Phytochemical screening, antioxidant and toxicity activities of *Caesalpinia peltphoroides* Benth. flowers

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Introduction

The second highest number of medicinal plants in the world belongs to Fabaceae family. This family is found in Brazil and it's constituted by 210 genera and 2694 species.[1] One of it's members, *Caesalpinia peltophoroides*, is popularly known as "Sibipiruna" or "False Pau-Brazil". The bark of *C. peltophoroides* is popularly used to treat dysentery and the literature reports studies on antimalarial activity.[2,3] However, the knowledge about the chemical components of its flowers, and biological activities is absent. This study aimed qualitative evaluation of the chemical constituents, determine the antioxidant activity and toxicity against *Artemia salina* in ethanol extract (EEtOH), hexane (FH), ether (FET), ethyl acetate (FA) and hydromethanol (FHM) fractions obtained from *C. peltophoroides* flowers.

Results and Discussion

The ethanol extract of *C. peltophoroides* flowers was partitioned with hexane, ether and ethyl acetate. The ethanol extract and the fractions were analyzed by phytochemicals tests to identify the main classes of secondary metabolites.[4] Antioxidant activity of extract and fractions of the flowers was determined according to the method described by Sousa et al., 2007,[5] based on the capacity to scavenge the free radical 2,2-diphenyl-1-picryl-hidrazila (DPPH). The *A. salina* assay was performed according to the method described by Citó et al., 2003.[6] These assay is considered a useful tool for preliminary assessment of toxicity.

The phytochemicals tests showed the presence of phenolic compounds, tannins, saponins, alkaloids, steroids and triterpenoids (Table 1).

Antioxidant potential of the ethanol extract and partitions was compared with quercetin (positive control) (Figure 1). The FA (IC_{50} = 36,09 μg mL^{-1}) fraction showed higher antioxidant potential when compared to quercetin (IC_{50} = 37,06 μg mL^{-1}). The *A. salina* lethality test showed for EEtOH, FA and FHM LC_{50} greater than 1000 ppm, it's considered without toxicity. However, the FH and FET fractions showed LC_{50} 303.7 and 87.2 ppm, respectively, demonstrating considerable toxicity.

Table 1. Phytochemical screening in *Caesalpinia peltophoroides* flowers

Extract / Test	Steroids and terpenoids	Flavonoids	Tannins and Phenols	Saponins	Alkaloids
FH	+	-	*	-	-
FET	-	*	+++	-	***
FA	-	-	++	+	***
FHM	-	-	+++	-	-
EEtOH	-	*	+++	-	-

\+ Presence; - Absence; * Weakly; *** Weakly reactive to 3 (Bouchardt, Dragendoorf, Mayer); ++ Presence of hydrolyzed tannin; +++ Presence of condensed tannins

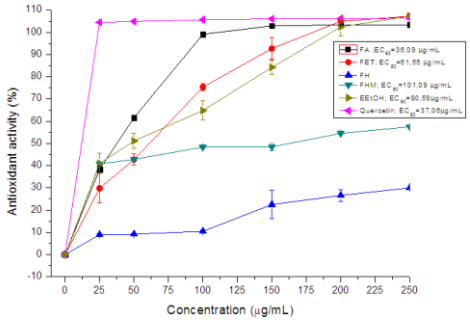

Figure 1. Antioxidant activity of the ethanol extract and fractions from *C. peltophoroides* flowers.

Conclusions

The FA fraction demonstrated high potential antioxidant. FH and FET fractions showed significant toxicity against *A. salina*. These results can be used to further studies for the identification and isolation of the compound(s) responsible for these activities. According to phytochemical investigation, suggest that steroid, terpenoid, tannin and/or phenolic compound(s) may be responsible for these activities.

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