



Introduction

The World Health Organization (WHO) 2020 report shows about 241 million malaria cases with an estimated death of 627 thousand especially in Africa (Zhao et al., 2021). This is significant as the deaths were attributed to the fact that strains of Plasmodium falciparum mutate, enabling resistance to existing drugs by extension and causing severe anemia, cerebral malaria, acute renal failure, and hypoglycemia in patients that are affected (Nigussie & Wale, 2022). As such, poor communities especially revert to cheaper and natural alternatives in the race to find a lasting solution (Habibi et al., 2022). An example is the underexplored Triplochiton scleroxylon roots used in some parts of Nigeria to manage/treat malaria.

Methodology

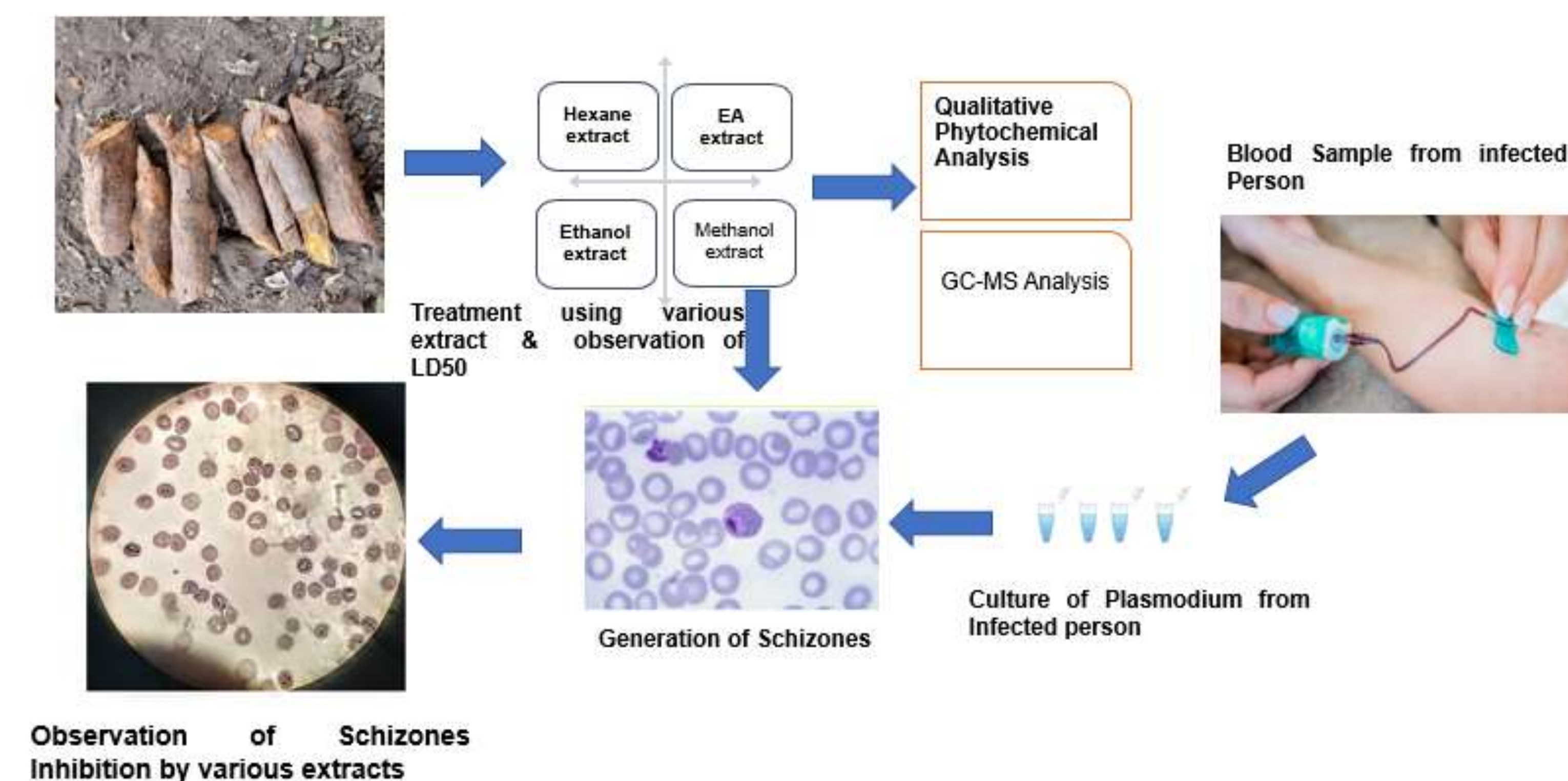


Figure 1: Pictorial representation of the methodology employed .

Results

Table 1: Results of the Qualitative Phytochemical Screening of root extracts of *Triplochiton scleroxylon*

Extracts				
Class of Compound	Hexane	Ethyl Acetate	Ethanol	Methanol
Carbohydrates	+ve	+ve	+ve	+ve
Alkaloid	+ve	+ve	+ve	+ve
Saponin	+ve	+ve	+ve	+ve
Terpenoid	-ve	-ve	+ve	+ve
Flavonoid	+ve	+ve	+ve	+ve
Anthraquinones	-ve	-ve	-ve	-ve
Tannin	-ve	-ve	-ve	-ve
Cadiac glycosides	+ve	+ve	-ve	-ve

Key: +ve; Positive implies present, -ve negative not present.

Alkaloids, flavonoids, tannins and Terpenoids are some of the secondary metabolites reported in plants that possess antimalarial properties (Chaniad et al., 2023)

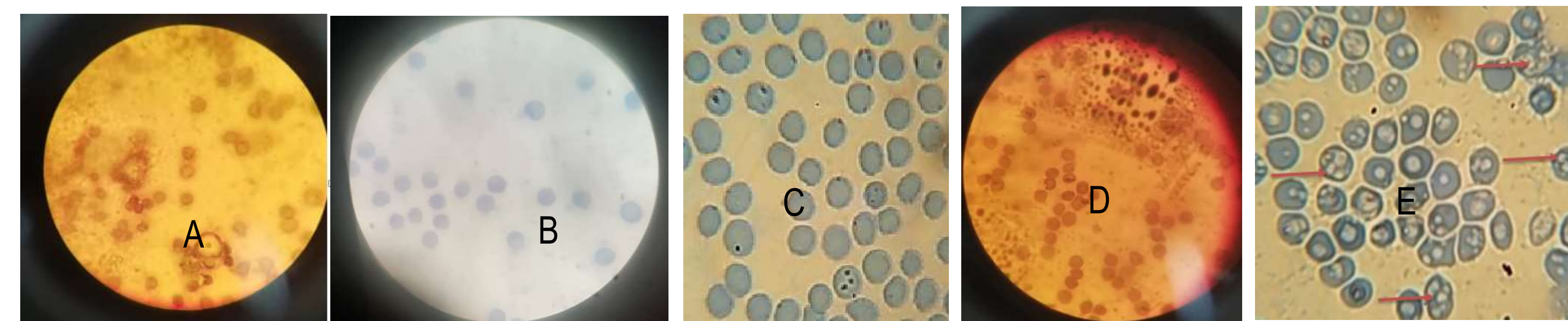


Figure 2: Photomicrographs of Average percentage Schizont inhibition from using various extract. A- n hexane, B-Ethyl Acetate, C-ethanol, D-methanol and E- *In vitro* Plasmodium Falciparum Culture. Red Arrow in E indicates Schizonts generated. The ethanol extract inhibited the schizont maturation the most with IC50 2.56±0.97 µg/mL.

Table 2: Results of the GCMS Identified compounds root extracts of *Triplochiton scleroxylon*

S.No	Compound	Root Extract			
		n-hexane	Ethyl acetate	Ethanol	Methanol
1	9-Eicosene(E)	-	-	+	-
2	Hexadecanoic acid	+	-	+	+
3	Pentadecaflourooctanoic acid, Octadecyl ester	-	-	+	-
4	9,12-Octadecadienoic acid ,methyl ester	-	-	+	+
5	Methyl Stearate	-	+	+	+
6	9,17 Octadecadienal,(Z)-	-	-	-	-
7	Linoelaidic acid	+	-	-	-
8	9-Octadecenal(Z)-	-	-	-	-
9	Oleic acid	+	+	-	-

Key: (-) not present, (+) present.

These compounds have been reported in plants with anti- malaria properties (Okokon et al., 2017; Tasdemir et al., 2010)

Conclusion

The GCMS as well as the phytochemical screening of Triplochiton scleroxylon roots revealed some class of compounds that have been reported in plants with anti-malaria activity in the various extracts. However, further evaluation of their micrographs of Schizonts inhibition after treatment using different extracts as well as their IC50 suggest that the root extracts possess antimalarial potential with ethanol showing the most. This we believe has set the tone for further exploration of the plant for its antimalarial property.

Reference

- Chaniad, P., Techarang, T., Phuwaroanpong, A., Plirat, W., Viriyavejakul, P., Septama, A. W., & Punsawad, C. (2023). Antimalarial efficacy and toxicological assessment of medicinal plant ingredients of Prabchompoothaweep remedy as a candidate for antimalarial drug development. *BMC Complementary Medicine and Therapies*, 23(1), 1–16. <https://doi.org/10.1186/s12906-023-03835-x>
- Habibi, P., Shi, Y., Fatima Grossi-de-Sa, M., & Khan, I. (2022). Plants as Sources of Natural and Recombinant Antimalaria Agents. *Molecular Biotechnology*, 64(11), 1177–1197. <https://doi.org/10.1007/s12033-022-00499-9>
- Nigussie, G., & Wale, M. (2022). Medicinal plants used in traditional treatment of malaria in Ethiopia: a review of ethnomedicine, anti-malarial and toxicity studies. *Malaria Journal*, 21(1), 1–16. <https://doi.org/10.1186/s12936-022-04264-w>