Modulatory Action of Phenolic-enriched *Combretum paniculatum* Vent Ethanolic Extract on Oxidoinflammatory Anomalies in Experimental Animals

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INTRODCUTION

The recent quest for anti-inflammatory agents from medicinal plants is due to the severe health complications associated with the use of conventional drugs.

The use of medicinal plants with favorable therapeutic effects in the treatment of oxidative stress and inflammatory-mediated diseases is due to their safety profile, availability, biocompatibility and multiple targeted approaches.

This study is aimed at investigating the modulatory action of *Combretum paniculatum* Vent ethanolic extract on oxidoinflammatory anomalies in experimental animals

MATERIALS AND METHODS

All reagents and chemicals used for this study were of analytical grade.

The phytochemicals, phospholipase A_2 (PLA_2), Nitric oxide (NO), lipid peroxidation (TBARS) inhibitory potentials as well as *in vivo* cotton pellet granuloma tissue inhibitory effects of *Combretum paniculatum* ethanol extract (CPEE) were determined using standard methods.

Data obtained were analyzed using Graph Pad Prism version 6.05 (Graph Pad Software, Inc., California, USA). The results were presented as mean ± SD.

RESULTS

Table 1: Quantitative phytochemical screening of the CPEE

S/N	Phytochemicals	Amounts (mg/100 g)
1	Phenols	2711.02 ± 60.66
2	Tannins	21.12 ± 0.41
3	Flavonoids	49.00 ± 6.74
4	Alkaloids	605.83 ± 10.10
5	Steroids	0.64 ± 0.06
6	Terpenoids	12.17 ± 0.55
7	Reducing sugar	57.03 ± 0.12
8	Glycosides	2.59 ± 0.82

Values are recorded as mean ± SD of triplicate at 95% confidence interval.

Table 2: Acute toxicity study (LD_{50}) of CPEE

Phases	Doses of EECP (mg/kg)	Mortality
Phase 1	10	nil
	100	nil
	1000	nil
Phase 2	1600	nil
	2900	nil
	5000	nil

n=3

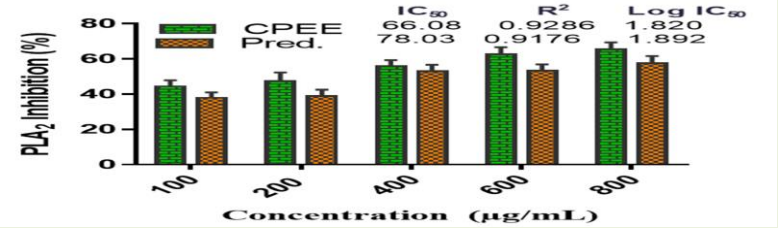

Figure 1: Effect of CPPE on PLA2 activity.

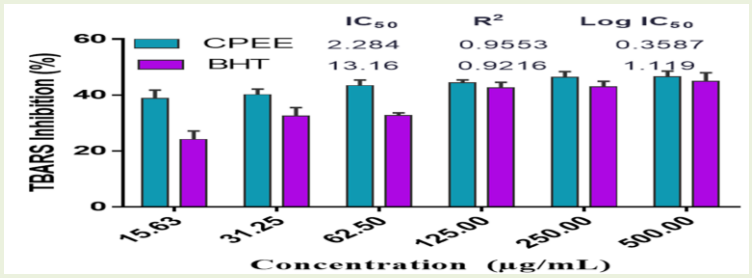

Figure 2: Effect of CPPE on TBARS activity.

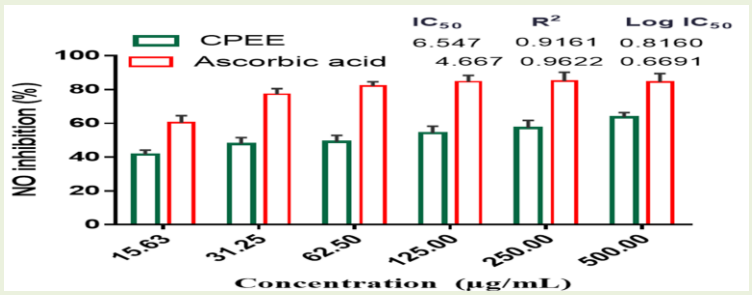

Figure 3: Effect of CPPE on NO scavenging activity.

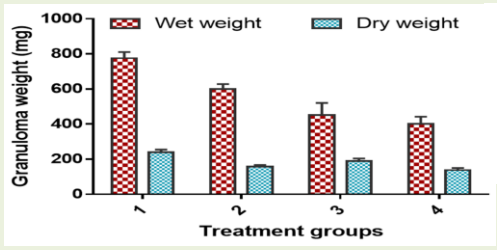

Figure 4: Effect CPPE on wet & dry granuloma tissue weight

Table 2: Effect of CPEE on lipid peroxidation and antioxidant markers

Groups	MDA(mg/dL)	SOD (iU/L)	CAT (iU/L)	GSH (mg/dL)
1	1.11 ± 0.45	11.22 ± 0.21	1.48 ± 0.24	0.60 ± 0.07
2	4.81 ± 0.01	9.30 ± 0.12	0.19 ± 0.03	0.18 ± 0.01
3	0.90 ± 0.07	11.36 ± 0.04	0.10 ± 0.10	0.47 ± 0.09
4	2.12 ± 0.15	11.16 ± 0.19	1.19 ± 0.28	0.34 ± 0.02
5	0.96 ± 0.84	11.23 ± 0.02	1.24 ± 0.35	0.45 ± 0.01

Key: Group 1 was not implanted cotton pellet (Baseline) while groups 2-5 were implanted and treated with normal saline (control) diclofenac sodium 100 mg/kg b.w. (standard) and 100 and 200 mg/kg b.w. CPEE respectively.

DISCUSSION AND CONCLUSION

These findings from this study show that CPEE ameliorated chronic inflammatory-induced oxidative stress in the experimental animals.

This pharmaceutical action could be attributed to the rich phytoconstituents identified in the extract including polyphenols known to mitigate oxidative damage by scavenging radicals via hydrogen/ electron donation from their multiple phenolic rings.

Thus, the leaves of *C. paniculatum* could be employed as an effective remedy for developing antioxidant and anti-inflammatory drugs.