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Comparison of immune response of FMD vaccine developed using different adjuvants

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Ethiopia is thought to have the most significant livestock population in Africa. The appearance of contagious diseases can excessively hinder economic development. Foot and mouth disease occurs throughout the country, with the highest incidence reported in central Ethiopia. Foot-and-Mouth Disease (FMD) is a high impact viral disease of livestock for which vaccines are extensively used in control. Despite of Vaccination campaigns, the infections is still occurring. The choice of adjuvant is a significant factor in enhancing immune responses and the efficacy of inactivated vaccines. No studied data was recorded about adjuvant in the country. This study's objective was for comparison of the immune response between Oil-based Adjuvanted, Aluminum hydroxide gel adjuvanted and FMDV vaccines in mice for the FMD. Prepared BHK-21 Cell culture (OIE Foot and Mouth 2012 Manual), The FMD virus seed ETHO38 final titrated 10^3.7 TCID50/100 µ was used for antigen preparation in a BHK21 cell line and inactivated by 1% of Formalin.

Adjuvants 50% of Oil-based Adjuvant and 2.5% of Aluminum hydroxide formulated in (V:V) with Serotype O FMD Virus were used. For the experiment 24 female BALB/c mice were grouped in to four group 6 mice in each group. Immunized the mice with 0.2 ml of the formulation FMD vaccine via intraperitoneal route and boosted at day 14 and challenged by Virulent Serotype O FMD at day 38. Serum was collected at days of 0,7,14,21,28 and 38. The results of these immunogenicity studies indicated that in mice, oil-adjuvanted vaccines led to higher and more persistent antibody titers. In contrast, aluminum hydroxide gel-adjuvanted vaccines were associated with lower antibody titers. In conclusion, mice immunized with oil-based adjuvanted vaccine showed higher antibody titer followed by Aluminum hydroxide gel adjuvanted and FMD Vaccine only respectively.