

## عنوان مقاله:

Development of an Indirect Enzyme-linked Immunosorbent Assay to Detect Antibodies against Serotype A<sub>2</sub>O<sub>13</sub> of Foot and Mouth Disease Virus in Cattle

## محل انتشار:

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## خلاصه مقاله:

Foot and mouth disease (FMD) is a contagious animal disease that causes irreparable damage to the economy of countries, including Iran in which this disease is a native one. Among the ways to combat FMD are vaccination and slaughter. Due to the specific situation of Iran, it is not possible to kill infected animals. Therefore, vaccination is the most important way to fight this disease. Serum neutralization test (SNT) and enzyme-linked immunosorbent assay (ELISA) are two main methods to evaluate the safety and calculate antibody titer. In this study, an indirect ELISA test was developed based on the coating of a complete viral particle (۱۴۰s) which made it possible to determine antibody. In addition, serotype and viral type were determined without the need for time-consuming and complex molecular tasks, including gene expression. Moreover, in case of a new epidemic, a new epidemic condition can be detected using a serum antibody method. However, the coating of the complete viral particle leads to virus purification as well as the conjugated anti-immunoglobulin antibody testing of the same animal. In this study, the SNT was used as a gold standard test to determine the serum antibody level and compare its results with indirect ELISA method to determine the sensitivity and specificity of the indirect ELISA. To measure the anti-virus antibody rate of FMD (type A<sub>2</sub>O<sub>13</sub>) through receiver operating characteristic analysis with ۱۰۰% sensitivity and the specificity of ۹۰%, the routine formulas were utilized using ۱۰۰ % and ۸۲% sensitivity and specificity, respectively. In this study, the cutoff value for the optical density was obtained at ۰.۳ and there was a significant difference between the vaccinated animals and the unvaccinated ones in terms of antibody level against the A<sub>2</sub>O<sub>13</sub> type. This indicates the correctness of the test and the accurate and proportional antibody detection against the understudy viral types of FMD.

## کلمات کلیدی:

Antibody, Cattle, Cut off, Enzyme-linked immunosorbent assay, Foot and Mouth disease, Serum neutralization test

