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# *Antioxidant activity and toxicity of Alchornea cordifolia*

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## ***INTRODUCTION***

*Alchornea cordifolia Schumach & Thonn.*, is found in secondary forests and is widespread in tropical Africa. The plant is an important crude drug in the indigenous system for the treatment of pain (Osadebe & Okoye, 2003).

## ***MATERIAL AND METHODS***

**DPPH radical scavenging activity** DPPH assay was described by (Pombal et al., 2017). The extract was evaluated at different concentrations (0.48 to 125 µg/ml). Quercetin was stantard used.

**Evaluation of nitric oxide trapping capacity.** To evaluate this radical, we used the method described by Pombal et al., 2017 and evaluated different concentrations of the extract.

**Trapping capacity of superoxide anion in a non-enzymatic system.** The inhibitory activity against ●O2- was evaluated by non-enzymatic system H.- (Lin, et al. 2004). The plate containing extract or quercetin was incubated for 5 min, followed by determinations at 560 nm.

**Lipid peroxidation inhibition assay.** We use egg homogenate as a biological source of lipids and evaluate the ability of *Alchornea cordifolia* extract to reduce lipid peroxidation (Zhao, et al. 2013).

**Toxicity in Artemia Salina Leach.** We evaluated in vitro toxicity to *Artemia salina* as a general bioassay. Brine shrimp 48 hours old were exposed to different concentrations of the extract and lethality was determined at 24 hours of incubation. Results are expressed as percentage of lethality for each concentration tested.

## ***RESULTS***

For *Alchornea cordifolia*, the extracts of leaves, roots and bark obtained with ethanol and acetone developed antiradical activity against DPPH, obtaining an inhibition between 70 and 80%. These results are very similar to those obtained with the quercetin standard (77.9±4.4%).

At low concentrations, all the extracts obtained from the root of *Alchornea cordifolia* show antiradical activity against NO- of between 50 and 60%,

very close to that recorded with the control Quercetin.

The extracts obtained from the bark of *Alchornea cordifolia* showed significant activity against ●O2- (Exa=61.6%, Acet=61.2% and Eta=50.1%), very similar to Quercetin (53.0±0.8%).

TBAR formation was significantly inhibited by ethanolic and acetone extracts leaves (95.5% and 94.6%, respectively), and similar effect was observed with Curcumin (97.02%). Similarly, the ethanolic and acetone extracts obtained from the root and bark showed an inhibitory capacity of lipid peroxidation higher than 90%.

When evaluating the toxicity of the different extracts at a concentration of 1000 mcg/ml, we could observe that those obtained from *Alchornea chordifolia* leaves showed the highest % of lethality (Hex= 88%; Acet= 76%; Eta= 42%).

## ***CONCLUSIONS***

*Alchornea cordifolia* is a plant of biological interest, whose antioxidant activities and toxicological profile have been described through this study.

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