

Serosurveillance of Foot-and-Mouth Disease Virus in selected Livestock-Wildlife interface areas of Tanzania.

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Introduction (Background)

- Foot and mouth disease is a highly infectious viral disease of domestic and wild cloven-hoofed (even-toed) animals
- Foot and mouth disease virus (FMDV) belongs to the genus *Aphthorvirus* of the family *Picornaviridae*
- There are Seven serotypes of *FMD virus* named as O, A, C, Southern African Territory(SAT)1, SAT2, SAT3, and Asian1

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- FMD is endemic in Tanzania since its first documentation in 1927 and first virus typed isolation was made in 1954
- Identified serotypes in Tanzania include (2002 report)
 - Type A,
 - Type O,
 - SAT 1 and
 - SAT 2.

Cont...

- The disease is of economical significance
- It is considered by Food Agriculture Organization (FAO), Office International des Epizooties (OIE) as one of the transboundary animal disease with widest coverage in the world.

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- Some of the limiting factors in control of FMD include
 - uncontrolled movement,
 - lack of enthusiasm among key stakeholders (strict measures and quarantine),
 - high contacts between domestic and wild animals,
 - lack of compensation policy,
 - weak surveillance and monitoring programs,

Cont...

- Economical implications to FMD control → international markets → national income (GDP) → improves livelihood → alleviate poverty.

General objective

- The purposes of this research study was to determine the FMDV infection status between Buffaloes and Cattle herds in the Livestock-Wildlife interface areas.

Materials and methods

Study Design

This study was designed as a cross sectional study.

The sampled areas include

- Mikumi NP,
- Katavi NP,
- Mkomazi NP and
- Ruaha NP

Map of Tanzania-Sampled Areas



Samples collection

- Blood Samples were collected from Buffaloes and Cattle herds surrounding National parks.
- Other samples
 - Probang and
 - epithelial tissues as per OIE Manual 2009

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Sample size

- A total of 119 Buffaloes and 207 Bovine sera samples were collected

Laboratory analysis

- 85 sera samples were analysed by NSP ELISA using PrioCHECK® FMDV NS Kit for detection of antibodies directed against 3ABC non-structural proteins and confirming natural infections.

Table of Results

| Location | TSC | NST | NPS | PT(%) |
|-----------|-----|-----|-----|--------|
| Mikumi B | 29 | 25 | 22 | 88 |
| Mikumi C | 34 | 12 | 9 | 75 |
| Ruaha B | 30 | - | - | - |
| Ruaha C | 53 | 44 | 34 | 77 |
| Mkomazi B | 31 | - | - | - |
| Mkomazi C | 60 | - | - | - |
| Katavi B | 29 | - | - | - |
| Katavi C | 60 | - | - | - |
| Total | 326 | 81 | 65 | AV. 80 |

Serological characterization

- LPBE

Serotyping of NSP ELISA test seroreactors with LPBE technique is yet to be done.

DISCUSSION and CONCLUSION

FMDV infection rate is higher in Buffaloes than in Cattle around the same area/location. These findings do not prove on source of infection Buffaloes ↔ Cattle.

More research studies required on this area.



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THANK YOU FOR LISTENING