

Semen Characteristics of Local Indigeneous Ponies

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Introduction

Horse racing has long been a traditional family recreational activity in the state of Kelantan.. In, the past most owners would have a few heads of ponies locally known as "Kuda Padi". These are the indigeneous breed of horses in Malaysia. Beginning early 1996 however, Thoroughbred or Bimo racing gained popularity in the state of Kelantan, the result of which is an influx of deleted racehorses from Penang, Perak and Kuala Lumpur stables into the state. As the need for bigger horses with superior speed increased, so did the cross breeding activity among traditional horse owners. Horse owners were breeding their ponies with thoroughbred stallions. These pony crosses are much bigger in size and horse enthusiasts love them for their superior speed. There are however, very few Thoroughbred stallions in Malaysia, and buying these stallions for breeding purposes can be very expensive. Alternatively, horse owners can breed Thoroughbred mares to indigeneous pony stallions. Thoroughbred mares are much more easily acquired and there is a larger genetic pool of indigeneous stallions that can be used for breeding purposes. Breeding has been carried out, without much knowledge of the seminal characteristics of stallions used, and almost no regard for breeding efficiency of the horses. Horse owners will continue to breed their horses, till they get into foal. Breeding is by natural mating and the use of artificial insemination in equine breeding in Malaysia has never been reported before. Artificial insemination could assist in maximizing genetic diversity while serving as a reservoir of genetic material beyond an animals life span. The use of artificial insemination and semen evaluation can be laborious, in light of the lack of skills in this area locally.

Hence, the aim of this study was to determine the semen characteristics of local indigeneous ponies and in the process develop the necessary skills to enable semen collection and evaluation work to be carried out locally.

Materials and Methods

Semen was collected from two pony stallions using an artificial vagina. To maintain viability it was extended in an equal volume of Non-Fat Dried Skim Milk Glucose extender and transported to the lab in a flask maintained at 37C. The following analysis was carried out at the lab;

Volume of semen

Gel free volume

Concentration

Total no of sperms

General motility of spermatozoa

Percentage motile

Percentage live

Type of morphological defect seen

Statistical analysis

An unpaired test between the two series of samples was carried out using a statistical package (Instat). Values are reported as means \pm the standard error of the mean (SEM).

Results and Discussion

The gel-free volume (in ml) of the two stallions were 40.4 ± 17.2 and 34.1 ± 17.2 respectively. An unpaired test between the two carried out using a statistical package (Instat) showed no significant differences between the two samples. The data was then pooled and the results of pooled samples reported forthwith. Gel free volume (ml) was 37.7 ± 17.2 . Total semen volume (ml) was 44.26 ± 22.63 . Percentage motile (%) was 77.96 ± 11.95 . Percentage live (%) was 72.8 ± 8.2 . Sperm concentration was 102 ± 37 ($\times 10^6$) sperm per ml. The total number of sperms per ejaculate can range from 1.33 to 7.63 ($\times 10^9$) sperm per ml. Less than 10% of morphological defects were noted in all samples. The defects can be classified as head, mid-piece or tail defects. Simple bent midpieces were the most common defect seen. Microcephalic head defects, proximal cytoplasmic droplets of midpieces and coiled flagellum were also seen to a lesser degree.

Conclusions

We noted that semen characteristics of local ponies to be within the range published by other research groups. It would be interesting to note if the semen of local indigenous ponies can withstand the cooling process for storage purposes. More studies need to be carried out to optimize artificial insemination work locally. .

Benefits from the study

This study enables generation of data on semen characteristic of local indigenous ponies which has never been published before. This work will open new avenues on equine semen research locally. It will pave the way for the establishment of a semen bank for local indigenous ponies. It has also enabled training of personnel and the development of technical skills in this area of equine breeding that was not available before. The research also benefited the institution in that it enable procurement of basic equipment fundamental for student training.

Patent(s), if applicable:

Not applicable

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Not applicable

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