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Antioxidant capacity of *Qualea grandiflora* Mart extracts and fractions

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Abstract: Qualea grandiflora Mart (Vochysiaceae), popularly known as "pau-terra", is a plant species from Brazilian *Cerrado* traditionally used to treat diarrhoea, intestinal cramps and amoebiasis [1,2]. In previous work of our group we observed the antioxidant activity of *Q. grandiflora* extracts using the DPPH radical scavenging activity and the beta-carotene bleaching assay. Aiming to further investigate the antioxidant capacity of this species, we performed the thiobarbituric acid reactive substances (TBARS) assay for its extracts and fractions. The EtOH extracts of leaves (QGL) and stems (QGS) were obtained by sonication while the EtOAc and MeOH fractions were obtained from sequential percolation (QGL-E, QGL-M, QGS-E and QGS-M). The TBARs assay was conducted as described by Burits and Bucar [3] with few modifications. Extract from bovine brain (Sigma) was used as the lipid source and the peroxidation was initiated by FeCl3/ascorbic acid at 2 mM and the reaction mixture was incubated in a water bath for 20 min. The reaction of the peroxidation products with TBA/HCl was performed at 90ºC in the presence of BHT to prevent further lipid peroxidation. Propylgalate was employed as the assay's positive standard at 20 uM. Catequin, quercetin and rutin were also evaluated at 20 uM. The extracts and fractions were evaluated at 100, 50 and 25 ug/mL and the results are described at Table 1. Overall, all the extracts showed good capacity to prevent the peroxidation of the lipids from the bovine brain extract. Even in the lower concentration used all the extracts showed inhibition higher than 75%. Considering the results of the previous studies, in which the extracts showed IC_{50} lower than 10 µg/mL in the DPPH and beta-carotene assays, the results suggest a significant antioxidant capacity for *Qualea grandiflora*. Additional experiments will be performed to determine de IC_{50} of the extracts in the TBARS assay. The phytochemical investigation of the EtOAc extract indicated that one of the epimers of catechin is the major constituent. This compound was evaluated, together with known antioxidant compounds such as the flavonoids quercetin and rutin. Among the evaluated standards, only rutin did not inhibit the lipid peroxidation. Further studies will be carried out in order to isolate and identify the antioxidant compounds of *Qualea grandiflora*.

Table 1: Antioxidant activity of extracts from *Qualea grandiflora* on the TBARS assay

	% of inhibition		
Sample	**100 µg/mL**	**50 µg/mL**	**25 µg/mL**
QGL	90.9 ± 4.7	92.7 ± 1.1	82.6 ± 3.7
QGL-E	91.9 ± 1.4	87.9 ± 0.7	85.9 ± 1.1
QGL-M	91.3 ± 1.8	90.3 ± 0.7	78.0 ± 2.3
QGS	98.2 ± 8.6	87.1 ± 2.9	83.8 ± 3.1
QGS-E	96.9 ± 1.4	91.0 ± 3.3	87.9 ± 1.8
QGS-M	92.5 ± 3.8	87.7 ± 2.2	80.6 ± 1.9
Standards	**20 µM**		
Propylgalate	99.1 ± 1.5		
Catechin	100.7 ± 3.1		
Quercetin	86.9 ± 0.9		
Rutin	4.0 ± 1.7		

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