

## **Abstracts of the 6<sup>th</sup> scientific Congress of the African Association of Veterinary Anatomists (March 2017)**

oooOOooo

### **Elnady technique: an innovative tissue preservation method for education and training.**

**Fawzy A. Elnady**

Department of Anatomy and Embryology, Faculty of Veterinary Medicine, Cairo University, Egypt

#### **Abstract**

At the Faculty of Veterinary Medicine, Cairo University, there is an increasing number of students but a limited availability of animal cadavers for dissection, and student exposure to formalin is a known hazard. To address these challenges, a new method for tissue preservation was developed, the "Elnady Technique." This method is a modified form of plastination, where the chemicals used are not patented, are inexpensive and locally available, and the process is performed at room temperature. The produced specimens are realistic, durable, have no offensive odor, and are dry, soft and flexible. The developed models could be used to replace the use of animals killed for teaching basic anatomy, embryology, pathology, parasitology and forensic medicine. Moreover, a great potential for use of such models to support training in clinical skills and surgery, including for clinical examination, endoscopy, surgical sutures, and obstetrics and dystocia simulation.

**Keywords:** veterinary anatomy, alternatives, plastination, preservation, Elnady

---

### **A simple method for preservation of the hollow organs and lungs by the air-dried method to enhance teaching the anatomical learning**

**Mohamed M. A. Abumandour and Raafat M. A. El-Bakery**

Anatomy and Embryology department, Faculty of Veterinary Medicine, Alexandria University, Egypt

#### **Abstract**

This paper describes an alternative method to study and teach the gross anatomy to undergraduate and postgraduate students using air-drying method. This study depends on the air-drying pump machine (compressor) to preserve the hollow or-

gans of different animals by air-drying method, then the preserved hollow organs are injected by expanding foam into their lumen followed by varnishing their external surface to protect the preserved hollow organs from the insects damage. This method of preservation is suitable for development country as it is very cheaper in preparation, simple to perform, carried out at room temperature (37°C-40°C), not need special equipment to perform and the produced specimens have many advantages as the normal anatomical form is maintained durable, very light in its weight, not toxic in handling, resist the bad handling and the deterioration by fungi or bacteria and all structures very clear on the preserved organs and also the preserved specimen can live for many years without any changes.

---

## **S100 Expression in the Testis of Dromedary Camel during Breeding and Non-breeding Seasons: Molecular and Immunohistochemical Studies.**

**Mohamed Elsayed Alkafafy<sup>1,2</sup>, Samir Ahmed El-Shazly<sup>1,3</sup>, Mohamed Mohamed Ahmed<sup>1,4</sup>, Khaled Mohamed Shoghy<sup>5</sup>, Reda Farag Rashed<sup>5</sup>**

<sup>1</sup>Department of Biotechnology, College of Science, Taif University, Saudi Arabia

Departments of Histology<sup>2</sup>, Biochemistry<sup>4</sup>, Anatomy<sup>5</sup> College of Veterinary Medicine, University of Sadat City, Egypt

<sup>3</sup>Department of Biochemistry, Faculty of Veterinary Medicine, Kafer elsheikh University, Egypt.

### **Abstract.**

The current study was undertaken to investigate the relationship between the expression of S100 gene in testicular tissue and reproductive activity in dromedaries. Testicular tissue specimens were taken from 5 sexually immature and 5 adult camels per season throughout the year. Specimens examined molecularly and histologically. Histological findings showed that spermatogenic activity was totally absent in sections from immature camels throughout the year. However, in adults the activity was the highest in winter, moderate during spring and autumn and almost absent in summer. The seminiferous epithelium and interstitial cells displayed degenerative changes that were more evident in summer and absent or less evident in winter. Sections from immature camels showed that interstitial cells (ISCs) exhibit a moderate (winter, spring and autumn) and weak (summer) S100-immunoreactivity (S100-IR). In adults a strong, moderate and weak S100-IR was found in Sertoli cells in winter, during spring and autumn, and in summer

respectively. Additionally, ISCs showed moderate, weak and negative S100-IR in winter, during spring and autumn, and in summer respectively. The expression of S100 mRNA was significantly higher in adult camels in winter compared to adults within other seasons, and to immature ones in the same season. Taken together the seasonal variation in the gene expression in respect to histological profile and sexual activity, suggested that S100 proteins play a significant role in regulation of both exocrine and endocrine testicular functions in camel.

**Keywords:** Dromedary; Testis; S100 proteins; Sertoli cells, Leydig cells, Seasonal changes

---

## **Development of the New Zealand white rabbit eye: I. Pre- & Postnatal development of eye tunics.**

**M. Abdo<sup>1</sup> S. Haddad<sup>1</sup> M. Emam<sup>2</sup>**

<sup>1</sup> Department of Anatomy and Embryology, Faculty of Veterinary Medicine, University of Sadat City, Sadat City 32897, Egypt.

<sup>2</sup> Department of Cytology and Histology, Faculty of Veterinary Medicine, Benha University, Egypt.

### **Abstract.**

The New Zealand white (NZW) rabbit has been and is right now regularly utilized in ophthalmic surgery evaluation. Inside NZW rabbit eye, the visibility of ocular structures throughout surgical procedure is fantastic. Younger rabbits are used in different ages for the evaluation of ophthalmic surgery. Complete studies of ocular development in the NZW rabbits have not been reported previously. The aim of the present investigation was to describe the major landmarks and the time course of the pre- and postnatal development of the complete eye tunics of the NZW rabbit to give a superb model as well as a fruitful area for further ophthalmological investigations. Serial histological sections of NZW rabbit prenatal (E13 – E28) and postnatal (P1 – P14) stages were examined respectively. The eye of the NZW rabbit developed in a similar manner to that of the human and domestic animals eyes; the principal differences were at the time of occurrence of certain developmental events, absence of pigmentation which represent an exploited benefits for ophthalmic surgery, remarkable Bowman's membrane at E25, poor developed ciliary stroma and juvenile retinal layer until P9. In human, the basic morphogenetic processes of the development of eye tunics are completed toward the

end of the first half of gestation period. However, the latter represents the beginning stage of the development of eye tunics in the rabbit. Thus, allowing an extensive and various ophthalmic researches to be performed.

---

## **Effects of organic and inorganic mercury on the apoptosis of the neural tube cells of zebrafish embryos**

**Hassan, S<sup>a</sup>. and Abbott, LC<sup>b</sup>.**

<sup>a</sup> Department of Anatomy and Embryology, Faculty of Veterinary Medicine, Suez Canal University and

<sup>b</sup> Department of Veterinary Integrative Biosciences, College of Veterinary Medicine, Texas A&M University USA.

### **Abstract**

In this study, we tested the hypothesis that mercury-induced developmental toxicity was mediated via ectopic occurrence of apoptosis during embryonic development. We employed microscopy to acquire images of whole-mount staining of apoptotic cells in zebrafish embryo exposed to 5, 10, 50, 80, 100, 150 ppb me hg and 50, 100, 200, 300, 400, 500 ppb hg cl from 5 hours post fertilization (hpf) to 48hpf.

In mercury-treated embryos with varying degrees of gross developmental malformations, significantly higher numbers of apoptotic cells were detected with this method. In the degenerating neural tube of mercury treated embryos apoptotic cells were detected, while in the healthy neural tube of the untreated controls no apoptotic cells were found. The percentages of apoptotic cells increased with the dose in both Me hg and Hg cl exposure. Exposure to mercury, therefore, induced ectopic apoptosis at 84 hpf .

**Keywords:** mercury, Apoptosis, Zebra fish embryos.

---

## **The effect of Hg cl on the morphology of developing zebrafish embryo (*Danio rerio*)**

**Hassan, S.<sup>a</sup>, Abbott, LC<sup>b</sup> and Moussa, E.A.<sup>a</sup>**

<sup>a</sup> Department of Anatomy and Embryology, Faculty of Veterinary Medicine, Suez Canal University and

<sup>b</sup> Department of Veterinary Integrative Biosciences, College of Veterinary Medicine, Texas A&M University USA, shassan1978@gmail.com

### Abstract

The current study was carried out on zebrafish embryos at 6 h post fertilization exposing them 24 h to five concentrations (0 [negative control], 5, 10, 50, 80, 100, and 200 ppb Hg cl. Zebrafish embryos exposed to 2% ethanol were positive controls (100% embryonic death). Embryos were assessed at 30, 54, 72 and 96 h post fertilization for progress in development, morphometry and morphological deformities. Embryos exposed to 5 ppb methyl mercury were healthy, showed no obvious deformities. Embryos exposed to 10, 50, 80, 100, and 200 ppb hg cl showed lighter pigmentation and smaller eyes. Embryos exposed to 80, 100, and 200 ppb hg cl showed shorter larval length. larger yolk sac was recorded in embryos exposed to 80 ppb hg cl. twisted tail was seen in embryos exposed to 80, 100, and 200 ppb hg cl.

---

## Comparative ameliorative effects of cinnamon and sesame oil administration on rat liver fed high-fat diet.

Amal.A.M.Ahmed<sup>1</sup>, Abeer A.I. Hassanin<sup>2</sup>, Abeer G.A. Hassan<sup>3</sup>, Saadia A. Ali<sup>4</sup>, EI-Anwar A. H<sup>5</sup>.

1Dept., of Cytology & Histology, Faculty of Veterinary Medicine, Suez Canal University, Ismailia, Egypt

2 Dept., of Animal Wealth Development, Faculty of Veterinary Medicine, Suez Canal University, Ismailia, Egypt

2 Fish Farming and Technology Institute, Suez Canal University, 41522 Ismailia, Egypt

3 Dept., of Biochemistry, Faculty of Veterinary Medicine, Suez Canal University, Ismailia, Egypt

4 Dept., of Physiology, Faculty of Veterinary Medicine, Suez Canal University, Ismailia, Egypt.

5 Dept., of Physiology, Faculty of Veterinary Medicine, Beni Suef University, Egypt.

### Abstract

This study was attempted to figure out the hypolipidemic effect of cinnamon (CIN) and sesame oil administration on rats fed high-fat diet (HFD). **Materials & methods:** This study was conducted on 36 albino rats, divided into control (12rats) and high fed diet (24) for 7 weeks. Then the HFD group was subdivided into three

equal subgroups: - recovery (feed standard diet only), Cinnamon (CIN) and sesame group. Lipid profile and glucose hemostasis, tumor necrosis factor (TNF $\alpha$ ) and C-reactive protein (CRP) were detected in all groups. The histological technique was carried out on liver tissues; beside immunostaining with nuclear factor kappa B (NF-k B). Moreover, frozen hepatic tissues were subjected to DNA fragmentation assay to detect apoptosis. **Results:** High fed rats showed an increase in cholesterol, triglycerides, LDL-c, glucose, insulin resistance and HOMA- IR. Also, CRP and TNF $\alpha$  in serum and immunexpression of NF-k B in liver tissue were elevated. Both CIN and sesame were completely restored LDL-c, glucose, HOMA-IR, CRP and TNF $\alpha$  and partially restored cholesterol, triglycerides (TG) and insulin resistance. CIN enhance HDL-C level. Histologically, lipid droplets, mononuclear inflammatory cells and Kupffer cells were increased in liver sections of HFD rats. The histological and immunohistochemical profiles were improved in CIN and sesame group but CIN was much better than sesame. No fragmentation was observed in any of the five groups, which indicated that high-fat high cholesterol diet has no cytotoxicity. **Conclusion:** both CIN and sesame were induced hypolipidemia however; CIN improves the histological profile more than sesame oil.

---

## **Therapeutic Effects of Milk thistle extract against Renal Toxicity Induced by Diethylnitrosamine and ccl4 in adult rats**

**Amal A. M. Ahmed<sup>1</sup> and Hend M. Tag<sup>2</sup>**

<sup>1</sup>Department of cytology & Histology, Faculty of Veterinary Medicine, Suez Canal University, <sup>2</sup> Zoology Department, Faculty of Sciences, Suez Canal University.

### **Abstract**

The aim of the present study was to examine the therapeutic effect of milk thistle (MT) extract on the kidneys of DEN/CCl4 -induced kidney injury in rats. **Materials & methods:** Twenty male albino rats weighing 130-170 gm. were taken. The study comprised of four groups (n=5): - a control, MT extract treated, DEN/CCl4 untreated and DEN/CCl4 treated with MT extract. Diethylnitrosamine (DENA) was injected in a single dose (200 mg/kg, I.P.), then CCl4 were injected I/P for 2 weeks (3 times / week) with 1ml/kg body weight. MT extract (500 mg/kg body weight) treatments were started 2 weeks after DENA/CCl4 administration at a continued for 8 week (3 time / week). Kidney tissues were stained with H&E, PAS and Masson's Trichrome. For scoring of the renal lesions, H&E sections were

analyzed six morphological parameters including epithelial cell vacuolization, degeneration, hyaline cast, tubular dilatation, and debris materials. Also, kidney sections were immunostained with inducible nitric oxide synthase (iNOS) and analyzed using the ImageJ software. **Results:** The applied dose of DEN/CCl4 caused histopathological alterations in the renal cortex such as tubular necrosis, swelling of the tubular epithelium, hyperplastic glomeruli and focal mononuclear inflammatory cell infiltration. Moreover, there was a decrease in the PAS +ve material at brush borders of the proximal convoluted tubules and an increase in collagen deposition in the interstitium and glomerular tufts. Treatment with milk thistle after administration of DENA and CCL4 attenuates the associated pathological changes. A significant increase in the immunostaining intensity of (iNOS) in renal cortex of In DEN/CCl4 treated animals group compared to the MT treated ones. **In conclusion,** MT post treatment prevented the histopathological changes caused by DEN/CCl4. Therefore; MT can be used as an effective therapeutic agent against DEN/CCl4 -induced nephrotoxicity.

---

## **Immunohistochemical Localization of Cell Adhesion Molecule1 (CADM1) in the Testis of Bull, Camel and Donkey (Poster)**

**Mahmoud Gewaily<sup>1)</sup>, Mohamed Kassab<sup>1)</sup>, Foad Farrag<sup>1)</sup>, Essam Almadaly<sup>1)</sup>, Ahmed Abd-Elmaksoud<sup>2)</sup> and Tomohiko Wakayama<sup>3)</sup>**

<sup>1)</sup> Faculty of Veterinary Medicine, Kafrelsheikh University, 33516 Kafrelsheikh, Egypt

<sup>2)</sup> Faculty of Veterinary Medicine, Mansoura University, El-Mansoura, Egypt.

<sup>3)</sup> Graduate School of Medical Science, umamoto University, 860-8556, Kumamoto, Japan.

### **Abstract**

Cell adhesion molecule1 (CADM1) is a member of immunoglobulin superfamily (IGSF) that has been found in mammalian testis and have a substantial role in cell-cell interaction by either homophilic binding (between spermatogenic cells) or heterophilic binding (between spermatogenic and somatic Sertoli cells). The present study investigated the immunohistochemical localization of CADM1 in the testes of sexually mature bull, camel and donkey by using immunohistochemical techniques.

Our results revealed that CADM1 expression was restricted to elongated spermatids in both bull and non-rutting camel testes. This expression was also extended to some of early spermatocytes in rutting camel and in both spermatogonia and early spermatocytes in donkey testes. On the other hand, there was no expression of CADM1 in Sertoli or interstitial cells including Leydig cells. In conclusion, the expression of CADM1 during spermatogenesis was different among species and between rutting and non-rutting camel. Thus, CADM1 expression in testis might be associated with male fertility.