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**TITLE: PHYTOCHEMICAL ANALYSIS OF *Tithonia diversifolia*
AND ITS EFFICACY AGAINST *Escherichia coli*, *staphylococcus aureus*
and *pseudomonas aeruginosa***

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ABSTRACT

The leaves, stem barks and roots of *Tithonia diversifolia* are used by traditional medicine practitioners in Kenya to treat various diseases such as constipation, stomach pains, indigestion, sore throat and liver pains. The medicine made from the plant is also claimed by traditional doctors to be a potent antimicrobial and antiparasitic agent.

Chemical analysis of the plant extracts using Thin layer chromatography revealed presence of phenolic and terpenoidal compounds in the leaves, stembarks and roots respectively. Saponin was exclusively present in the leaves in addition to the above compounds.

Chloroform extracts or powdered stembarks yielded compounds rich in terpenoids while industrial methylated spirit extracts of the roots gave compounds rich in phenols.

100mg/ml of the ethanolic extract was prepared for each of the plant parts and doubly diluted up to 50 mg/ml. The efficacy of these concentrations was then tested against standard strains of *Escherichia coli* (ATCC 25922); *staphylococcus aureus* (ATC 25923) and *pseudomonas aeruginosa* (ATCC 27853).

The standard strains, exhibited resistance against the ethanolic extracts for both dilutions and this was in comparison to the standard antibiotics used; tobramycin (10µg/ml) and Gentamycin (10µg/ml) which the standard strains were sensitive to. The latter acted as the positive control. Kirby bauer method was used in the antimicrobial sensitivity testing.

In addition to showing antibacterial activity for upto 50µg/ml concentration, compounds isolated from *Tithonia Diversifolia* have also antiparasitic activity. Toxicological studies, have also shown that the medicine is safe. These studies were not investigated for though the plant, is credited for its medicinal values.