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DIVERSITY OF *Trichoderma* spp*.* ISOLATED FROM DEAD BRANCHES AND SAPWOOD OF *Theobroma cacao* TREES/ Diversidade de *Trichoderma* spp. isoladas de ramos mortos e alburno de *Theobroma cacao*.

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Trichoderma species are commonly isolated from soil, bark, parasitizing other fungi and from inside plant tissues as endophytes of tropical trees. However, studies to estimate the diversity of this genus in *Theobroma cacao* are scarce. In this study we investigated the genetic diversity of *Trichoderma* species in association with cacao trees both on fallen dead cacao branches from the soil surface and inside the trees as endophytes. The sampling area was comprised of 10 ha of 15-year-old cacao trees located at the Almirante cacao farm, Itajuípe, Bahia, Brazil. For the isolation of endophytic *Trichoderma*, fragments of 5 mm of sapwood were plated in Petri dishes containing 1/5 strength PDA medium (potato dextrose agar). Isolation of *Trichoderma* from fallen cacao dead branches was done by transferring spores produced on the surface of the branches directly onto Petri dishes containing PDA. A total of 100 isolates, 76 from sapwood and 24 from dead cacao branches were characterized by phylogenetic analysis of the internal transcribed spacer (ITS) of the ribosomal DNA and translation and elongation factor (*tef*1) of the RNA polymerase. Sixteen known species and five putative new species were identified within five clusters: 1) section *Trichoderma*; 2) *Harzianum* clade; 3) *Virens* clade; 4) *Longibrachiatum* clade; and 5) *Brevicompactum* clade. The following known species were found: *T. lentiforme*, *T. parareesei*, *T. asperelloides*, *T. ovalisporum*, *T. koningiopsis*, *T. erinaceum*, *T. paratroviride*, *T. asperellum*, *T. lixii*, *T. inhamatum*, *T. virens*, *T. andinense*, *T. orientale*, *T. longibrachiatum*, *T. brevicompactum* and *T. atroviride*. The *Harzianum* clade corresponded to 54% of the total number of isolates recovered from cacao trees. Among the endophytes, *Trichoderma lentiforme* was the most abundant and exclusively found in cacao sapwood while *T. parareesei* was most abundant and exclusively isolated from dead branches.The knowledge on the diversity of these fungi may contribute for their future exploitation in biotechnological applications and biological control of plant diseases.

Keywords: Biological control; Endophytes; Phylogeny