PHYTOCHEMICAL AND PHARMACOLOGICAL INVESTIGATION OF *CLEMATIS BRACHIATA* THUNBERG

by

FAITH APOLOT OKALEBO

(B. PHARM, University of Nairobi)

A thesis submitted for the part fulfillment of the requirements for Master of Pharmacy (Pharmaceutical Analysis) of the University of Nairobi.

FACULTY OF PHARMACY,
COLLEGE OF HEALTH SCIENCES
UNIVERSITY OF NAIROBI

ABSTRACT

The leaves, stem and roots of *Clematis brachiata* Thunberg (Ranunculaceae) tested positive for anthraquinones, alkaloids, saponins, coumarins, sterols, carotenoids and flavanoids and cardenolides. Only the stem and leaves had tannins. The root had the highest amounts of alkaloids and anthraquinones

The stem Soxhlet methanol extract yielded 13.2 mg (0.029 % of the dried stem powder) of quercetrin (3-0-beta-L- rhamnosyl, 3', 4', 5, 7 tetrahydroxyl flavone). In addition the extract yielded 6400 mg (1.3 % of dried stem powder) of a precipitate, FAO-FRS. It was composed of a mixture of non-aromatic compounds.

The roots yielded 170 mg (0.068 % of dried root powder) of a non-aromatic unsaturated lactone.

The Soxhlet methanol extracts of the leaves and stem had very good activity against brine shrimps (LD_{50} 66.5 µg/ml and 365.6 µg/ml respectively). An ethyl acetate fraction of the stem Soxhlet extract, FES, had the greatest activity against the shrimps (LD_{50} = 23.08 µg/ml).

The cold methanol extract of the root showed good *in vitro* antimalarial activity (LD_{50} = 39.9 µg/ml) against highly chloroquine resistant isolate, *Plasmodium falciparum* V1/S.
The leaf and stem extracts showed low *in vitro* antimalarial activity. Quercetrin is known to have *in vivo* antimalarial activity.

None of the isolates and plant extracts showed significant antimicrobial activity.

FAO-FRS, the cold methanol extracts of the leaf and stem showed antinociceptive and local anesthetic effects.

The cold methanol extracts of the leaf, stem and roots caused relaxation of the isolated rabbit ileum. At low concentrations, FAO-FRS caused relaxation of the isolated rabbit ileum and at high concentration it had a dose dependent contractile effect.

The traditional use the leaves and stems of *C. brachiata* Thunb as analgesics, local anesthetics, antimalarial agents and spasmolytics, seems to have sound scientific rationale. The traditional use of the roots for the management of malaria and as a purgative seems to have scientific rationale.