REVALENCE OF INFECTIOUS BRONCHITIS VIRUS (IBV) IN BROILERS DURING 2021 AND 2022 IN PARANÁ – BRAZIL

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Introduction

In Brazil, Infectious Bronchitis (IB) is one of the most frequent respiratory diseases in broiler chickens. The main clinical signs observed in young birds are prostration, reduced food consumption and mainly respiratory signs such as sneezing and snoring. Infected broilers chickens may have serous or caseous exudate in the trachea and sinuses. When secondary infection occurs, especially by E. coli, airsacculitis lesions can be observed, which reflects in the increase of slaughter conditions. Until mid-2021, GI 11 (BR-1) and GI 1 (Massachusetts) were the predominant genotypes in the country. Ever since, a new variant, genotype GI 23 (VAR2), has been introduced into Brazilian poultry flocks, especially in the southern region, which has three states: Paraná, Santa Catarina and Rio Grande do Sul. Of all of them, Paraná has stood out in the production of broiler chicken, representing more than 36% of the Brazilian production.. The aim of this study was to demonstrate the prevalence of infection by the three genotypes of the infectious bronchitis virus (IBV) in broiler chickens in outbreaks that occurred in 2021 e 2022 in Paraná – Brazil.

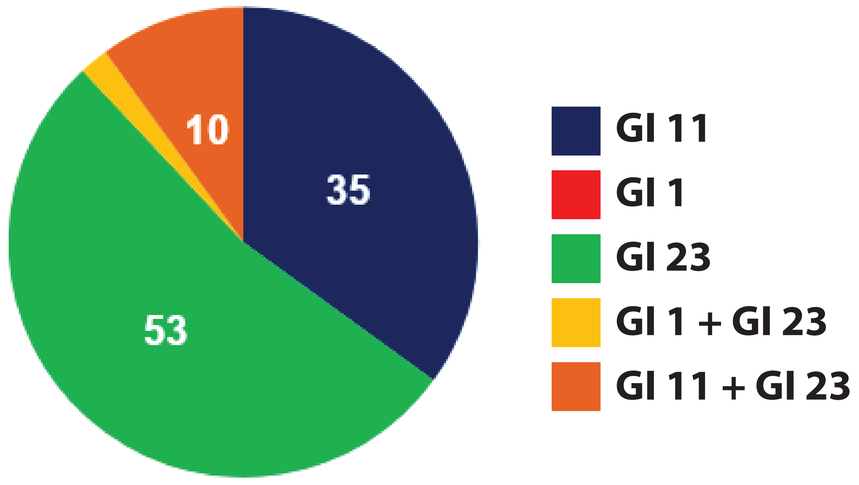
Material and Methods

To carry out this study, results from field data from 49 samples positive for IBV by the molecular biology test (RT-qPCR) in the years 2021 and 2022 were used. For the diagnosis, tracheas were collected from broiler chickens aged between 18 and 47 days from different poultry companies in Paraná. These samples were also submitted to genotyping to show whether the genotype involved in each outbreak was: GI 11 (BR-1), GI 1 (Massachusetts) and/or GI 23 (VAR2). Data were tabulated and graphs were made in order to determine the prevalence of the genotypes found.

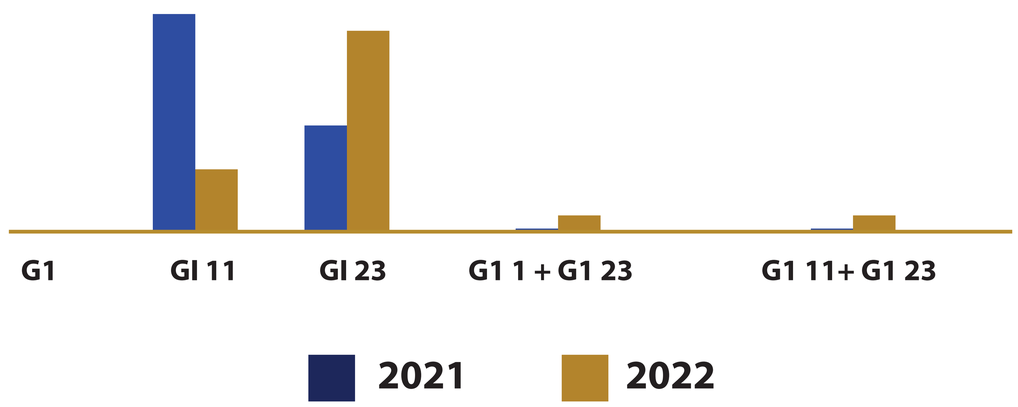
Results and Discussion

In graph 1, it can be observed that of all the positive samples in the two years evaluated, genotype GI 23 (53%) predominated, followed by genotype GI 11 (35%). It is also demonstrated that mixed infections involving GI 23 and GI 11 genotypes were observed in 10% of the samples, while only 2% had concomitant infection for GI 23 and GI 1 genotypes. Over the years 2021 and 2022 there was no infection only by the GI 1 genotype. Graph 2 shows that in 2021 there was a greater number of positive samples for GI 11 (67%) and the genotype GI 23 was detected in 33% of cases. Of the 34 positive samples evaluated in 2022, 62% were of the GI 23 genotype, 20% were positive for the GI 11 genotype, 15% had mixed infection with GI 23 and GI 11, and 3% of the samples had mixed infection with GI 23 and GI 1. The 2022 results showed that the GI 23 genotype was detected in 80% of the positive samples, alone or concomitantly with another genotype.

Graph 1: Rate of infection by GI 11 (BR-1), GI 1 (Massachusetts) and/or GI 23 (VAR2) genotypes diagnosed in Paraná (%) in 2021 and 2022.



Graph 2: Distribution of cases of IBV infection diagnosed in Paraná (%) in 2021 and 2022.



Conclusions

GI 11 genotype was predominant in 2021 in Paraná in broilers chickens infected with IBV. Infection of broiler chickens infected by the GI 23 genotype increased significantly in 2022. 80% of infected broilers chickens were infected by the GI 23 genotype in 2021 and 2022

References

Houta, MH, Hassan, KE, El-Sawah, AA, Elkady, MF, Kilany, WK, Ali, A. The emergence, evolution and spread of infectious bronchitis virus genotype GI-23. Arch Virol. 2021; 166(1): 9–26.

Silva, EN. Infectious bronchitis in Brazilian chickens: current data and observations of field service personnel. Brasilian Journal Poultry Science,12(3):197-203, 2010.

Villareal, LYB. Diagnosis of infectious bronchitis: an overview of concepts and tools. Brasilian Journal Poultry Science,12(2):111-114, 2010.