Assessment of triazole fungicide sensitivity in Aspergillus fumigatus isolated from commercial Yerba Mate

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Ilex paraguariensis St. Hil, commonly known as yerba mate, is widely consumed in Brazil and used to prepare traditional beverages such as tereré and chimarrão. This plant is crucial in Brazilian culture and holds significant economic importance. One of the issues associated with yerba mate consumption is the potential presence of microorganisms in the final product, particularly the human pathogen *Aspergillus fumigatus*. Contamination can occur due to inadequate hygiene practices during harvesting and post-harvest processes. Also improper handling of yerba mate can lead to a significant risk of fungal contamination. These fungi can impact human health by producing toxins or causing diseases, especially in individuals with compromised immune systems. The objective of the study was to analyze the presence of fungi of the genus *Aspergillus* in nine yerba mate for "Tereré" samples sold in Ilha Solteira (São Paulo, Brazil) and to assess their sensitivity to the agricultural fungicide tebuconazole. Five isolates of *A. fumigatus* were confirmed using classical microbiological and molecular techniques. Subsequently, their growth was evaluated in various concentrations of tebuconazole (0, 0.1, 0.5, 2, 4, 8, and 16 mcg/mL) to determine the concentration that inhibits 50 % of the pathogen's activity (EC50), with values ranging from 1.62 to 4 mcg/mL. Finally, the possible presence of mutations in the CYP51A gene was analyzed. Although *A. fumigatus* was detected in some samples and growth was observed in media with fungicide, no resistant isolates were found. However, some samples exhibited growth at concentrations of 4 mcg/mL of tebuconazole, highlighting the need for further studies on the sensitivity of *A. fumigatus* to this fungicide and the microbiological limits to ensure safety in the consumption of this food.

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