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## **Bambusa vulgaris** Schrad. ex J.C.Wendl. (Poaceae): A potential plant for treating malaria

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Malaria remains a major public health challenge in Ghana despite the successes achieved in the global control of the disease in recent years. Many Ghanaians employ herbal preparations, beside orthodox medicines, to treat the disease. Two independent ethnobotanical surveys in Ghana identified *Bambusa vulgaris* leaf as a common plant material used locally to manage malaria. The aqueous as well as serially extracted petroleum ether and ethyl acetate extracts were studied against the chloroquine-sensitive, 3D7 and the chloroquine-resistant, W2 *Plasmodium falciparum* parasite in vitro. The aqueous extract demonstrated activity with IC<sub>50</sub> of 7.50 ± 1.08 and selectivity index (SI) of > 3.5 against 3D7 *P. falciparum*. It showed no activity against W2 *P. falciparum* and has resistance index (RI) of >13.3. The organic fractions were equally active (IC<sub>50</sub> < 1 µg/mL; 3D7 *P. falciparum*). Methanol extract subjected to phytochemical study yielded 6 compounds identified as p-coumaric acid, cinnamic acid, dehydrovomifoliol [(E)-4-hydroxy-3,5,5-trimethyl-4-(3-oxobut-1-en-1-yl)cyclohex-2-en-1-one], 3-oxo- $\alpha$ -ionol [9-hydroxy megastigma-4,7-dien-3-one], loliolide [6-hydroxy-4,4,7a-trimethyl-5,6,7,7a-tetrahydrobenzofuran-2(4H)-one] and tricetin [5,7,4'-trihydroxy-3',5'-dimethoxyflavone]. All 6 compounds displayed significant activity against 3D7 (IC<sub>50</sub> < 5 µM) and W2 strains of *P. falciparum* (IC<sub>50</sub> < 7 µM) with the aromatic acids being the most active. None of the compounds displayed cytotoxicity (CC<sub>50</sub> > 100 µM; HUVECs). The study has illustrated the antiplasmodial potentials of *Bambusa vulgaris* and has justified the use of the plants in traditional treatment of malaria in Ghana.

### Biography

Gustav Komlaga is a Senior lecturer and a researcher of Pharmacognosy in the Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana. He has PhDs in Pharmacognosy from KNUST, Kumasi, Ghana, and also in Microbiology from the Faculté de Pharmacie, Université Paris Sud, Chatenay Malabry, France. He has published more than 20 research papers in reputable peer review journals and is a editorial board member and reviewer for a number of scientific journals.

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