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 CH2ChMeOH (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 EDso of 130 3.77 ug/ml, at 24 hours and significant antiplasmodial activities with ICso values of 3.09 0.37 and 1.31 0.25 ug/ml, against chloroquine-sensitive (D6) and chloroquine-resistant (W2) strains of Plasmodium jalciparum, respectively. The crude extracts from aerial parts of T. purpurea showed larvicidal activity with LOso of 190 3.33 ug/ml, at 24 hours and good to moderate antiplasmodial activities with IC50 values of 12.73 1.28 and 8.34 0.98 ug/ml, against (D6) and (W2) strains of Plasmodium jalciparum, respectively. The seeds of this plant showed the highest antiplasmodial activities with IC50 values of 4.19 0.63 and 2.81 1.81 ug/ml, against D6 and W2 strains, respectively. Chromatographic separation of the CH2ChMeOH (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.