

**COMPLETE GENOME OF THE PATHOGENIC STRAIN OF THE NEWCASTLE DISEASE
VIRUS ISOLATED IN BRAZIL IN THE 1970'S**

*(GENOMA COMPLETO DE UMA ESTIRPE PATOGENICA DO VÍRUS DA DOENÇA DE
NEWCASTLE ISOLADA NO BRASIL NA DÉCADA DE 70)*

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The Newcastle disease (ND) is one of the most important diseases of poultry, negatively affecting poultry production worldwide. The etiological agent is the Newcastle disease virus (NDV), an avian paramyxovirus type 1 (APMV - 1), which belongs to the genus *Avulavirus*, family *Paramyxoviridae*. In the 70's, outbreaks of the more severe ND were recorded in Brazil, from which the strain APMV-1/Chicken/Brazil/SJM/75 NDV was isolated. The strain was later characterized as highly pathogenic for chicken embryos, chicks and adult chickens but not pathogenic for other species of birds. In this study, the genome of this strain was completely sequenced, followed by phylogenetic analysis. The results revealed that the genome of strain APMV-1/Chicken/Brazil/SJM/75 is constituted by 15,174 nucleotides, consisting of six genes in the order 3'-N-P-M-F-HN-L-5'. The probable cleavage site of the fusion protein (F) shows the amino acid sequence corresponding to the amino acid sequences of the F protein of virulent NDV strains and this together with the HN protein showed significant differences compared to those same proteins in the NDV vaccine strains. The complete genome of APMV-1/Chicken/Brazil/SJM/75 showed great genomic differences in the deduced amino acid sequences of its major structural proteins, which clearly distinguish this virus from other classic NDV strains, ranking it in the genotype V, in which are grouped virulent NDV isolated in the 70's in the United States and more recently in the USA, Canada and Mexico. The data obtained from this study should greatly contribute to better understand the genomic evolution of NDV in Brazil and the Americas, as the strains with these genotypic and phenotypic characteristics were no longer isolated in Brazil after 1975, while virulent NDV strains of genotype V have been isolated in North America.

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