Phytochemical analysis and evaluation of antioxidant and antiproliferative activities of the foliar ethanolic extract of *Acacia mangium* Willd

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Free radicals, such as Reactive Oxygen Species (ROS), are formed in biological systems during biological oxidative processes or due to the exposure to exogenous factors. ROS excess can promote the imbalance between the oxidative agent and the antioxidant defense capacity in living beings and generate oxidative stress. On this hand, antioxidant compounds, such as plant secondary metabolites, are able to stabilize or neutralize free radicals before they attack biological targets in cells and, due to its abilities, it has increased the interest on the compounds present in plants and its mechanisms of action. *Acacia mangium* Willd. is an weed species with antioxidant, antifungal and allelopathic activities. Considering that there are few studies integrating the phytochemical, antioxidant and antiproliferative aspects of this species, the present work aimed to evaluate the antioxidant and antiproliferative activities of *Acacia mangium* Willd. foliar ethanolic extract and correlate these activities with its total content of flavonoids and tannins. Total content of flavonoids and tannins were measured by colorimetric methods by Zhishen et al. (1999) and Pansera et al. (2003), respectively. The antioxidant activity was evaluated by the methods: ABTS+ radical capture; ferrous ion chelating activity (Fe²⁺) and β-carotene/linoleic acid system. The evaluation of antiproliferative activity (in vitro) was analyzed against the Sarcoma 180 tumor cell line by MTT assay, based on the cleavage of the tetrazolium salt by mitochondrial dehydrogenases in viable cells. The results showed that *Acacia mangium* Willd. extract present high level of flavonoids (483.70 ± 3.08 mg.g⁻¹) and tannins (116.75 ± 9.24 mg.g⁻¹), strong antioxidant activity in ABTS and β-carotene assays and was able to reduce Sarcoma 180 cells viability. These results reinforce and suggest that flavonoids and tannins content probably are the holders of the antioxidant action of this specie, as proposed by Afsar et al. (2016), and can be related to the antiproliferative activity of *Acacia mangium* Willd extract. To our knowledge, this is the first report of in vitro antiproliferative activity of *Acacia mangium* Willd extract against Sarcoma 180 cells.

REFERENCES:

