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Process Development of Nano Emulsion Foot and Mouth Disease Virus Vaccine

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(B.V.Sc., Cairo University, 2012)

For the degree of Master of Veterinary Medical Sciences

(Virology)

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2020



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ABSTRACT

Nano emulsion adjuvanted based vaccines have a potent induced immune response and are thermodynamically stable. Mainly Montanide ISA206 is the adjuvant used in foot and mouth disease virus vaccine (FMDV) produced in Egypt which is w/o/w microemulsion (ME), Recently failure to elicit effective immune response against FMDV, have been recorded. Herein, we developed Bio-compatible and stable w/o/w from microemulsion to nano emulsion adjuvant for FMDV, to promote immunogenicity. Emulsification applied using ultrasonication of Montanide ISA 206 in the presence of Tween 80 as a surfactant. The physical characteristics were studied, by TEM particle size ranged from 200-400 and confirmed by Zeta sizer and immunological evaluation was applied through vaccination of Guinea pig by both conventional and developed formula and comparing their immunogenicity by virus neutralization and challenge test that Nano emulsion adjuvant protection reach 90%.

Keywords: FMD, NE, ME and VNT.

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