

The Principal, College of Natural Sciences to present the following for the Conferment of the
Doctor of Philosophy (Zoology)

AKALA Hoseah Miima

"Antimalarial Activities of Some Flavonoids and Flavonoid-Rich Plant Extracts"

Mr. Akala used in-vitro and in-vivo techniques to test flavonoid extracts and pure flavonoid compounds from 11 local plants and found good antimalarial properties. One of the 11 plants showed outstanding antimalarial activity, comparable to known, currently used antimalarial drugs. This study also demonstrated that combination of purified compounds from this plant with artemisinin produces better antimalarial activity than the use of either artemisinin alone or the use of flavonoid compounds only. Such combinations could reduce cost of treatment for malaria and also lessen chances of emergence of drug resistance. Therefore, more local plants need to be screened to document their medicinal properties for the purpose of expanding the existing inventory of alternative antimalarial agents.

Conferment of the
Doctor of Philosophy (Zoology)

RUKUUNYA Edward

Conferment of the
Doctor of Philosophy (Chemistry)

TWINOMUHWEZI Hannington

"Phytochemical investigations of *Erythrina abyssinica*, *Erythrina burttii*, *Erythrina melanacantha* and *Derris trifoliata*: Towards Malaria Control".

Mr. Twinomuhwezi investigated the potential of plants belonging to the Papilionoideae family in treatment of malaria as used by traditional healers and other communities in different parts of the world. Crude extracts from different parts of the selected plants were obtained by cold percolation using different organic solvents. Crude extracts were tested for bioassay activities (antiplasmodial, radical scavenging and larvicidal activities) and were found to be very active. Bioassay guided fractionation was carried out on active extracts to obtain various fractions. The various fractions were subjected to chromatographic techniques to isolate pure compounds, which were also tested for bioassay. The isolated pure compounds were then subjected to spectroscopic techniques which led to their structure determination. Three publications in peer reviewed journals were obtained from this work. This work justified the use of these plants in treating malaria by various communities. The work revealed that African Papilionoideae species have great potential for treating malaria and this potential can be exploited. The study was funded by DAAD (Germany Academic Exchange). Supervisors; Prof. B. T. Kiremire (Department of Chemistry, Makerere University) and Prof. Abiy Yenesew (Department of Chemistry, University of Nairobi).