

# Phytochemical investigation of the roots of *Tephrosia villosa* and aerial parts of *Tephrosia purpurea* for antiplasmodial and larvicidal principles

Macharia, Bernard

URI: <http://erepository.uonbi.ac.ke:8080/xmlui/handle/123456789/8132>

Date: 2012

## Abstract:

In search for compounds with anti-plasmodial and larvicidal activities, the chemistry and biological activities of the roots of *Tephrosia villosa* and aerial parts of *Tephrosia purpurea* (Leguminosae) were analyzed. The dried and ground plant materials were extracted with CH<sub>2</sub>Cl<sub>2</sub>:MeOH (1:1) by percolation at room temperature. The crude extract of the roots of *T. villosa* showed larvicidal activity against the 2nd and 3rd instars of the mosquito larvae of *Aedes aegypti* with ED<sub>50</sub> of 130 ± 3.77 µg/ml, at 24 hours and significant antiplasmodial activities with IC<sub>50</sub> values of 3.09 ± 0.37 and 1.31 ± 0.25 µg/ml, against chloroquine-sensitive (06) and chloroquine-resistant (W2) strains of *Plasmodium falciparum*, respectively. The crude extracts from aerial parts of *T. purpurea* showed larvicidal activity with LO<sub>50</sub> of 190 ± 3.33 µg/ml, at 24 hours and good to moderate antiplasmodial activities with IC<sub>50</sub> values of 12.73 ± 1.28 and 8.34 ± 0.98 µg/ml, against (D6) and (W2) strains of *Plasmodium falciparum*, respectively. The seeds of this plant showed the highest antiplasmodial activities with IC<sub>50</sub> values of 4.19 ± 0.63 and 2.81 ± 1.81 µg/ml, against D6 and W2 strains, respectively. Chromatographic separation of the CH<sub>2</sub>Cl<sub>2</sub>:MeOH (1: 1) extract of the roots of *T. villosa* yielded six rotenoids which were identified as rotenone (3), deguelin (4), sumatrol (117), 12a-hydroxy-a-toxicarol (131), villosinol (132) and 6-hydroxy-a-toxicarol (t33), is a novel compound.