INFECTIOUS DISEASES

Emergence of Bovine Coronavirus as the Predominant Viral Respiratory Pathogen Detected by PCR in Cattle from Portugal

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INTRODUCTION

Bovine respiratory disease (BRD) poses significant morbidity, mortality, and economic challenges to the cattle industry. While bovine respiratory syncytial virus (BRSV) and bovine parainfluenza type 3 virus (PIV-3) have been established as contributing agents to BRD, the involvement of bovine coronavirus (BCoV) has become evident in recent years.

OBJECTIVE

This study aimed to assess the prevalence and distribution of BCoV, PIV-3, and BRSV in respiratory samples collected from cattle across various regions of Portugal from 2019 to 2022.

MATERIALS AND METHODS

- We evaluated all viral polymerase chain reaction (PCR) results from respiratory swabs submitted between January 1st 2019 and December 31st 2022 and analyzed at SEGALAB (Laboratório de Sanidade Animal e Segurança Alimentar, Póvoa de Varzim, Portugal) using the same method of PCR analysis (Thermo Fisher VetMax Ruminant Respiratory Screening Kit) throughout the study period.
- Nasal swabs were primarily obtained from cattle with clinical signs of bovine respiratory disease; however, individual animal data were not available.

Our findings confirm the presence of BCoV, PIV-3 and BRSV in cattle populations in Portugal from 2019 to 2022. Notably, BCoV was more frequently identified through PCR than other respiratory viral pathogen from 2020 to 2022.

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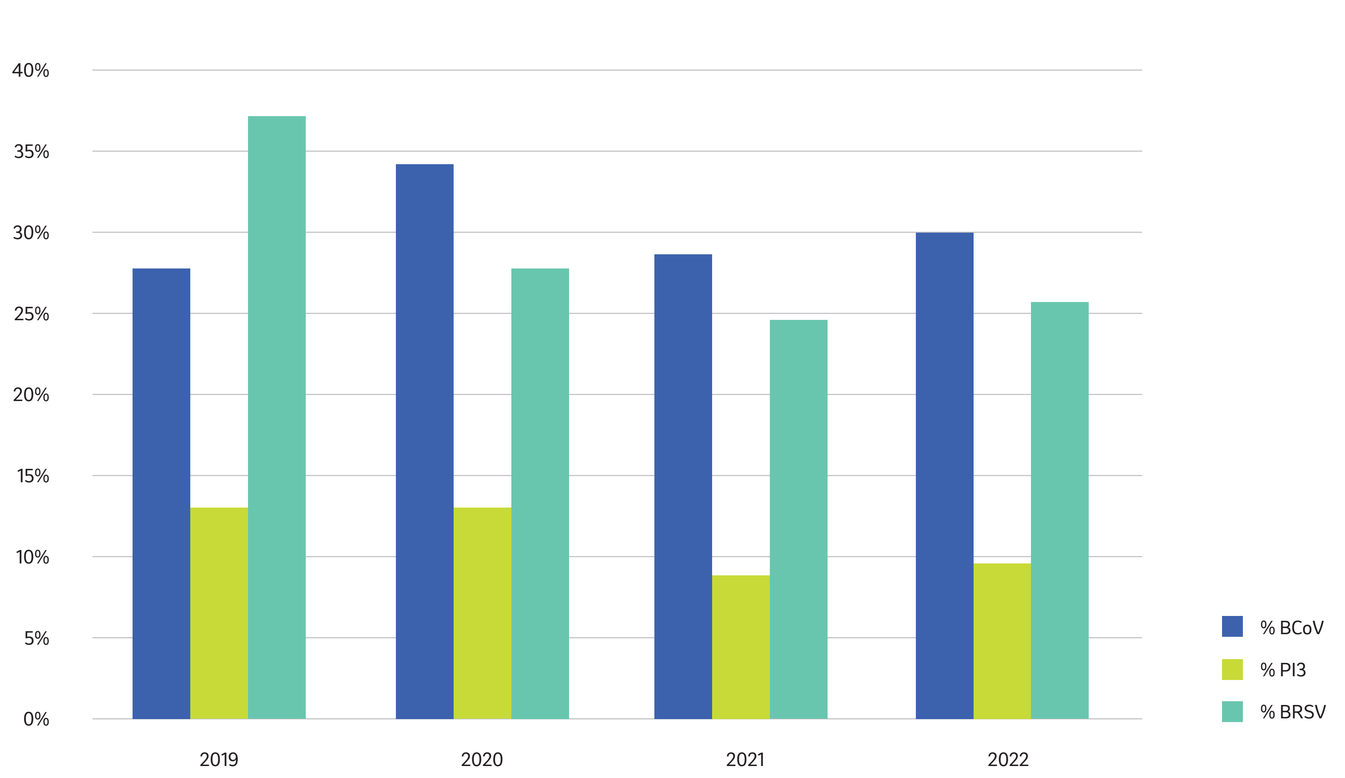
RESULTS

- The prevalence of BCoV, PIV-3, and BRSV was determined in 415 respiratory samples submitted during the study period, with 54, 129, 115, and 117 samples from respectively 2019, 2020, 2021.
- In 2019, BRSV was the most frequently detected pathogen (37%), followed by BCoV (28%) and PIV-3 (13%).
- In 2020, the detection rates for BCoV, BRSV, and PIV-3 were 34%, 28%, and 13% respectively.
- In 2021, the detection rates for BCoV, BRSV, and PIV-3 were 29%, 24%, and 9%, and in 2022, they were 30%, 26%, and 9%.

FIGURE 1. Prevalence of BCoV, PIV-3, and BRSV in respiratory samples in Portugal from 2019 to 2022



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