1-

LOCALIZATION OF SUGAR RESIDUES IN THE STOMACH OF NON-HUMAN PRIMATES BY LECTIN HISTOCHEMISTRY

The stomach of three species of non-human primates was investigated using lectin histochemistry to clarify the staining affinity and distribution patterns of their sugar residues. All gastric regions, with little differences between the deep and superficial parts of the same region, were rich in N-acetylglucosamine and/or neuraminic acid. Although, the superficial regions of the gastric mucosa showed scanty N-acetylgalactosamine, â€-D-glucose and â€-D-mannose, its deep parts were rich in these sugars. In conclusion, there is a difference among the mucosubstances of gastric mucous cells. This indicates heterogeneous composition of gastric mucus, or mucus molecules with variations in the degree of glycosylation in the different cells.

2-

MORPHOLOGY OF THE STOMACH OF EASTERN GRAY KANGAROO (Macropus Giganteus) WITH SPECIAL REFERENCE TO ITS SACCIFORM FORE STOMACH

The eastern grey kangaroo is a large herbivorous marsupial animal found in the southern and eastern areas of Australia. It belongs to the Family of Macropodidae. Nine adult eastern gray kangaroos were used for studying the gross anatomy of the stomach and investigate the histological structure of the sacciform fore stomach region. The stomach of the kangaroo is a colon-like, tubular organ comprised of three sections: small sacciform forestomach, long tubiform forestomach and small hind stomach. The sacciform fore stomach represented by two small blind sacs, parietal and medial sacs. The tubiform fore stomach is a long sacculated colon like tube, which represents the main bulk of the stomach. It is characterized by presence of taeniae and haustra. The hind stomach is pear shaped sac fellows the tubiform fore stomach. Interestingly, the microscopical examination of the sacciform fore stomach showed the difference in the histological structure for the parietal and medical sacâ€™s wall. In the parietal blind sac, the wall comprised of glandular gastric mucosa, whereas, the medical sac was non-glandular.

In conclusion: The colon-like tubiform fore stomach represents the main part of stomach in the eastern grey kangaroo which allows thoroughly mixing of the food, easy passage of both solutes and large food particles and enabled it to digest the highly fibrous grasses. In addition, the presence of glandular mucosa at the parietal blind sac suggests a secretory function to this region which may increase the fermentation and digestibility of plant cell walls.

3-

SOME ANATOMICAL STUDIES ON THE MUSCLES OF THE ANTEBRACHIUM AND MANUS REGIONS OF EASTERN GRAY KANGAROO (MACROPS GIGANTEUS)
Eastern grey kangaroo is a large herbivorous marsupial animal found in southern and eastern areas of Australia. It belongs to Family Macropodidae. The present investigation was carried out on the carcasses of eight adult eastern gray kangaroos for studying the gross anatomy of the muscles of the antebrachium and manus regions. These muscles classified into: A-dorso-lateral group which comprise; Mm. extensor carpi radialis, extensor carpi ulnaris, extensor digitorum communis, extensor digitorum lateralis, extensor digiti I and extensor carpi obliquus. Functionally, these muscles represented the extensors for the carpal and digital joints. In addition to M. brachioradialis and supinator which located in the flexor angle of the elbow joint and serve to turn the forepaw around the long axis. B- Palmar group which comprise; Mm. flexor carpi radialis, flexor carpi ulnaris, palmaris longus, flexor digitorum superficialis and profundus. In addition to Mm. pronator teres and pronator quadratus which rotate the forearm medially. Functionally, these muscles represented the flexors of the carpal and digital joints. In conclusion, the muscles of the antebrachium and manus regions in eastern gray kangaroo are resemble nearly that of other macropod and carnivores in general, however, some original differences were detected between them in this study.

**4- MORPHOLOGY OF THE PAROTID SALIVARY GLAND OF THE EASTERN GRAY KANGAROO (MACROPUS GIGANTEUS)**

**5- MORPHOLOGICAL STUDY ON THE COLON OF THE OSTRICH (STRUTHIO CAMELLUS)**

The colon of twelve ostrich aged from 1.5 - 5 years old were used in this study. The colon of ostrich is very long (about 14 meters); it is divided into proximal, middle and distal distinct parts. The proximal part appears grayish and sacculated; with relatively short mesentery. Its mucous membrane form annular mucosal folds. The middle part is thin walled and lighter, long and arranged in coils at the edge of long mesentery, its mucosal folds are irregular. The distal part is short, project in the cavity of the coprodium for a distance about 2.5 - 3. The proximal part of the colon is supplied by the proper colic artery which originates from the cranial mesenteric artery. The middle and terminal segments are supplied by the caudal mesenteric artery. Histological finding revealed that, the ostrich colon is lined by simple columnar epithelium, thrown into the lumen forming occasionally branched intestinal villi in the distal segment. In all regions it is studded with goblet cells that exhibit strong PAS positive reaction on the surface epithelium and neck of intestinal crypt and strongly alcian blue positive reaction at its bottom in the proximal segment. In the middle segment it show alternate positive reaction along the intestinal crypts to PAS/AB and exhibit strong AB positive reaction at the bottom. In the distal segment, goblet cells show strong AB positive reaction along the intestinal crypt.

**6- IN SITU IDENTIFICATION OF SUGAR RESIDUES IN MONKEYS SALIVARY GLANDS BY LECTIN HistoCHEMISTRY II. PAROTID GLAND**

The parotid salivary gland (PSG) of the monkey was histochemically analyzed by lectin
histochemistry aiming to investigate the features of the available sugar residues and their suggested biology. These lectins were used as probe and the horseradish peroxidase (HRP) as visualant. The intensity of lectin binding affinity of the secretory acini and the smaller excretory ducts (intercalated, striated and interlobular ducts) showed wide variations. The reaction of the serous acini was strong with the Wheat germ agglutinin (WGA), moderate with the Ulexus europeus agglutinin-1 (UEA-1), scanty with the Concanavalia ensiformes agglutinin (Con-A) and negative with Peanut agglutinin (PNA). The lining epithelial cells of the intralobular ducts (intercalated and striated ducts) showed strong reaction to WGA, Con-A and PNA. While those of the interlobular ducts were negative to all lectins used except the moderate reaction to PNA. The goblet cells of the interlobular duct gave strong reaction with WGA only. The present study suggested that, the nature and composition of stored glycoproteins in monkey PSG is heterogeneous. The predominant terminal sugar residues are supposed to be ?-D-GlcNAc in secretory acini and ?-D-glc and ?-D-man in the ducts system.

7-

MORPHOLOGY OF THE UROPYGIAL GLAND IN GEESE ANSER ANSER, AND CHICKEN ,GALLUS GALLUS DOMESTICUS

The uropygial gland was the only sebaceous gland in birds. The gross morphology, vasculature and histology of the gland in aquatic birds (geese) and terrestrial birds (chicken) had been described in this study. The relative weight (Gwx100/Bw) and dimensions of the gland were recorded; colored-latex injected birds were dissected in addition to samples for light microscopy was obtained from adult birds. The size and relative weight of the gland were larger in geese than in chicken. In both species, the gland vascularized from the median caudal artery; which gave four pairs caudal segmental arteries in geese and six pairs in chickens. from these caudal segmental arteries the uropygial arteries were originated. Histological results reveled that, the gland was holocrine gland; in chicken it resembled the sebaceous gland in mammals. While, in geese the glandular epithelium showed larger and highly active intermediate cells in addition to larger lipid globules and the degenerated central cells coalesced loss their membranes and form syncytium to be sloughed in a large mass. The morphology of the uropygial gland was more developed in geese than chicken. This might suggest that the gland is more functionally active in birds living in aquatic habitat than that in terrestrial species.

8-

Localization of cytokeratin and smooth muscle actin in the accessory genital glands of the one humped camel (Camelus dromedarius) during rutting and non-rutting seasons

The present study has disclosed for the first time the distribution of cytokeratin (CK) and smooth muscle actin (SMA) in the accessory genital glands of camel. Generally, the glandular tissue and the CK positive staining of all accessory genital glands were comparatively less prominent in the non-rutting period. In prostate, CK was localized in the cytoplasm of columnar cells of secretory acini and in the scanty cytoplasm of basal cells. Conversely, no expression was seen in the capsule, fibromuscular septa, and blood vessels. In the ampulla of ductus deferens, the CK reaction was found in the pseudostratified columnar epithelium of mucosa and in the secretory columnar epithelium.
of submucosal glands. However, no reaction was evident in the surrounding connective tissue. In the bulbourethral gland, CK reaction was exclusively observed in the pyramidal cells of type A and type C secretory units as well as in the lining epithelium of the duct system. No CK staining was however detected in the cuboidal cells of the type B secretory acini and in the surrounding connective tissue stroma. Generally, no \( \alpha \)-SMA staining was evident within the lining epithelium of the secretory units of the accessory genital glands of camel either in rutting or non-rutting period. \( \alpha \)-SMA was localized to the smooth muscle cells of the prostatic capsule, fibromuscular stroma and blood vessels. Nevertheless, no \( \alpha \)-SMA was evident within the lining epithelium of the secretory units. In the ampulla, \( \alpha \)-SMA reaction was seen in the smooth muscle of tunica muscularis, fibromuscular stroma and blood vessels. In the bulbourethral gland, \( \alpha \)-SMA was only localized to the smooth muscle cells of the capsule and blood vessels in both reproductive periods. Unexpectedly, neither the interlobular nor the intralobular connective tissue stroma was reacted to \( \alpha \)-SMA. In conclusion, the distribution of CK and \( \alpha \)-SMA in the accessory genital glands of camel might point out to their roles in the male reproduction.

LOCALISATION OF CYTokeratin AND SMOOTH MUSCLE ACTIN IN THE ACCESSORY GENITAL GLANDS OF CAMELS (CAMELUS DROMEDARIUS) DURING RUTTING AND NON-RUTTING SEASONS

The present study has disclosed for the first time the distribution of cytokeratin (CK) and \( \alpha \)-smooth muscle actin (\( \alpha \)-SMA) in the accessory genital glands of camel. In prostate, CK was localized in the cytoplasm of columnar cells of secretory acini and in the scanty cytoplasm of basal cells. In the ampulla of ductus deferens, the CK reaction was found in the pseudostratified columnar epithelium of mucosa and in the secretory columnar epithelium of submucosal glands. In the bulbourethral gland, CK reaction was exclusively observed in the pyramidal cells of type A and type C secretory units as well as in the lining epithelium of the duct system. \( \alpha \)-SMA was localized to the smooth muscle cells of the prostatic capsule, fibromuscular stroma and blood vessels. In the bulbourethral gland, \( \alpha \)-SMA reaction was seen in the smooth muscle of tunica muscularis, fibromuscular stroma and blood vessels. In the ampulla, \( \alpha \)-SMA reaction was seen in the smooth muscle of tunica muscularis, fibromuscular stroma and blood vessels. In the bulbourethral gland, \( \alpha \)-SMA was only localized to the smooth muscle cells of the capsule and blood vessels in both reproductive periods. Unexpectedly, neither the interlobular nor the intralobular connective tissue stroma of bulbourethral gland has reacted to \( \alpha \)-SMA. In conclusion, the distribution of CK and \( \alpha \)-SMA in the accessory genital glands of camels might point out to their roles in the male reproduction.