

Influence of endophytic fungal associations on the chemical profile of seedlings from *Vochysia divergens*.

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Introduction

Vochysia divergens Pohl (Vochysiaceae), commonly known as Cambará, is native from Amazon Basin and considerate invasive and flood-adapted species in the wetlands of the Brazilian Pantanal¹. In this study we have evaluated the chemical profile by HPLC-PDA of crude extracts from *V. divergens* seedlings inoculated with endophytic fungi. These fungi were isolated from *V. divergens* roots collected on dry and wet season in Pantanal.

After germination, the seedlings obtained from the seeds were inoculated with mycelium fragments of 21 and 22 endophytic strains collected during the dry (D) and wet (W) period, respectively. The seedlings were dried and macerated with methanol HPLC grade to give the crude extracts. The results were submitted to Cluster and statistical analysis.

Results and Discussion

The HPLC-PDA chromatographic analysis allowed the detection of thirteen chromatographic bands; four of these bands were identified as the tannin galloyl HHDP-glucose (1) and the flavones 3',5-dimethoxy-luteolin-7-O- β -glucoside (2); 5-methoxy-luteolin (3) and 3', 5'-dimethoxy-luteolin (4) by comparison with authentic standards obtained from *V. divergens*².

On the basis of the Cluster analysis the seedlings inoculate with endophytic fungi from dry period (D) could be ranked according to their HPLC chemical profile in six groups of which the largest is represented by eight distinct strains. On the other hand, the seedlings inoculate with wet period (W) endophytic were classified into five groups, the largest one containing eleven representative strains.

Tannin 1 and flavone 4 co-occurred in four sample groups of the D experiments and only in two groups of the W experiments. Flavone 2 was more representative in the D period, but also occurred in two groups of the W experiments.

In contrast, flavone 3 was observed only in W treatments.

Summarizing, the presence of tannin 1 and flavone 4 were predominated in seedlings inoculate with endophytic fungi W experiments in 71,43% and 28,57%, respectively, contrasting with flavone 2 that was detected in 13,64% of seedlings inoculate with endophytic fungi from dry period (D) against 9,52% in samples from W period.

A series of Fisher's exact tests ($p \leq 0.05$) were applied in order to determine significant differences between HPLC-DAD chemical profiles of the extracts considering seedlings inoculated with fungi from dry and wet periods, and no significant difference was observed ($p = 0.6728$).

Conclusions

Despite the fact that natural compounds play a key role in the adaptability of the host plant to a wide range of environmental changes and are directly related to the increase of plants defense mechanism, endophytic fungi-plants interactions involving natural products, specially phenolic compounds are not completely understood.

These results encourage us to continue to investigate the influence of endophytic fungi associated with this resistant wetland flooding species.

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