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## Anti-protozoal efficacy of 3-deoxyanthocyanidins-rich fractionated extracts from Sorghum bicolor

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We investigated dried red leaf extracts of S. bicolor for activity against *Toxoplasma gondii* tachyzoites. S. bicolor red leaf extracts were obtained by bioassay-guided fractionation using ethanol and ethyl acetate as solvents. Analysis of the crude and fractionated extracts using Electrospray Ionization Mass Spectrometry (ESI-MS) showed that they contained significant amounts of apigeninidin, 1uteolinidin, 7-methoxyapigeninidin, 5-methoxyapigeninidin, 5-methoxyluteolinidin, 5-7-dimethoxyapigeninidin or 5-7-dimethoxyluteolinidin, based on mass per charge (m/z). When tested in vitro, the IC50 values of the inhibitory activity of the ethanol and ethyl acetate extracts against T. *gondii's* growth were 2.3- and 4-fold, respectively, lower than their cytotoxic IC50 values in mammalian cells. Ethyl acetate extracts fractionated in chloroform-methanol and chloroform had IC50 values against T. gondii that were 56.1- and 3-fold lower than their respective cytotoxic IC50 values in mammalian cells. These antiparasitic activities were found to be consistent with those of the respective pure 3-deoxyanthocyanidin compounds identified to be contained in the fractions in significant amounts. Further, we observed that, the position and number of methoxy groups possessed by the 3-deoyanthocyanidins influenced their antiparasitic activity. Together, our findings indicate that S. bicolor red-leaf 3-deoxyanthocyanidins-rich extracts have potent in vitro inhibitory activity against the proliferative stage of T. *gondii* parasites.

## Biography

William H Witola completed his PhD at Hokkaido University, Japan, and Postdoctoral studies at University of Chicago Medical Center and University of Connecticut Medical Center. He is Assistant Professor of Parasitology in the College of Veterinary Medicine at University of Illinois at Urbana-Champaign. He has published more than 38 papers in reputed journals.

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