

ABSTRACT

Molecular Detection of *Sarcoptes Scabiei* and Associated Predictors of Sarcoptic Mange in Trinidad and Tobago

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The disease condition caused by the mite *Sarcoptes scabiei* is termed sarcoptic mange in animals and scabies in humans. Detection of this mite by microscopic examination of skin scrapings is difficult. Molecular techniques are being used to improve diagnosis and provide information on the homology of *S. scabiei*. This study performed the first molecular detection of *S. scabiei* infestation of domestic animals in Trinidad and Tobago and studied the predictors associated with sarcoptic mange. Using a syndromic surveillance method one hundred and eighty -one, domestic animals showing clinical signs associated with sarcoptic mange were sampled. This included 155 (85.6 %) dogs, 15 (8.3%) pigs, 6 (3.3%) goats and 5 (2.8%) sheep. Questionnaires were administered to gather information on predictors associated with sarcoptic mange. Skin scrapings from these animals were examined microscopically for the presence of mites. Overall 17 were positive. DNA was extracted from all samples and was amplified using RIB-18 and RIB-3 primers which amplified a portion of the ITS-2 gene giving a fragment of 450-460 bp. A cladogramme was constructed using four *S. scabiei* sequences from this study and 21 derived from GenBank to visualise the homology of the sequences. Analysis of the data obtained from dogs showed sour odour (OR 5.56, 95% C.I =1.46 -2.17), pruritus (OR, 4.06, 95% C. I= 1.38 – 11.92) and crusting (OR, 2.40, 95% C.I 1.07-5.38) were significant predictors for a definitive diagnosis of sarcoptic mange. This study demonstrated that sarcoptic mange must be considered as a primary differential when dogs present with sour odour, pruritus and crusting. All *S. scabiei* Trinidad and Tobago sequences clustered together, indicating that *S. scabiei* mites appear to be genetically similar based on the portion of the ITS-2 gene. The results from this study clearly establish predictors of sarcoptic mange which can assist veterinarians in diagnosis.

Keywords: Caribbean area; domestic animals; phylogenetic analysis; sarcoptic mange; *Sarcoptes scabiei*; Trinidad and Tobago.