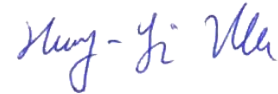


Tuberculosis surveillance of Formosan sika deer (*Cervus nippon taiouanus*) in Sheding captive breeding area in 2021

Ching-Wen Wu¹, Hung-Yi Wu²



¹Department of Tropical Agriculture and International Cooperation, National Pingtung University of Science and Technology, Pingtung, 912, Taiwan

²Department of Veterinary Medicine, National Pingtung University of Science and Technology, Pingtung, 912, Taiwan

ABSTRACT

The wild population of the Formosan sika deer (*Cervus nippon taiouanus*) became extinct in 1969. To protect the species, the government carried out captive breeding in 1984, and released it to Kenting National Park in 1994. At present, the distribution range of sika deer is not only in the restoration area, but also in the stocking area. Tuberculosis is an important zoonotic infectious disease. In 2021, the 73 sika deer collected in the captive breeding area were all negative for the intradermal tuberculin test (ITT). Since the habitats of sika deer and human activities overlap, continuous investigation of sika deer tuberculosis infection can monitor and control the occurrence and spread of deer tuberculosis, and at the same time can protect sika deer and prevent public health threats. This study pointed out that tuberculosis has not yet been found in the captive breeding area of sika deer, which should be continuously observed in the future. It is recommended to formulate a treatment policy in advance when the disease occurs to avoid spreading.

Keyword: Formosan sika deer, tuberculosis, intradermal tuberculin test (ITT)

References

1. Bureau of Animal and Plant Health Inspection and Quarantine. 2022. *Bovine Tuberculosis Questions and Answers*, Retrieved April 18, 2022, from the World Wide Web :
https://www.baphiq.gov.tw/theme_data.php?theme=news&sub_theme=message&id=16414
2. Bureau of Animal and Plant Health Inspection and Quarantine.2020. *2020 Annual Statistical Report*. Retrieved April 25,2022, from the world wide web:
<https://www.baphiq.gov.tw/ws.php?id=21384>.
3. Cai Y. R and Zhao P. H. 1996. Newsletter: A survey on the prevalence of tuberculosis in deer in Taipei City. *Journal of the Veterinary Society of the Republic of China*, 22(6), 413-416
4. Chen, Y. J., Wang, Y., Chen S. Q., Huang X. Y. 2003. Formosan Sika Deer (*Cervus Nippon taiouanus*) population Monitoring in Kenting National Park and vicinity Area. *Research report commissioned by Kenting National Park Management Office, Ministry of Interior Construction*.
5. Chu, C. S., Yu, C. Y., Chen, C. T., and Su, Y. C. 2012. “*Mycobacterium tuberculosis* and *M. bovis* infection in Feedlot Deer (*Cervus unicolor swinhoei* and *C. nippon taiouanus*) in Taiwan.” *Journal of Microbiology, Immunology and Infection*, 45(6), 426-434.
6. Executive Yuan Agriculture Committee, *Test method for deer infection with Mycobacterium bovis*, 2017.
7. Griffin, J. F. T., and Mackintosh, C. G. 2000. Tuberculosis in deer: perceptions, problems and progress. *The Veterinary Journal*, 160(3), 202-219.
8. Johnson, L. K., Liebana, E., Nunez, A., Spencer, Y., Clifton-Hadley, R., Jahans, K., ... & Delahay, R. 2008. Histological observations of bovine tuberculosis in lung

- and lymph node tissues from British deer. *The Veterinary Journal*, 175(3), 409-412.
9. Pei, J. Q., Liang Y. R., Chen Z. M. 2022. Kenting National Park Sika Deer Population Management Plan in 2021. *The Kenting National Park Management Office entrusts the project.*
 10. McCullough, D. R. 2009. "Sika deer in Taiwan," in *Sika Deer*. Dale R. McCullough, Seiki Takatsuki, and Koichi Kaji (eds.) . Tokyo: Springer, pp. 549-560.
 11. Pei J. Q. and Liang Y. R. 2015. "The past and present life of Formosan sika deer." *Taiwan Museum Quarterly*, 34(1), 42-49.
 12. Pei, J. C. 2009. The present status of the re-introduced sika deer in Kenting National Park, Southern Taiwan. in *Sika Deer*. Dale R. McCullough, Seiki Takatsuki, and Koichi Kaji (eds.) . Tokyo: Springer, pp. 549-560.
 13. Rhyan, J. C., and Saari, D. A. 1995. "A comparative study of the histopathologic features of bovine tuberculosis in cattle, fallow deer (*Dama dama*), sika deer (*Cervus nippon*), and red deer and elk (*Cervus elaphus*)." *Veterinary Pathology*, 32(3), 215-220.
 14. Monaghan, M. L., Doherty, M. L., Collins, J. D., Kazda, J. F., and Quinn, P. J. 1994. The tuberculin test. *Veterinary microbiology*, 40(1-2), 111-124.