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PREVALENCE OF SWINE ATROPHIC RHINITIS IN PIG FARMS IN PENINSULAR MALAYSIA

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INTRODUCTION

Swine Atrophic Rhinitis (AR) is an important disease in pig production as it affects growth performance[1] and leads to economic losses. It is caused by the toxigenic strains of *Bordetella bronchiseptica* (Bb) and *Pasteurella multocida* type D toxin (PMT), which result in the characteristics turbinate atrophy and septum deformation in nursery and fattening pigs. AR has been documented in many countries, but limited studies were conducted in Malaysia. The objective of this study was to survey the AR situation in Malaysia pig farms via Oral Fluid (OF) and Nasal Lesion Scoring (NLS) system.

MATERIALS AND METHODS

A total of 11 pig farms located in Peninsular Malaysia were selected for sampling between July and December 2019. The OF samples were collected from gilts, nursery pigs (4-11 weeks old) and fattening pigs (12 weeks old – slaughter) in each farm and inoculated in FTA elute cards before sending to DIAGNOS® Laboratory (HIPRA) for real-time Polymerase Chain Reaction (rt-PCR) detection of Bb and PMT genes. Furthermore, a total of 183 fattening pigs from these farms were sampled for NLS by sectioning for the snouts following the European Pharmacopoeia guidelines[2]. Each of the four scrolls of the ventral turbinate bones and nasal septum deviation were scored on the scale of 0-4 and 0-2, respectively, giving rise to the maximum score of 18.

RESULTS

The Bb DNA was detected in all farms with 100% positive in the fattening pigs. On the other hand, the PMT DNA was found in 27% of the farms (table 1).

Farm	Bb			PMT		
Nº	Gilt	Nursery	Fattening	Gilt	Nursery	Fattening
1	+	++	+			
2	+	++	+			
3			++			
4	+		++			+
5	+	+++	++		++	
6	++		++			
8			+			
9		++	+			
10	+	+	+			
11	+	++	++		+	

Table 1. Prevalence* of Bb and PMT genes in 11 pig farms in Peninsular Malaysia.
* Positive bacterial DNA was quantified as lower (+), moderate (++), or higher (+++) amount.

From the NLS analysis, the average score was 8.7, indicating a moderate lesion. The highest NLS score achieved was 18, which represent a severe lesion. The lowest score seen was at a healthy level of 3.1. Nasal septum deviation was present in 3.5% of the samples (figure 1).

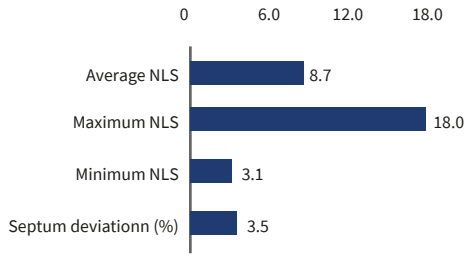

Figure 1. Summary of NLS on 183 fattening pigs from 11 farms.

DISCUSSION AND CONCLUSIONS

Results from the PCR on the OF samples and NLS analysis showed that AR is present in commercial pig farms in Peninsular Malaysia. The prevalence of Bb was the highest among fattening pigs as compared to gilts or nursery piglets. While the presence of PMT was only seen in 3 farms with a moderate level average NLS score. The potential impact of this disease on the farm production performance should not be overlooked. Prevention by vaccination with vaccine antigen containing inactivated Bb and recombinant PMT is recommended for AR control in the pig farms[3].

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