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Comparison between the extracts of different polarities obtained from Annoni-2 grass leaves (*Eragrostis plana* Nees), collected during winter and summer, using HPLC and IR

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The Annoni-2 grass (*Eragrostis plana* Nees) is a South African Poaceae accidentally introduced in Brazil in the 1950s, previous studies have shown that extracts of leaves and roots have potential allelopathic effect [1,2], which justifies its dominance over other species. In this study, the extracts were obtained using solvents in an increasing order of polarity (petroleum ether, ethyl acetate and methanol). The leaves of Annoni-2 grass used were collected during summer and winter. The extracts were analyzed and compared, taking into account composition and / or concentration of produced metabolites. The analysis were performed using infrared techniques and High Performance Liquid Chromatography; the Infrared data was statistically compared by PCA in order to facilitate and direct the phytochemical studies of this species. The results thus obtained were compared with allelopathic test data already performed by the same research group. The infrared analysis suggests the presence of hydroxylated metabolites in the studied extracts, except for the winter petroleum ether extract, indicating variety in terms of chemical compounds. Also, the PCA analysis of the IR spectra, suggested, in terms of chemical compounds, there is greater differences regarding solvents used for extraction, than regarding the season in which the leaves were collected. HPLC analysis showed that the summer petroleum ether extract presents some compounds in higher concentration than that observed in the same solvent extract obtained from leaves collected in the winter; this confirms the allelopathic test results obtained previously, in which it was possible to observed that the best allelopathic results were obtained with the summer petroleum ether extract. A similar behavior can be observed in the summer and winter ethyl acetate extract, highlighting once again the summer extract, which contained compounds in higher concentration. By using the allelopathic tests results performed by Dalbosco (2013), it possible to observe that the ethyl acetate extract of the leaves of Annoni-2 grass collected in summer showed the best results. The overall data shows possible diversity of chemical compounds present in this species and, added to previous works; prove the allelopathic potential of Annoni-2 grass. Justified the continuation of phytochemical studies of this species, these are already underway, seeking to isolate and identify the chemical components of this species in order to submit them to allelopathy bioassay.

References

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