

口蹄疫病毒血清型區別及其相關血清學檢測

豬瘟研究組

洪鈴柱助理研究員

摘要

口蹄疫是高度傳播性的傳染病，它會感染所有偶蹄類動物，尤其是牛，豬，綿羊和山羊，並且造成了巨大的經濟損失。口蹄疫有七種血清型和許多亞型。值得注意的是感染一種血清型的口蹄疫病毒後，動物不會對於其他血清型的口蹄疫病毒具有免疫力。因此，口蹄疫病毒的實驗室確診和血清型鑑定特別重要。根據OIE手冊規定，診斷試劑和標準試劑可以使用檢測套組，也可以從OIE參考實驗室單獨購買試劑。酵素連結免疫吸附分析法試驗可用於檢測口蹄疫病毒抗原並進行血清型的分型。除此之外，酵素連結免疫吸附分析法也可以用作特異性血清型的血清學檢測，並檢測結構蛋白質的特異性抗體。比較商業化的檢測套組與Pirbright的檢測套組，發現IZSLER檢測套組的性能和效率比Pirbright的檢測套組更好。此外，利用這些檢測套組可檢測不同血清型的口蹄疫病毒抗原和特異性抗體。本所亦每兩年參加一次國際口蹄疫能力比對測試。暨去年7月農業委員會宣布台灣撲滅口蹄疫，今年7月台灣已正式被世界動物衛生組織承認為口蹄疫非疫區，有利於提升我國畜產品出口競爭力。

Identification of the serotype of foot-and-mouth disease virus and associated serological tests

Ling-Chu Hung

Division of Hog Cholera Research

Abstract

Foot-and-mouth disease (FMD) is one of the most contagious diseases. It affects all cloven-hoofed animals, particularly cattle, pigs, sheep, and goats. It can cause significant economic losses throughout the world. FMD exists as seven major serotypes and numerous subtypes. Notably, infection with one serotype of the foot-and-mouth disease virus (FMDV) does not confer immunity against another. Therefore, the confirmatory diagnosis and serotype identification of the FMDV is crucial in the laboratory. According to the World Organization for Animal Health (OIE) Terrestrial Manual, the diagnostic and standard reagents are available in kit form or as individual items from OIE Reference Laboratories for FMD. Enzyme-linked immunosorbent assays (ELISA) can be used to detect FMDV viral antigens and for serotyping. Besides that, the ELISA can be used as serotype-specific serological tests for detecting the specific antibodies against structural proteins. I compared the commercial ELISA kits to the Pirbright Institute's ones; I found the IZSLER kit's performance and efficiency were better than those of the Pirbright Institute's ones. Further, I utilized these kits to detect FMDV-specific antibodies representing different FMD serotype and FMDV viral antigens in routine diagnostic work. We also participated in the Foot-and-Mouth Disease Proficiency Test Scheme every two years. Furthermore, the Council of Agriculture announced we eradicated FMD last July. After all, Taiwan has been officially recognized as free regions from FMD by the OIE in this July, which contributes to the export competitiveness of our livestock products.