

Introduction

Coffee rust is a disease caused by the fungus *Hemileia vastatrix*, which has been causing many losses in the coffee culture in the world. In Brazil, *Coffea arabica* coffee trees are all susceptible to rust. After the discovery of the Timor Hybrid (HT), several research institutions have been using it in genetic improvement programs for the development of rust-resistant cultivars.

In 1999, the Agronomic Institute of Campinas developed and registered the Obatã IAC 1669-20 (Sarchimor) cultivar which is rust resistant, productive, with red and large fruits and good beverage quality. In 2010, this cultivar showed a moderate reaction to rust in routine field evaluations.

The objective of this work was to determine the virulence spectrum of the rust isolate and also to evaluate the resistance of Timor Hybrid plants and their derivatives to the new race.

Materials/Methods

The studies of resistance of coffee trees and determination of the virulence spectrum of the rust isolate were based on the leaf disc method (Eskes and Toma-Braghini, 1981).

Five rust differentiating clones were used characterized by *Coffee Rusts* Research Center (CIFC) with their respective resistance genotypes: Catuaí Vermelho (S_H5), CIFC HT 1343/269 (S_H6), CIFC H 420/2 (S_H5,8), CIFC H 419/20 (S_H5,6,9), CIFC H 420/10 (S_H5,6,7,9), the genitors HT 832/1 and HT 832/2 and their derivatives, coffee trees of cv. IAC 125 RN, cv. Obatã IAC 1669-20, H13439-4.

Twelve discs taken from expanded leaves (one disc per leaf) of each genetic material were inoculated with the rust urediniospores obtained from cv. Obatã and race II (v5) used as control. The evaluation of the disease was performed after 35 days after inoculation using a scale of scores from 0 to 4 points (Conceição et al., 2005).

Results/Discussion

The inoculation of cv. Obatã urediniospores caused the disease in all differentiating clones and in Catuaí, indicating that it was a XXIX race new rust with virulence genotype v5,6,7,8,9. It was found that all known HT alleles (S_H5 to S_H9) were superseded by the new breed. In field conditions, the pathogen behavior is less aggressive. Even in years that were more favorable to the fungus, it was observed, at most, a moderate susceptibility. The HT 832/1 and 832/2 coffee trees and their derivatives analyzed were all resistant to the XXIX breed. Race II (v5), used as a control, caused the susceptibility reaction in Catuaí.

Conclusion/Perspectives

In the genetic improvement program targeting the long-term resistance to diseases, it is important to know the variability of the pathogen and the permanent resistance allele. An example is the S_H3 allele that keeps coffee trees immune to all rust races even after five decades of the first race was detected in Brazil. The transfer of the S_H3 allele to cultivars derived from HT and other genotypes may be of great importance for obtaining cultivars that present more durable resistance to coffee rust.

Rust attack on the field



Bourbon Vermelho



Obatã IAC 1669-20