

Título: Relationship between Heat Shock Proteins and diversity of endophytic fungi associated with *Cavanillesia arborea* and *Goniorrhachis marginata* species from Mata Seca

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Resumo:

The diversity of endophytic fungi communities in Tropical Dry Forests (TDFs) or Mata Seca might represent great potential in biotechnological applications as well as biological benefits to ecosystems. In TDFs conditions of extreme temperatures and other stresses such as unfavorable water conditions, can promote activation of transcription and translation machinery to activate the synthesis of heat shock proteins (heat shock proteins - HSPs). HSPs proteins stabilize peptides with folding error or not coiled, giving conditions to the cell to repair or enabling new folding of damaged proteins. This study aimed to identify the diversity of endophytic tree species *Goniorrhachis marginata* Taub. and *Cavanillesia arborea* by amplification and sequencing of genes associated with HSP70. For DNA extraction, the mycelium was scraped from each colony of fungi grown on PDA. For amplification of the sequence of the gene, we used the marker gene sequence of HSP70 (213-300pb) (HSP70F: 5'-CAGTCGATGGGACCAGCCGTC-3' and HSP70R: 3'-CAGCTGTTAGTCGACCTCCTC-5'). The PCR mixture consisted of 50 ng of DNA, *Taq* DNA polimerase, buffer and 0.1 mM dNTPs and 1 mM each primers. The gene was amplified perform an initial denaturation at 95 °C for 5 min, followed by 35 cycles at 94 °C for 1 min, 54 to 56 °C for 1 min and 72 °C for 1 min, with a final extension at 72 °C for 7 min. The annealing temperature 54.5 °C was the most efficient, since only one band was specific for this gene amplified region. In sequencing were identified *Aspergillus fumigatus* chaperone species, *Aspergillus niger*, *Penicillium* sp. and *Curvularia lunata*. This result can be correlated with the ability of these organisms / endophytes have to produce proteins that play a physiological role for a symbiotic relationship with plants, or even the ability to inherit, by horizontal transfer genes through the plant. It can also be related to the location of these woody species, an area with different types of environmental stress. Therefore deepen knowledge about HSPs is essential and use it as early marker of injuries, we can better understand the defense mechanisms exercised by endophytic fungi associated with plants under adverse environmental conditions.

Palavras-chaves: Endophytic fungi, Mata Seca, HSP70, stress response

Agência Fomento: FAPEMIG, CNPq.