



DETERMINATION OF INACTIVATION KINETICS IN VACCINE CANDIDATE LOCAL BVD VIRUS STRAINS AND IMMUNIZATION STUDIES IN EXPERIMENTAL ANIMALS

Berfin KADIROGLU

0000-0001-5969-6127

BURSA ULUDAG UNIVERSITY

INSTITUTE OF HEALTH SCIENCES

VIROLOGY DEPARTMENT PhD PROGRAM



KEY WORDS

- ✓ BVDV
- ✓ Growth curve
- ✓ Inactivation kinetics
- ✓ Inactivated vaccine
- ✓ Immunization

CONTACT

E-MAIL:
berfink@uludag.edu.tr

THESIS SUPERVISOR

TELEPHONE:
0224 294 12 95

E-MAIL:
kyesilbag@uludag.edu.tr



SUPERVISOR

Prof. Dr. Kadir YESILBAG
0000-0003-1793-6879
BURSA ULUDAG UNIVERSITY
INSTITUTE OF HEALTH SCIENCES
VETERINARY VIROLOGY DEPARTMENT BURSA –
TURKEY



THESIS ABSTRACT

In the thesis study, it was aimed to determine the proliferation characteristics, inactivation kinetics of vaccine candidate local BVDV strains and the serological responses of inactive BVDV vaccine formulations prepared with different adjuvants in experimental animals. Optimum MOI values of BVDV TR-21, TR-26 and TR-15 strains were determined as 1, 0,1 and 0,1, respectively. In addition, growth curves of TR-21, TR-26 and TR-15 strains were created and it was determined that they reached the highest titers at 48, 12, and 36 hours, respectively, after virus cultivation. In the inactivation kinetic study using BEI as a chemical, it was determined that the TR-21, TR-26 and TR-15 strains were completely inactivated at the 16th, 10th and 10th hours, respectively. Guinea pigs and mice were immunized with formulations using oil-based (ISA 50 and 206), AIOH₃-based and saponin adjuvants. In-house ELISA and neutralization test were applied to determine the humoral immune response developed after vaccination, and it was shown that the data confirmed each other. It was determined that oil-based adjuvant groups worked effectively in the vaccine compared to AIOH₃-based adjuvant groups. The importance of local strains in vaccines and their effectiveness against homologous and heterologous strains have been demonstrated.

APPLICATION AREAS OF THE THESIS RESULTS

This thesis study was supported within the scope of the TÜBİTAK project (Scientific and Technological Research Council of Turkey, Project No: 119 O 571) and the obtained results are the current data that can be applied for inactive local vaccine production in the future. The basic R&D data are produced for vaccine production.

ACADEMIC ACTIVITIES

Yesilbag K., Kadiroglu B. : Development of a Trivalent BVDV Vaccine Using Local Strains, European Biotechnology Congress, 5-7 October 2022, Czechia, Prague