

LONDON
SCHOOL of
HYGIENE
& TROPICAL
MEDICINE



Hang'ombe, BM; Nakamura, I; Kaile, D; Mweene, AS; Samui, KL; Kilonzo, BS; Sawa, H; Sugimoto, C; Wren, B (2012) Identification of the plague reservoir in an endemic area of Zambia. *The Onderstepoort journal of veterinary research*, 79 (2). E1. ISSN 0030-2465
DOI: <https://doi.org/10.4102/ojvr.v79i2.464>

Downloaded from: <http://researchonline.lshtm.ac.uk/612349/>

DOI: [10.4102/ojvr.v79i2.464](https://doi.org/10.4102/ojvr.v79i2.464)

Usage Guidelines

Please refer to usage guidelines at <http://researchonline.lshtm.ac.uk/policies.html> or alternatively contact researchonline@lshtm.ac.uk.

Available under license: <http://creativecommons.org/licenses/by-nc-nd/2.5/>



Identification of the plague reservoir in an endemic area of Zambia

Authors:

Bernard M. Hang'ombe¹
I. Nakamura²
D. Kaile³
A.S. Mweene¹
K.L. Samui¹
B.S. Kilonzo⁴
H. Sawa²
C. Sugimoto²
B. Wren⁵

Affiliations:

¹School of Veterinary Medicine, University of Zambia, Zambia

²Research Center for Zoonosis Control, Hokkaido University, Japan

³Namwala District Medical Officer, Namwala District, Zambia

⁴Sokoine University of Agriculture, United Republic of Tanzania

⁵School of Hygiene and Tropical Medicine, London, United Kingdom

Correspondence to:

Bernard Hang'ombe

Email:

bernard.hang'ombe@sacids.org

Postal address:

PO Box 32379, Lusaka, Zambia

How to cite this abstract:

Hang'ombe, B.M., Nakamura, I., Kaile, D., Mweene, A.S., Samui, K.L., Kilonzo, B.S. *et al.*, 2012, 'Identification of the plague reservoir in an endemic area of Zambia', *Onderstepoort Journal of Veterinary Research* 79(2), Art. #464, 1 page. <http://dx.doi.org/10.4102/ojvr.v79i2.464>

Note:

Proceedings of the Conference of the Southern African Centre for Infectious Disease Surveillance 'One Health' held at the National Institute for Communicable Diseases, Johannesburg, July 2011.

Yersinia pestis, the bacterial agent of plague, is primarily a parasite of wild rodents that persists in permanent, discrete enzootic foci throughout the world. The disease is transmitted in humans by bites from fleas of wildlife rodent species. Therefore surveillance is the ultimate public health solution through plague detection in domestic dogs, other carnivores and wild rodents. The investigations of die-offs amongst plague-susceptible colonial rodents are also significant to determine the presence of *Y. pestis* in a susceptible population.

This study details the identification of the plague reservoir in a suspected endemic area of Zambia. The study was undertaken through rodent investigation for the presence of *Y. pestis*. A total of 105 rodents were sampled routinely and during a suspected plague period. On dissection 4 (3.81%, 95% CI: 1.23–10.0) rodents sampled during an outbreak showed signs of spleen enlargement. The blood, liver, lymph nodes and spleen of each rodent were subjected to culture on 6% sheep blood agar and MaCconkey agar. Colonies obtained were identified as *Y. pestis* by colony morphologic features, biochemical profiles, mouse inoculation assay and polymerase chain reaction (PCR). The PCR primers used targeted the *Y. pestis* plasminogen activator gene, chromosomal ferric iron uptake regulation gene and the outer membrane protein B gene.

The isolates were also subjected to antibiotic sensitivity tests using the disk diffusion method on Mueller-Hinton agar with sensitivity being observed with ampicillin, amoxicillin, chloramphenicol, gentamycin, streptomycin, tetracycline and trimethoprim-sulfamethoxazole. The findings, identifies a natural reservoir of *Y. pestis* in Zambia providing the public health officials with a definite host for the control strategy.