Detection of lysozyme enzyme of the salivary gland of the edible cave swiftlet (Collocalia furcifrons). Published on PB Journal of Report Research.

Introduction
Pangolin is a unique and interesting mammal. Pangolin is toothless just like avian and the body is covered with horny scales. Therefore, pangolin appears more reptilian. This animal is classified into the order Pholidota. It consists of eight species that are distributed in the tropical rain forest of Asia and Africa (Gaubert and Antunes, 2005). Pangolin is considered to be an endangered species and listed in the appendix II of CITES. The pangolin feeds exclusively on ants and termites so pangolin is commonly known as lyssa, a lyssa.

Material and Methods
The samples of tongue were collected from the same animals used in the previous study (Nisa' et al., 2005). The samples were fixed in Bouin solution and then transferred in 70% ethanol. The tongue was observed macroscopically using naked eye and stereo microscope. Several parts were taken for histological observation. Paraffin blocks were cut at 5 μm, mounted on slides, incubated overnight in 37°C, and stained by hematoxylin-eosin and Masson's trichrome (Goldner modification).

The tongue of Malayan pangolin was long, veriform in shape and had a median groove (sulcus medianus) in the dorsum. The fixed tongue was approximately 10 cm in length and divided into apex, corpus and radix. Three types of lingual papillae, the filiform, fungiform and circumvallate papillae were observed on the dorsal surface, but the foliate papillae were absent. The tongue had a coin-shape projection at its anteromedial apex. This projection was equipped with filiform papillae which appeared anterodorsally on its vantral part. The tongue also had a lyssa, a fusiform cord composed of muscular and blood vessels surrounded by fibrous tissue on the ventral surface, but lacked of frenulum. The distribution of the filiform papillae varied among regions. Numerous papillae were found on the dorsal surface, moderate numbers of the papillae were found on the ventral part of the coin-shape projection and a few on the ventromedial anterior part of the lyssa.

Except for those found in the coin-shape projection, the direction of the filiform papillae were caudo-dorsal or little bit caudo-median in case of those found in the median groove. The filiform papillae in the lingual body were bigger in size than those in the lingual apex. The fungiform papillae were mushroom-shaped and distributed in large number on the dorsal to interventral parts of the lingual apex and in less number on the dorsal part of the lingual body. Three circumvallate papillae were observed in the rostral part of the radix of the tongue. The papillae were spherical-shaped and surrounded by shallow groove. Taste buds were found only in the epithelium of lateral wall of the circumvallate papillae. In the lateral wall of the circular groove of the circumvallate papillae we also observed serous glands. The tongue was lined with stratified squamous epithelium which was heavily keratinized.
Discussion

The morphology and length of the tongue of Malayan pangolin was unique and peculiar to the anti-eater animals. Their lacked of frenulum, a structure that commonly attaches the tongue to the ventral floor of the oral cavity in other mammals, is one of the interesting points of this research. This peculiarity makes the tongue can be protrude freely when catching their prey into the nest. It is combining with long and veriform tongue facilitated with sticky saliva. The dorsum is marked by a median groove and the ventral is marked by a remarkable lyssa as well as carnivores (Getty, 1975), presumed to lack the drinking water and catch their prey fastly. But different from carnivores, the lyssa in pangolin do not composed fat. The present of only three circumvallate papillae and the absent of the foliate papillae might be characteristic in the Malayan pangolin. While the present of a coin-shape projection in the dorsal surface of apex equipped with filiform papillae directed anterodorsally on its ventral part should be noteworthy.

Conclusion

The present findings showed that the morphology of the tongue of Malayan pangolin was peculiar which might be related to the feeding habit and the type of food eaten by animal.

References


IMMUNOHISTOCHEMICAL STUDIES OF THE STEROIDOGENIC E
RECEPTORS IN THE TESTIS AND PERINEAL GLAND OF THE C
(Paradoxurus hermaphroditus)

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Introduction

The common palm civet (Paradoxurus hermaphroditus) belonging to order Carnivora, subfamily Felinae, family Viverridae and subfamily Paradoxurinae inhabits South and Southeast Asia including India, Thailand, Laos, Cambodia, Myanmar, Vietnam, Philippines, peninsular Malaysia and several islands of Indonesia such as Sumatra, Java and Borneo. The presence of the perineal gland, a specialized skin gland, is a characteristic of Viverridae. The perineal gland is recognized in carnivores, and between penis and scrotum in viverrids. In previous studies, the immunohistochemical localization of the steroidogenic enzymes of Carnivora has been reported in Japanese black bear, American black bear and Japanese raccoon dog (1, 2). However, any other studies on the localization of the steroidogenic enzymes have not been reported about viverrid testis. In the present study, we examined the localization of the steroidogenic enzymes and receptors in the testis and perineal gland of the common palm civet to understand the testicular regulatory systems by steroid hormones.

Materials and Methods

Testes and perineal glands obtained from male common palm civets captured in Borneo Island, Indonesia were used in this study. The tissue samples were immediately fixed in Bouin's fixative and paraffin embedded. Sections were immunostained for the following antigens: gonadotropin releasing hormone (GnRH), GnRH receptor (GnRHR), FSH, LH, androgen receptor (AR), and estrogen receptor (ER). The localization of the steroidogenic enzymes and receptors was performed using the avidin-biotin (ABC) method.

Results

Histological study, with spermatozoa, was conducted to confirm the presence of spermatozoa in the seminiferous tubules. Immunohistochemical localization of the steroidogenic enzymes and receptors showed that the testes and perineal glands were composed of sebaceous glands, salivary glands and a large number of Leydig cells. AR immunoreactivity was detected in the nuclei of all Leydig cells. The AR immunoreactivity in the nuclei of testis and perineal glands was similar to that of the common palm civet.