



**Commonwealth
Chemistry**
Federation of Chemical Sciences Societies

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RESEARCH AIM

METHODOLOGY

Anti-oxidant properties of the isolates on DPPH, nitric oxide, reducing power, TAC, TPC and TFC.

RESULTS AND DISCUSSION

❖ The ^1H -NMR shows carboxylic -OH at 12.01 ppm, terminal $-\text{C}=\text{C}$ at 4.92 ppm and 4.77 ppm and $\alpha\text{-H}$ at 2.07 ppm³. ^{13}C -NMR reveals signals for CH- , CH_2 , CH_3 , C-O

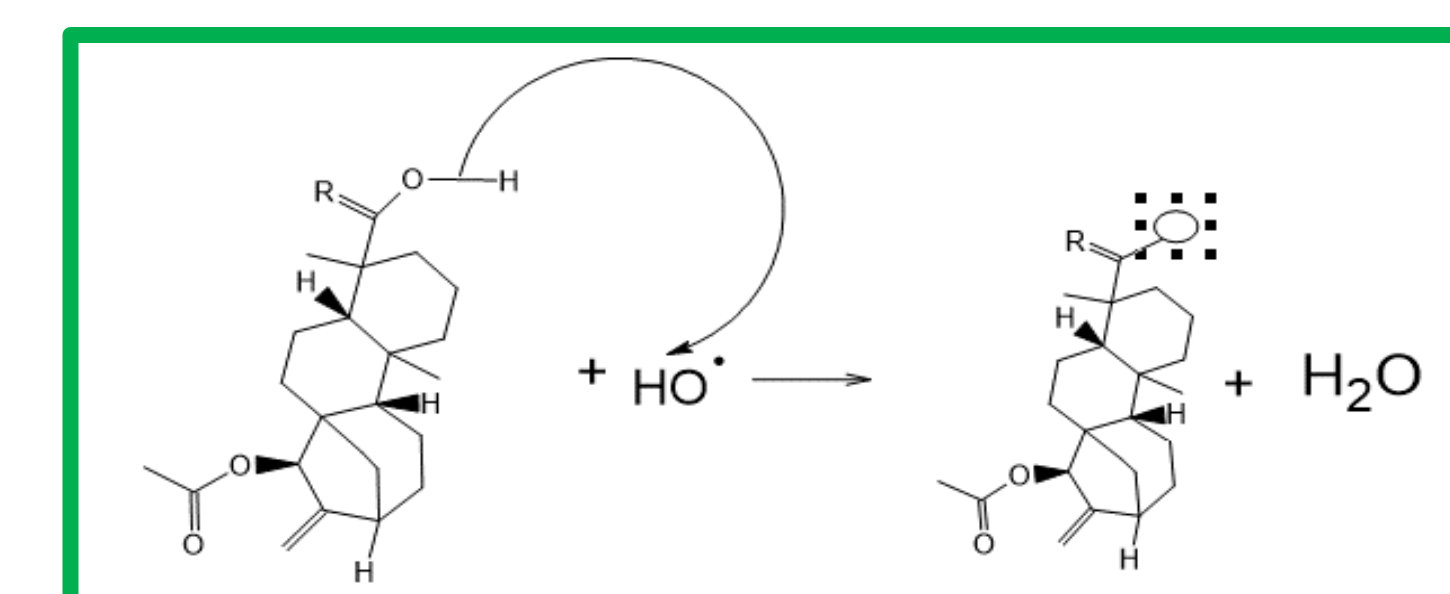


Fig. 5: Probable mechanism of antioxidant inhibition

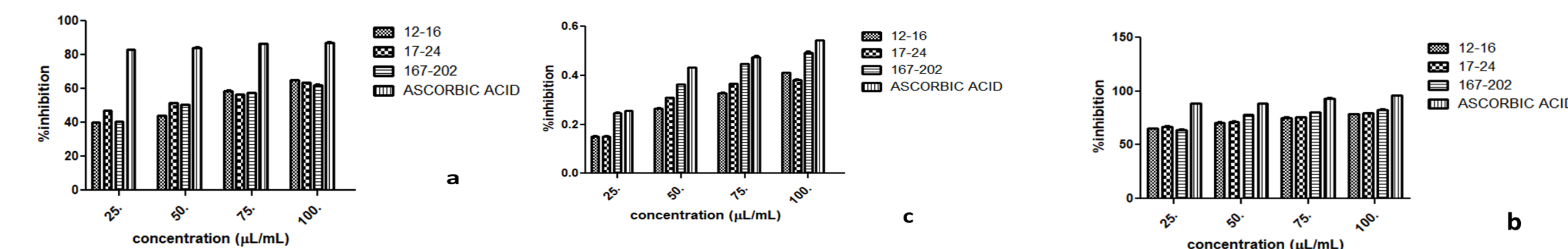
¹³C-NMR of the fraction 12-16

Fig. 6. Antioxidant properties of *X. aethiopica* fractions (a) Nitric oxide (NO) (b) DPPH (c) Reducing Power

DISCUSSION

- ❖ The Free radical scavenging capacity of the isolates analysed by reducing power and Nitric oxide reveals a steady increase in the inhibition rate as the concentration increases and was highly significant at all concentrations for the three isolates.

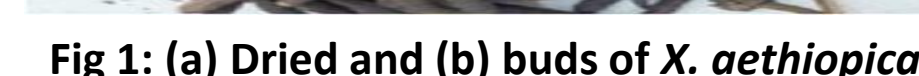
CONCLUSION

- Extracts from *X. aethiopica* have shown to have antioxidant property.
- The study also indicated that xylopic acid isolated from the ethyl acetate extract of *X.aethiopica* exhibited antioxidant activity.
- The study confirms the ethno-pharmacological basis of the uses of *X. aethiopica*.

REFERENCES

1. El-Kamali, H.H.; Adam, H.O. Aromatic Plants from the Sudan: Part II. Chemical Composition of the Essential Oil of *Xylopia Aethiopica* (Dunal)A.Rich. - Existence of Chemotype Species. Adv. Nat. Appl. Sci. 2009, 3, 166–169.
2. Pharmapproach. (2020). Sources of Drugs: Pharmapproach. Retrieved from <https://www.pharmapproach.com/sources-of-drugs/> assessed October 1, 2023
3. Koomson, A.E.; Kukuia, K.K.E.; Amoateng, P.; et al. Extract of *Xylopia Aethiopica* and Its Kaurene Diterpene, Xylopic Acid, Improve Learning and Memory in Mice. IBRO Neurosci. Reports 2022, 12, 249–259.

- ❖ It shows anti-inflammatory activity by inhibiting the proliferation of the histamine, serotonin, bradykinin and prostaglandin in-vivo².



- ❖ The nitrogen derived free radicals are nitric oxide (NO), peroxy nitrite anion (ONOO⁻), Nitrogen dioxide (NO₂) and Dinitrogen trioxide (N₂O₃)

Mechanism of Antioxidant

- ❖ Antioxidants may protect cells by a variety of mechanisms, through conversion of ROS to non-radical species, breaking the auto-oxidative chain reaction initiated by ROS and decreasing localized oxygen concentrations.

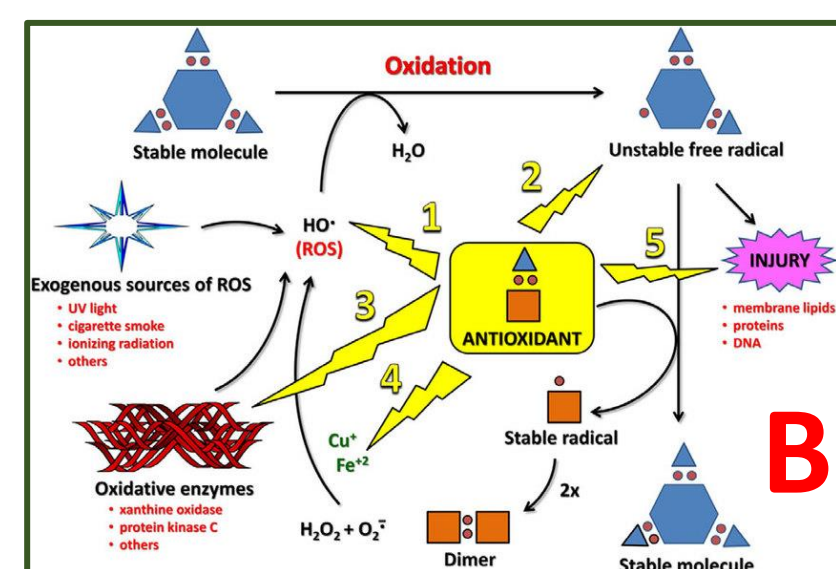


Fig. 2a: Antioxidant fruits (b.) Antioxidant mechanism