Chemical composition and cytotoxicity of *Hedyosmum brasiliense* essential oils from Cerrado and Atlantic Forest

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Hedyosmum brasiliense is a dioecious shrub from Chloranthaceae, widely distributed in Central, Southeastern and Southern Brazilian regions (1). Its leaves are popularly used to treat headache, stomach pain, ovarian dysfunction, foot fungi, rheumatism and as diuretic (2). The aim of this work was to compare the chemical composition and cytotoxicity of *H. brasiliense* essential oils obtained from Cerrado and Atlantic Forest. The essential oils of fresh flowers and leaves of male and female plants were extracted in triplicate by hydrodistillation (3.5 h), analyzed by GC/MS and the compounds were identified by comparison of their mass spectra with Library Data (Wiley 275 and Adams 2007) and their Kováts indices with literature data (3). Cytotoxicity was tested towards tumor cell lines MCF-7 (breast adenocarcinoma) and PC-3 (prostate carcinoma), using doxorubicin as positive control. The statistical analysis was performed by one-way analysis of variance (ANOVA) and the differences were considered significant when $P<0.05$ among the essential oil provenance. Cerrado leaves presented, in average, the lowest essential oil yields (0.14 %♂ and 0.13 %♀) when compared to those from Atlantic Forest (0.17 %♂ and 0.18 %♀). Besides, female flowers presented higher essential oil yields (0.19 % and 0.20 %) than male (0.05 % and 0.07 %) in Cerrado and Atlantic Forest, respectively. Fifty-five compounds were identified from Cerrado essential oils, with predominance of sesquiterpenes, possibly due to the hot and dry Cerrado weather conditions. Some of their major compounds are myrcene (≈2-11 %), germacrene D (≈12-20 %), bicyclogermacrene (≈9-15 %), carotol (≈6-13 %), α-eudesmol (≈7-10 %) and ferula lactone I (≈5-8 %). Fifty-three compounds were identified from Atlantic Forest essential oils, with predominance of monoterpenes and hydrocarbon sesquiterpenes. Some of their major compounds are sabinene (≈5-31 %), pinocarvone (≈4-9 %), bicyclogermacrene (≈8-10 %) and (*E*)-iso-γ-bisabolene (≈7-18 %). All essential oils were cytotoxic. Atlantic Forest essential oils presented the lowest IC_{50} values against MCF-7 (from 0.018 ± 0.001 to 0.033 ± 0.008 μL mL^{-1}), when compared to those from Cerrado (from 0.061 ± 0.008 to 0.089 ± 0.007), as confirmed bystatistical analysis. However, for PC-3 cell line, there was no significant difference among the oils collection sites. These results suggest that the difference on the chemical composition of the essential oils from Atlantic Forest and Cerrado have more influence against MCF-7 tumor cell lines.

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