

Rapid Detection and Differentiation of Camel Pox, Contagious Ecthyma and Papilloma Viruses in Clinical Samples of Camels Using a Multiplex PCR

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Abstract : Pox and pox-like diseases of camels are a group of exanthematous skin conditions that have become increasingly important economically. They may be caused by three distinct viruses: camelpox virus (CMPV), camel contagious ecthyma virus (CCEV) and camel papillomavirus (CAPV). These diseases are difficult to differentiate based on clinical presentation in disease outbreaks. Molecular methods such as PCR targeting species-specific genes have been developed and used to identify CMPV and CCEV, but not simultaneously in a single tube. Recently, multiplex PCR has gained reputation as a convenient diagnostic method with cost- and time-saving benefits. In the present communication, we describe the development, optimization and validation a multiplex PCR assays able to detect simultaneously the genome of the three viruses in one single test allowing for rapid and efficient molecular diagnosis. The assay was developed based on the evaluation and combination of published and new primer sets, and was applied to the detection of 110 tissue samples. The method showed high sensitivity, and the specificity was confirmed by PCR-product sequencing. In conclusion, this rapid, sensitive and specific assay is considered a useful method for identifying three important viruses in specimens from camels and as part of a molecular diagnostic regime.

Keywords : multiplex PCR, diagnosis, pox and pox-like diseases, camels

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