

with *S. pseudintermedius* in cats ( $p=0.02856$ ,  $OR=4.93$ ;  $CI\ 95\% = 1.84–12.56$ ). The prevalence in healthy cats group was 3.08% ( $CI\ 95\% 1.62–4.53\%$ ) and in sick animals 11.97% ( $CI\ 95\% 4.48–19.4\%$ ). From cats under investigation 26 of *S. pseudintermedius* strains were isolated: 15 and 10 from healthy and sick animals respectively. Only strains isolated from sick animals shown methicillin resistance on the phenotypic level (18.18% methicillin-resistant *S. pseudintermedius* (MRSP)) whereas 26.26% and 45.45% strains from healthy and sick cats respectively harboring *mecA* gene were detected. Also much more often *S. pseudintermedius* isolates from infected animals were resistance to others chemotherapeutics.

**Conclusion:** Bacterial infection was a significant risk for colonization with *S. pseudintermedius* in cats. Infections caused by *S. pseudintermedius* may be a significant therapeutic problem because some strains have been characterized by resistance to the majority of chemotherapeutic drugs commonly used in domestic animals.

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### Patterns of antimicrobial resistance bacteria from respiratory tract of psittacine pet birds in Thailand



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**Purpose:** Parrots or psittacine birds are one of the most popular pets. The common problem in birds is respiratory disease, which spread mainly through contact, droplet and aerosol transmission. In particular, opportunistic bacteria normally involve in disease progression and threat of antimicrobial resistance. Moreover, close contact with a sick bird may pose health risk to owner due to spread of antibiotic-resistant bacteria. Thus, the aim of this work was to provide data on the characterization of antimicrobial resistance bacteria from upper respiratory tract of psittacine cases in Thailand.

**Methods & Materials:** The case records for all psittacines visiting the exotic pet clinic, Kasetsart University Veterinary Teaching Hospital Bangkok from January to October, 2015 were used to assess type and antimicrobial susceptibility pattern of bacteria. Swab technique at choanal or nasal area of bird was used for bacteria collection and culture. Eleven antimicrobial drugs were tested using disk diffusion method, which represented 9 antimicrobial groups.

**Results:** A total of 80/376 psittacine cases (21%) was diagnosed to have respiratory problem. Then, eighty-eight isolates were obtained from 53 respiratory cases consisting of *Streptococcus* spp. (18 isolates, 20%), *Staphylococcus* spp. (16 isolates, 18%), *Escherichia coli* (15 isolates, 17%), *Pseudomonas* spp. (9 isolates, 10%), *Klebsiella pneumoniae* (7 isolates, 8%), *Pasteurella* spp. (6 isolates, 7%) and *Enterobacter* spp. (5 isolates, 6%). The staphylococci presented highly resistant to beta-lactam antibiotics (>50% of isolates) meanwhile *Pasteurella* spp. appeared to show susceptible almost of antimicrobial drugs except clindamycin. However, clindamycin seemed to resist with *E. coli*, *Enterobacter* spp, *Klebsiella pneumoniae* and *Pasteurella* in all isolates. Patterns of multiple drug resistance (MDR) indicated in this study, which presented in all *Pseudomonas* isolates, 93% of *E. coli* isolates, 80% of *Enterobacter cloacae* isolates, and 57% of *Klebsiella* isolates. Additionally, two isolates of *Pseudomonas* were resistant to 8 antimicrobial categories.

**Conclusion:** Bacteria isolated from upper respiratory psittacine cases presented antimicrobial resistant trend and MDR. Respiratory treating in Psittaciformes should concern with susceptibility test and prudent use of antimicrobial usage in practice for therapeutic plan. Furthermore, link between colonized bacteria in a pet bird and owner should not be overlook.

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### Livestock diseases threatening smallholder farmers in Lao people's Democratic Republic



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**Purpose:** In Lao People's Democratic Republic, uncontrolled animal trade, lack of animal containment and limited access to veterinary services are a growing-ground for virus spread. Foot-and-Mouth Disease (FMD) and several avian viruses are enzootic and threaten subsistence farmers. We assessed the (sero-)prevalence of several livestock viruses, and evaluated the knowledge, attitude, and practice of smallholder farmers towards FMD.

**Methods & Materials:** In 2018, sera were collected from 394 domestic ruminants and screened using an ELISA that differentiates between infected and vaccinated animals. Questionnaires ( $n = 101$ ) were statistically explored to identify knowledge gaps and risk factors related to FMD. In addition, oral and cloacal swabs, collected from 619 backyard poultry in 2011, 2014 and 2015, were tested by PCR for Newcastle disease (NDV), Influenza A, Coronavirus (CoV) and Chicken Anemia Virus (CAV). 206 poultry sera were screened by ELISA for the presence of anti-NDV and –Influenza A antibodies. Statistical and phylogenetic analyses revealed the viral infection patterns.

**Results:** Although most farmers had very limited knowledge about FMD, many could correctly enumerate the symptoms and observed outbreaks recently. This was confirmed by our laboratory analysis: overall 37.1% of the animals were seropositive and 72.3% of the farms had at least one seropositive animal. Approx. 90% of the farmers reported that FMD negatively affects livestock trade and health. Moreover, we found high positivity rates of CoV and CAV RNA in cloacal and oral swabs (CoV: 38.3% and 6.2%; CAV: 16.1% and 1.7%). Younger animals were more likely to shed both, CoV and CAV, and similar virus strains co-circulated in chickens and ducks. Despite serological evidence of NDV and influenza A circulation (86.9% and 1.9%), viral RNA was detected in none of the swabs.

**Conclusion:** A large proportion of the Lao population relies on subsistence livestock production which is, as shown here, severely compromised by the circulating viruses. To secure their livelihoods, vaccination programmes should target all susceptible hosts and achieve a high coverage throughout the country. These campaigns should be complemented by community-based sensitization to raise the awareness about prevention strategies, such as quarantine and trade restrictions.

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