The in vivo assessment of antiplasmodial activities of leaves and stem bark extracts of Mangifera indica (linn) and Cola nitida (linn)

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Background: Malaria is a serious parasitic disease from tropical regions caused by species of Plasmodium and transmitted by Anopheles mosquitoes. It is prevalent in countries in Africa, South-east Asia and South America. High mortality rate is reported in these regions. The exponential increment of resistance of the most severe and commonest form of Plasmodium species, Plasmodium falciparum to chloroquine, a prominent anti malarial drug and first line drug over the past two decades has necessitated the investigation into tradinationally calmed anti malarial plants. Amongst the commonly used anti malarial plants in Nigeria are Mangifera indica and Cola nitida.

Methods & Materials: The air dried leaves and bark of Mangifera indica and Cola nitida were powdered and extracted using aqueous and ethanol as solvents. The solvents along with extracts were drained out and filtered. The semisolid extracts were obtained in vacuum using rotary evaporator. The malaria screened, twenty one albino mice of both sex with body weight range of 18 to 25g were obtained from Obafemi Awolowo university, Ille Ife, Osun State, Nigeria and were allowed to acclimatize for one week. Each of the Swiss albino mice was intraperitonally administered with 0.2ml Plasmodium berghei parastized red blood cells and the parasitemia level were monitored for five days. After the establishment of infection, the extracts, chloroquine and artesunate[used as positive control were administered orally through intra gastric route using the stomach tube to ensure the safe ingestion of the treatment doses to the tested groups daily for four subsequent days.

Results: The fourth day suppression results revealed a significant reduction in the parasitemia level of the different treatment groups. A percentage suppression of 97.05% was recorded in the mice group treated with ethanolic Cola nitida leaves extract while 95.82% was recorded in the group treated with ethanolic Mangifera indica leaves extract.

Conclusion: The high suppressive values obtained justified the local usage of the plants as anti malarial plants and can be employed as a potential extracts for the development of active novel drugs against malaria parasites.

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