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ADAPTATION OF LOCAL RABIES VIRUS ISOLATES TO HIGH GROWTH TITER AND PATHOGENICITY STUDY TO DEVELOP VACCINAL STRAIN IN ETHIOPIA

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Background: Rabies is a zoonotic viral disease which causes acute encephalitis in humans and animals. The case is most severe in developing countries where cell culture derived anti-rabies vaccines are unaffordable or the available nervous tissue-derived vaccines are of questionable immunogenicity and may cause neurological complications. The aim of this study was to adapt local rabies virus isolates on cell lines and mice brain and to study pathogenicity to intramuscular route of inoculation to develop vaccine strain locally.

Materials & Methods: The viruses were isolated from rabies dogs' brain and human saliva and adapted to Swiss albino mice brain and cell lines (BHK-21 and Vero) by several blind passages to increase viral titer. The viral titers were controlled by titration at each blind passage both *in vivo* and *in vitro*. For pathogenicity study, mice were inoculated intramuscularly with 250MICLD50/0.1 ml of each adapted virus isolates and observed for 45 days.

Results: By titration, a minimum of 10 $^{6.5}$ TCID50/ml (*in vitro*) and 10 $^{4.5}$ MICLD50/0.03 ml (*in vivo*) virus titer were obtained. According to pathogenicity study, only two virus isolates, human origin sululta (HOS) and dog origin (DO) caused 12.5% death.

Conclusion: Increase in viral titer was significant and it is observed for high viral titer by *in vitro* virus propagation. Death due to intramuscular inoculation can indicate the phylogroup origin of the viruses showing decline in virulence due to several blind passages. Adaptation of the viruses to mice brain and cell lines to increase virus infectivity titer significantly affects viral virulence to intramuscular inoculation. Further, genetic relationship with fixed rabies virus strain need to be studied by molecular techniques and vaccinal strain should be used from locally isolated viruses.

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