

[SL 7A] Antiplasmodial and Radical Scavenging Activities of Flavonoids from Kenyan *Erythrina* species

Abiy Yenesew^{a*}, Hoseah M Akala^{b,c}, Hannington Twinomuhwezi^a, Martha Induli^{a,c}, Beatrice Irungu^d, Fredrick L. Eyase^b, Solomon Derese^a, Bernard T. Kiremire^c, Jacob O. Midiwo^a, Norman C. Waters^e

^a Department of Chemistry, University of Nairobi, P. O. Box 30197, Nairobi, Kenya

^b United States Army Medical Research Unit-Kenya, Walter Reed Project, Kisumu, MRU 64109, APO, AE 09831-4109, USA

^c Department of Chemistry, Makerere University, P. O. Box 7062 Kampala, Uganda

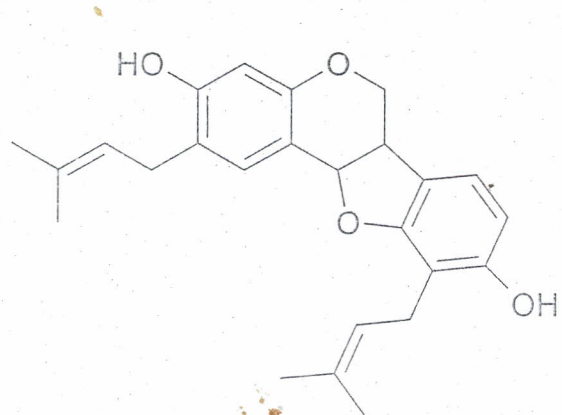
^d Center for Traditional Medicine and Drug Research, Kenya Medical Research Institute (KEMRI), P.O. Box 54840, Nairobi 00200, Kenya

^e Department of Chemistry and Life Science, United States Military Academy, West Point, New York, NY 10996

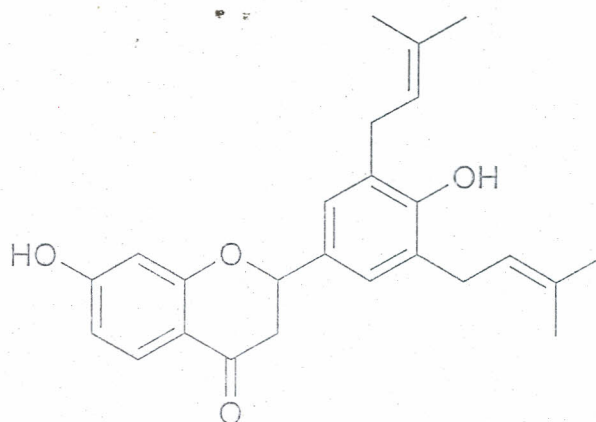
Abiy Yenesew: ayenesew@uonbi.ac.ke

Keywords: *Erythrina*, antiplasmodial, radical scavenger, pterocarpans, flavanone, isoflav-3-ene, arylbenzofuran.

The success of quinine and artemisinin as potent natural antimalarial drugs demonstrates the importance of plants, especially those used in traditional medicine, as potential source of antimalarial agents. *Erythrina abyssinica* (Leguminosae) is one of the most widely used plants to treat malaria in East Africa. The root bark of this plant showed antiplasmodial activity against the chloroquine sensitive (D6) and chloroquine resistant (W2) strains of *Plasmodium falciparum*, with IC₅₀ values of 0.64 and 0.49 µg/ml, respectively (Yenesew et al., 2003). Several compounds isolated from this plant (Kamat et al., 1981; Yenesew et al., 2003) were also tested (Yenesew et al., 2003; 2004). Activity was observed among pterocarpans (e.g. erythrabyssin-II, IC₅₀ 8.1 and 6.5 µM against the D6 and W2 strains, respectively), and flavanones (e.g. abyssinone-IV, IC₅₀ 9.0 and 7.7 µM against D6 and W2 strains, respectively). However the activities of these compounds individually are much lower than that of the crude extract, indicating that these flavonoids and isoflavonoids may be more effective as mixtures.



Erythrabyssin II



Abyssinone-IV

Four additional *Erythrina* species of Kenya, namely *E. burttii*, *E. melanacantha* and *E. saclexii*, have been tested for antiplasmodial activities. Among these the root bark of *E. burttii* showed good antiplasmodial activity with IC₅₀ value of 0.97 and 2.0 µg/ml against the D6 and W2 strains of