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Pathogenicity and tissue distribution of Moroccan infectious bronchitis virus strains (Italy02), and evaluation of protection induced by a vaccination program based on the attenuated vaccine (Mass-typeH120)

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Avian infectious bronchitis (IB) is one of the most important viral diseases of poultry, affecting chickens of all ages and causing major economic losses in poultry flocks. In spite of regular vaccination with Massachusetts (Mass) strain has been available to control IB for many decades in Morocco, which it is most commonly used. However, the continuation of the spread of IB in Morocco has shown the emergence of a novel strain of Italy 02 genotype with 32% detected for the first time in Africa between 2010 and 2014 from vaccinated and unvaccinated chicken flocks. This emergence remains a problem for the poultry industry and vaccine manufacturers. Therefore, the aims of this study were firstly to evaluate the pathogenicity and the tissue distribution of infectious bronchitis virus (IBV) Italy 02 genotype isolated in Moroccan broiler chickens, using a one day-old specific pathogen free (SPF) chicks, and secondly to assess the level of protection induced in these birds by a vaccination program based essentially on the attenuated vaccine (Massachusetts-type H120). Unvaccinated birds showed clinical signs of varying severity, predominantly affecting the respiratory tract. Vaccinated birds appeared healthy, with the exception of a very mild conjunctivitis affecting a limited number of the birds vaccinated once. Vaccination fully protected specific pathogen free birds, since no histopathological lesions were observed in birds vaccinated twice, or virus was detected following challenge. Replication of the challenge virus was prevented in the birds vaccinated twice, however not prevented in the vaccinated once and was significantly reduced. This study confirms that the primary vaccination program with live H120 vaccine, administered at one day old and 14 days of age confer an excellent protection from virulent strain of Italy02 genotype emerging in Moroccan poultry farms. This confirms that such vaccination program may be useful under field conditions to reduce the economic losses caused by IBVs variants infections on broiler farms.

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Development of a SYBR Green real-time PCR standard for porcine *parvovirus* (PPV) and screening of porcine tissue DNA samples

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Swine viral diseases are of great concern as they hamper the economy of the swine industry. One of such major disease problem is porcine *parvovirus* (PPV) infection and is the major cause of reproductive failures in swine. Porcine *parvovirus* is an autonomously replicating *parvovirus*, belongs to genus *parvovirus* from the *Parvoviridae* family. Qualitative real time PCR is a method to rapidly and precisely quantify gene activity by detecting RNA level of gene of interest. In the present study we have developed an assay based on real time PCR for the screening of porcine *parvovirus* in tissue DNA samples. A recombinant plasmid carrying a fragment of VP2 gene was linearized by digesting with Nco I. Serial log 10 dilution of linearized plasmid was prepared and standard curve was generated by using this as the template. A total of 102 DNA samples were screened through real time and conventional PCR, 14 in real time and 4 samples in conventional PCR came positive. Real time PCR found to be 105 times more sensitive than the conventional PCR in PPV negative pig genomic spiking. So we can say that real time PCR though costlier but at the same time it is more sensitive and accurate technique over the conventional PCR.

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