THE PRESENCE OF FOOT-AND-MOUTH DISEASE VIRUS IN THROAT SWABS FROM SLAUGHTERHOUSE CATTLE

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SHORT COMMUNICATION

The existence of foot-and-mouth disease (FMD) virus carriers (*4*) in the field was confirmed by workers of the Pan American Foot-and-Mouth Disease Center (PAFMDC), Rio de Janeiro, Brazil, in the early 1960's (*3*). Since then the so-called probang test for carriers has been extensively used in import and export programs and occasionally for virus surveys. During the last few years the PAFMDC used the method to determine the absence or presence of FMD viral activity in experimental farms and pilot areas or demonstration areas where oil adjuvanted vaccines were used (*1*).

In 1980 experimental work was initiated to test the possibility of FMD virus surveillance form throat swabs of slaughtered cattle.

First, the most practical procedure for collecting the swabs was investigated. The study showed that swabs could easily be taken postmorten in the slaughterhouse after inspection of the retropharyngeal lymphnodes. Each swab was placed in a tube containing 5 ml of Earle's medium with antibiotics which was maintained in an ice bath. On arrival at the laboratory samples were frozen at -70° C until tested.

Originally individual samples were tested for the presence of FMD virus, with and without trichlorotrifluorethane (TTE) treatment in tubes containing 48 h-old monolayers of IB-RS-2 cells. This method proved too laborious for testing large number of samples. Since the main objective of virus surveillance would be the detection of FMD viral strains active in the field rather than prevalence rates, the results of individual tests were compared with those in which samples of a maximum of 8 animals from one lot of cattle were pooled, treated with TTE and tested for the presence of FMD virus in Roux flasks containing 48 h-hold IB-RS-2 cell monolayers. In all cases when one of the individual samples was positive, virus could also be isolated from the pooled samples.

On the bases of these results the following test protocol was adopted: Samples were collected in a slaughterhouse located approximately 5 km from the PAFMDC laboratory. This slaughterhouse receives cattle mainly from the State of Rio de Janeiro, the south of the State of Minas Gerais and from as far as the south of the State of Bahia.

One day per week a laboratory technician visits the slaughterhouse to collect 64 samples from cattle which usually come from one area. One ml of each of 8 samples is pooled. Two tenths ml of equine serum is added to the pooled sample to help to form a good emulsion. Next, this pooled sample is emulsified with 6 ml of TTE in an Omnimixer[2], similar to the method used for oesophageal-pharyngeal fluid samples (*2*).

After centrifugation the entire supernatant is inoculated in the medium of a 48 h-old IB-RS-2 cell monolayers in a Roux flask. The cells are observed for cytopathic effect (CPE) for 4 days. Cell monolayers not presenting CPE are discarded. Harvests from monolayers with CPE are tested by complement fixation (CF) and, if negative in CF, passaged at least once more in IB-RS-2 cells.

Swab samples were taken and processed by

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the above method from a total of 1226 cattle during July-December 1980 corresponding to 25 sets with samples from 64 cattle which originated from 12 municipalities. Only FMD virus type A with serological characteristics of A Venceslau was isolated from 13 sets of cattle from 8 municipalities as shown in *Table 1* and *Figure 1*.

Even with this relatively small number of observations and considering that the information at the slaughterhouse with regard to the origin of the cattle is not always completely reliable, it is clear, that the methodology described could be a useful tool for continuous FMD virus surveillance programs both in FMD free and endemic areas.

Such a surveillance would also be useful to indicate areas with the lowest risks for the selection of cattle for export programs.

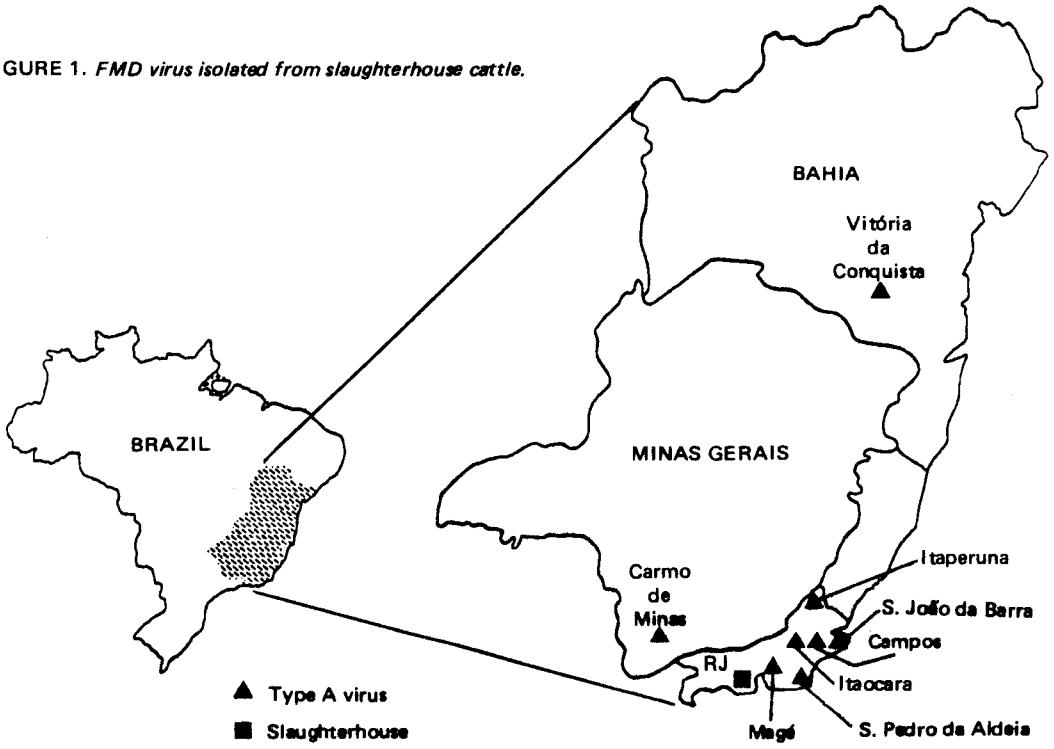
TABLE 1. *Frequency of positive pools*

Municipality/State	Pools of cattle	Virus type isolated
Campos – RJ	5/7[a]	A[b]
C. Macacu – RJ	0/2	–
Itaperuna – RJ	2/2	A
Itaocara – RJ	1/1	A
Mage – RJ	1/1	A
S. João da Barra – RJ	1/1	A
Vitoria da Conquista – BA	1/6	A
Itarantin – BA	0/1	–
Salinas – MG	0/1	–
Carmo de Minas – MG	1/1	A
Nanuque – MG	0/1	–
S. Pedro da Aldeia – RJ	1/1	A
Total	13/25	

[a] Positive pools/Total pools tested.

[b] Type A virus with serological charateristics of A Venceslau.

FIGURE 1. *FMD virus isolated from slaughterhouse cattle.*



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