Title: COMPARATIVE STUDY OF BIOCHEMICAL TESTS, MICROBIAL SUSCEPTIBILITY PROFILING AND MOLECULAR METHOD FOR PHENOTYPIC AND GENOTYPIC CHARACTERIZATION OF *ENTEROCOCCUS* SPP. ISOLATED FROM FECAL MICROBIOTA OF BLUE-FRONTED PARROTS (*AMAZONA AESTIVA*) IN BRAZIL.

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Abstract:

Gastrointestinal microbiota of pscittacines consists largely of Gram-positive bacteria, including the *Enterococcus* genus. However, few descriptive studies of these birds microbiota are available. The aim of this study was to identify and to characterize phenotypically and genotypically the *Enterococci* isolated from fecal microbiota of Blue-fronted Amazon Parrots by three different methods. Fifty nine samples were studied, 26 from free-living parrots and 33 from captive ones. Conventional biochemical tests, automated biochemical test (Vitek 2) and sequencing of the entire 16S rRNA gene were performed. Thirty five samples (59,3%) had agreement between at least two of the three methods, and bacterial species identification was confirmed, while strains from the remaining 24 samples (40,7%) were not identified, given agreement between at least two methods was not found. The species identified were: *E. avium* (2), *E. faecium* (3), *E. faecalis* (15) e *E. hirae* (14). Agreement between the three methods was observed in 8 samples, 26 samples presented agreement between automated biochemical tests and sequencing of the 16S rRNA gene, and only 1 sample presented agreement between conventional biochemical tests and gene sequencing. Similarities between the substract consumed by strains in both conventional and automated biochemical tests were observed in 12 samples, while the other samples presented some difference in substracts utilization. Antimicrobial resistance profile showed that 5 samples were resistant to benzilpenicilin, 3 to erythromycin, and 2 to gentamicin. The results showed that the bacteria can be incorrectly identified by conventional biochemical tests, due to factors such as operational management error, differences in results interpretation, the presence of uncultured strains and others. However, the automated biochemical tests can identify a larger number of samples in a shorter time, and reduces considerably the probability of operational errors. On the other hand, the genetic sequencing technique results showed to be highly reliable. Thus, this method should be used as gold standard and as complementary to the biochemical tests for reducing the probability of mistake when identifying *Enterococcus* from Blue-fronted Amazon Parrots gastrointestinal microbiota.

Keywords: Blue-fronted Amazon Parrot, Fecal microbiota, *Enterococcus* spp

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