

Title Diversity and antimicrobial activities of endophytic fungi isolated from *Myrcia sellowiana* in Tocantins, Brazil

Author W.S. Pinto, M.C. Perim, J.C. Borges, R.S. Pimenta, L.H. Rosa, J.F.M. Silva and W.J. Janisiewicz

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Abstract

One hundred and forty five isolates of endophytic fungi were recovered from leaves and branches of the medicinal plant, *Myrcia sellowiana*, in Brazil. All isolates were purified on PDA and the strains were grouped into 50 morphotypes. Each isolate was tested for production of volatiles and agar diffusible substances inhibitory to *Monilinia fructicola* (MF), *Colletotrichum gloeosporioides* (CG) and *Aspergillus parasiticus* (AP). Antagonistic activity was exhibited by 41 strains belonging to 4 morphotypes. Thirty eight of these strains were from one morphotype and the remaining three strains were each from different morphotypes. Thirty one produced diffusible substances that inhibited growth of both CG and AP, 6 were active only against AP, 3 against CG and only one against MF. Thirty-five strains produced inhibitory volatiles, thirty-one of them produced volatiles against both CG and AP, two only against CG, and two only against AP. No strain produced antagonistic volatile substance against MF. All strains that produced inhibitory volatiles also produced diffusible inhibitory substances in PDA medium. Only 6 strains produced diffusible active substances but no inhibitory volatiles. Interestingly, the high number of inhibitory interactions against CG and AP (27.3% of total isolates tested) is in contrast to the low number of inhibitory interactions against MF (only 0.6%). This may be due to co-evolution of *M. sellowiana* and CG and AP, and the absence of MF in this region of Brazil. These results indicate that medicinal plants in Brazilian ecosystems are a good source of antagonistic endophytic fungi producing diffusible and/or volatile substances against postharvest pathogens. Currently our research is focused on molecular identification of strains, determining biocontrol efficacy on fruits, and characterization of the inhibitory substances.