowest level.

Effect of Mothering ability on the development of behavior and performance of lambs

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abstract

Four ewes had 8 twin lambs and eight mothers had 8 single lambs were placed with their own lambs in a separate partitions for 2 weeks then grouped together in two rooms each one lodged 4 twin and 4 single lambs with their dam.

Lambs were identified by paint number on their backs and left to suckle their dam with daily supplying of the dam with concentrate ration at morning and evening and daily supplying with hay after concentrate ration ad-libitum, the water supplied ad libitum with water troughs.

Behavioural observation was carried out by video camera was hanged on the ceiling of the chamber from 3 weeks till weaning at 8th week.

The results observed indicated that twins lambs had higher frequencies of suckling, lying, standing, and spent longer time suckling and standing while, the single lambs had higher frequencies of feeding, drinking, walking, running, scratching, rubbing, stretching, exploratory behaviors and playing activities including butting and jumping and spent longer time feeding, drinking and lying.

The singleton lambs gained more weight than twins from 2 to 4 weeks, then the twins gained better till weaning, although however the overall body weight gain was higher in the singletons than twins lambs.

Effect of stocking system on the post maturity behavior and performance of White Leghorn

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abstract

88 White Leghorn birds were randomly allotted into three groups; hens' group; cocks' group and mixed sex group from 18 to 30 weeks of age. The behavioral patterns were observed from 6:00 a.m. to 8:00 p.m. and the weekly body weight, weight gain and feed conversion were recorded. Moreover, at the end of the experiment each cock was sexually tested against all hens.

Results showed that stocking hens with cocks increased their movement; resting; feather care and stretching activities, on contrary, reduced feeding; drinking; standing; exploratory activities; chasing and aggressive pecking than hens' group. On the other hand, stocking of cocks with hens increased their standing; movement; exploration; feather care activities; stretching and aggressive pecking, although

however, reduced feeding; drinking; resting and chasing. Maturity resulted in an increasing in feeding, standing, movement and aggressive pecking in hens' group while, reduced resting, exploration, feather care and stretching. Similar trend exhibited by mixed-sex group hens but with reduced aggression activities. For cocks maturity reduced feeding, standing, resting, stretching and aggressive pecking and increased movement, exploration and feather care activities in cocks' group, while in mixed-sex group cocks decreased exploration and increased stretching. Sexual isolation of cocks resulted in very short reaction time and high percentage of complete mating only with hens' group and long reaction time with low complete mating percentage with sexually experienced hens and vice versa, with the shortest reaction time for sexually experienced cocks.

Weight gain during the last 6 weeks before maturity was higher in mixed group than hens' or cocks' group. While during the first 6 weeks after maturity the reverse trend was observed. Moreover; before maturity feed conversion was better in mixed group (cocks and hens) than cocks' or hens' group, however, after maturity there was no significant difference between the two systems.

Influences of roughages type, concentrate level and stage of lactation on behavior; milk yield and composition of dairy cows

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abstract

Thirty dairy cows were housed in a loose-housing yard in six groups of 5 cows each, where the first 3 groups were fed 50% and the others were fed 70% concentrates. Within each concentrate level roughages fed were Barseem hay and/or Ammoniated straw rice. Cows were milked 2 times /day by machine milking. Milk samples were collected in small cups and transferred to chemical analysis. Milk yield was recorded daily. Focal sample behavioral observation was carried out by observer during the day time.

The analyzed data revealed that:

1. Increasing the level of concentrate in ration reduced feeding time, drinking time, rumination time, standing time, walking frequency and exploratory activities. On contrary increased lying time, standing idle time grooming and butting frequencies.
2. Feeding ammoniated straw rice reduced feeding time, rumination time, lying time, while, increased standing time and standing idle time.
3. Cows during mid lactation periods spent longer feeding time, rumination time, and standing time, while, they spent short time lying and grooming activities.

4. Late lactation period was associated with short drinking time, standing time and low grooming, exploratory and butting frequencies, they while, spent longer time lying.
5. Increase level of concentrates in ration increased milk yield, protein% while, reduced fat, lactose, total solid and solid not fat percentages.
6. Types of roughages in ration did not show obvious changes in the milk yield or composition.
7. Cows in mid lactation period secreted more milk but with low fat, protein, lactose total solid and solid not fat percentages.

Behavioral responses and survival rate of Oreochromis Species fry during transportation

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abstract

Oreochromis niloticus fry were packed in polyethylene plastic bags 5 litre volume each at 4 densities 25, 50, 75 and 100 fry / package. The fry were three types A) Oreochromis niloticus, B) Androgen sex reversed and C) Genetic monosex, within each density. There were three sizes 200-300 mg, 500-800 mg and 900-1200 mg. The packaged fry were transported shaded from El-Behera to Alexandria about 60 km, then observed for the survival rate, nervous manifestation, biting dead fry and oxygen depletion from each package for four consecutive days.

Oreochromis niloticus exhibited the highest percentages for gasping air and whirling movements than androgen sex reversed and the genetic monosex. On the contrary, androgen sex reversed exhibited the highest percentage of feeding activity and survival rates than others. The large size fry exhibited the highest percentages of gasping air; whirling movement and the lowest biting activity and survival rate. The smallest size exhibited the lowest nervous manifestation and the medium sized fry showed the highest biting rate and survival rate. Higher densities induced highly significant air gasping and whirling movement and reduced biting activity and survival rate. Moreover, the nervous manifestation increased gradually as the storage period increased to reach the peak at 66 hr of storage then declined again, while, the biting activity showed high rate after 6 hour then declined at a lower level at 12

hours of storage then gradually increased till reach the peak at 66 hours then declined again.

The survival rate declined during the first 24 hours of storage by 0.25 %, increased to 0.5% and 1% during the second day and third days of storage while during the 4th day reduced to 4% during first 6 hours and 6.5% during next 6 hours (84-90 hours of storage). The oxygen levels were higher in both air and water of androgen sex reversed frys followed by genetic monosexfrys then the Oreochromis niloticus. Moreover, the oxygen levels lowered with increase fry size and density. The largest frys packages and higher densities ones had the lowest oxygen content in air and vice versa.

Some ethological and physiological investigations on White Leghorn hens under high and low ambient temperatures

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abstract

A sample of 30 White Leghorn layers flock, 50 wk of age were allotted into two groups. The first was exposed to normal temperature 20°C while; the second was exposed to high temperature 35 °C in two environmentally controlled rooms in Martin Luther University, Germany. Birds were penned in individual laying cages. Hens were subjected to a 12-h light and 12-h dark photo cycle. Relative humidity during the experiment was ranged between 45-65%.

Behavioral observations were carried out Spot observation after recording the behavior on video tapes started from the second week till the end of the experiment, while, the productive traits were estimated by weekly weighing of the birds and daily weighing of the food intake and eggs produced. Moreover, Blood samples were collected just before and at the end of the experiment from the wing vein then subjected to analyses for estimation of the blood cell counts and blood plasma contents including some liver enzymes.

Results showed that rearing laying hens under high temperature significantly reduced feeding time; frequency and time of lying; frequencies of walking, preening, body shaking, wall exploration, wing and leg stretching and dust bathing activities.

On contrary increased drinking frequency, standing time, panting, wing flapping and ruffling frequencies.

Feed intake reduced significantly due to heat stress and productive traits indices were declined such as body weight; weight gain; hen day egg production; average egg weight and blood plasma content of glucose; albumin and globulin content. On contrary, red blood cell counts, basophil %, eosinophil %, heterophil %, small lymphocyte %; large lymphocyte %, and total white blood cell were increased and liver functions was affected which indicated by pronounced elevation in the liver enzymes such as ALT or Alanine aminotransferase and AST or Aspartate aminotransferase.

Welfare of Dairy cows Housed in Tie and Free stalls

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abstract

Twenty Friesian dairy cows were tied in a stall while, another twenty cows were kept free in a stall belonging to Alexandria University. Animals were fed in feeder bunk concentrated ration and berseem provided in three meals. Moreover, water was supplied ad-libitum. Behavioral observation carried out by focal sample observation while, claws measurements (claw angle, dorsal border length, heel depth and diagonal claws length) were measured from outer claw of the right hind limb. The animal was milked two times daily either by machine or by hand milking preceded by washing the udder.

The obtained results showed that housing dairy cows in free stalls resulted in longer feeding, drinking, rumination, idle standing time and high frequencies of scratching and licking while, reduced active standing, lying down. Not only the claw measurements also affected where dorsal border, heel depth, diagonal length and claws angles were greater than those in tied stalls but also daily milk production under free stall system was greater.

Non pregnant cows exhibited much active standing, large claws angle and less lying down, 1st trimester pregnant cows yield much milk and had longer border and heel depth; 2nd trimester of pregnancy cows exhibited much feeding time, while, 3rd trimester of pregnant cows exhibited shorter feeding and drinking time, while,

exhibited longer rumination time, lying time, longer diagonal length of claws, small claws angle and lowest milk production.

Aged cows spent longer time feeding, lying down and total grooming activities; moreover, claws dorsal border and angle were also greater than younger cows, while, milk production was lower than mid-aged cows. Person's correlation data showed positive correlation between feeding time and active standing, while milk production has significant negative correlation with rumination; moreover, diagonal length of the claws has negative correlation with body care activities.

Genotoxicity of Ivermectin (permeability glycoprotein substrate) and/or Erythromycin (Permeability glycoprotein inhibitor) as a Model of Drug- Drug Interaction

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abstract

Some drug interactions are relatively minor and are unlikely to cause harm. In some rare cases, however, drug interactions can be fatal. The aim of this research was to study a model of drug-drug interaction in inducing genotoxicity by administrations of Ivermectin (antiparasitic drug and P-gp substrate) and erythromycin (antibiotic and P-gp inhibitor) in a short term administration for two weeks and long term exposure for 8 weeks by measuring incidence of chromosomal aberration, mitotic index, micronucleus frequency (MN), and detecting DNA fragmentation by RAPD-PCR. Swiss albino male mice were injected intra-peritoneal by ivermectin, once a week, or orally administered with erythromycin daily (40 mg/kg b.wt.) or they receive the combination of both drugs.

The results revealed that administration of both Ivermectin and Erythromycine are capable of inducing genotoxic effects represented by producing chromosomal aberrations after short and long term administration. The most prominent types of aberration were fragment and stickiness. While ivermectin alone showed some genotoxic effect by inducing chromosomal aberration after short term administration. By observing the rate of micronucleus incidence after short term administration, ivermectin induced high frequency of micronucleus, while both combinations of drugs produced higher rate of occurrence of micronucleus in long term administration. Concerning to mitotic index, the result showed that, both

combination of the drugs reduced the mitotic index after 2 weeks of treatment. RAPD-PCR data showed that increased number of bands in groups received both combinations of drugs after short and long term administration.

This results concluded that the combined treatment of ivermectin and erythromycin have genotoxic effect.

Key words: Genotoxicity, Ivermectin. Erythromycine, Drug-Drug interaction, RAPD-PCR