Development of a thematic collection of *Musa* spp accessions using SCAR markers for preventive breeding against *Fusarium oxysporum* f. sp *cubense* tropical race 4

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**ABSTRACT.** Bananas are one of the most consumed fruits worldwide, but are affected by many pests and diseases. One of the most devastating diseases is *Fusarium* wilt, caused by *Fusarium oxysporum* f. sp *cubense* (Foc). Recently, Fusarium tropical race 4 (Foc TR4) has been causing irreparable damage, especially in Asia and Africa where it has devastated entire plantations, including areas with Cavendish, which is known to be resistant to Foc race 1. Although this race is not yet present in Brazil, results obtained by Embrapa in partnership with the University of Wageningen, The Netherlands, indicate that 100% of the cultivars used by Brazilian growers are susceptible to Foc TR4. In our study, 276 banana accessions were screened with sequence characterized amplified region (SCAR) markers that have been linked to the resistance of Foc TR4. Two SCAR
primers were tested and the results revealed that SCAR ScaU1001 was efficient at discriminating accessions with possible resistance in 36.6% of the evaluated accessions. This is the first attempt to develop a thematic collection of possible Foc TR 4 resistant banana accessions in Brazil, which could be tested in Asian or African countries to validate marker-assisted selection (MAS), and for use in the preventive breeding of the crop to safeguard our banana plantations against Foc TR 4. We believe that this is an important step towards the prevention of this devastating disease, especially considering that our banana plantations are at risk.

**Key words:** Preventive breeding; Banana germplasm; SCAR markers; Foc TR 4