CARRIER STATUS, ANTIBIOTIC AND DISINFECTANT SENSITIVITY PATTERNS OF LISTERIA MONOCYTOGENES AND OTHER AEROBIC BACTERIA IN SCAVENGING CHICKENS AND DUCKS.

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ABSTRACT

The carrier status of *Listeria monocytogenes* organisms in indigenous chicken and ducks may have great impact on human health because of their zoonotic nature, particularly in an environment where humans, chicken and ducks share the same ecosystems. In Kenya, the epidemiological issues and the dynamics of carrier status for *Listeria monocytogenes* in local indigenous chickens and ducks have not been documented.

In this study, 175 indigenous birds (55 chickens from farms, 40 chickens from market and trading centres, 41 chickens from slaughterhouses and 39 ducks from farms) were sampled. Samples taken included oropharyngeal and faecal swabs (cloacal and intestinal swabs). Bacteriological isolation and characterisation of *Listeria monocytogenes*, other *Listeria* species and other aerobic bacteria was carried out. The recovered *Listeria* isolates were tested for antibiotic and disinfectant sensitivities. Eight commonly used antibiotics and 7 disinfectants were tested. Disinfectant sensitivity was also done on pooled bacterial cultures from farms.

*Listeria* species isolated were *Listeria monocytogenes* (2), *L. innocua* (3), *L. seeligeri* (2), *L. grayi* (1) and *L. murrayi* (1). They were recovered from both farms and markets and only from chickens; not from ducks. Other bacteria that were isolated from both chicken and ducks and from farms, market and slaughterhouses, belonged to the genera: *Staphylococcus*, *Streptococcus*, *Escherichia* and *Erysipelothrix*. 
All *Listeria* tested for antibiotic sensitivity were 100% sensitive to gentamycin; sensitivities to kenamycin, tetracycline, cotrimoxazole and chloramphenicol were; 88.9%, 77.8%, 66.7%, and 66.7% respectively. All the *Listeria* isolates were resistant to ampicillin, augmentin and cefuroxime. The difference in the antibiotic sensitivity of various *Listeria* isolates and *Listeria monocytogenes* type strains was not significant (P=0.2639).

All *Listeria* isolates were sensitive to Omnicide® at the recommended user – dilution. For Bromosept® 50, Lavik®, and Dettol®, 88.9%; 77.8%; 77.8% of the isolates, respectively, were sensitive at user – dilution. All of the isolates were resistant to Sodium hypochlorite, Kleenol®, and Lysol®. The results indicated that a slightly higher concentration than the recommended user – dilution may be preferred.

Sensitivity of the pooled bacterial culture to the disinfectants used indicated Bromosept 50® and Omnicide® as the most efficient with a mean sensitivity at user dilution of 80% and 60% respectively. The others namely: Dettol®, Lavik® and Sodium hypochlorite had each a mean of 30% susceptibility. Kleenol® and Lysol® were ineffective at both user and higher concentrations. Bromosept 50® and Omnicide®, are recommended for disinfection of chicken and duck coops at the village level. Kleenol and Lysol® are not to be recommended.

The study showed conclusively, for the first time, that indigenous chickens in Kenya are carriers of *Listeria monocytogenes* and other potentially pathogenic bacteria. The study also indicates the need to carry out antibiotic and disinfectant sensitivity testing in order to identify the effective ones.