School of Science and Health

Honours Projects 2014

TITLE OF PROJECT: Identification of the anti-HIV compounds in the well-known antimalarial Chinese herb, *Artemisia annua*

SUPERVISOR: Dr. Frank van der Kooy  
EMAIL: f.vanderkooy@uws.edu.au

CO-SUPERVISOR/S:

A/Prof Chun Guang Li  
EMAIL: c.li@uws.edu.au

CAMPUS/S PROJECT IS OFFERED AND CONDUCTED: Campbelltown

BACKGROUND (200 WORDS):

HIV, along with malaria and tuberculosis are the three ‘big’ infectious diseases ravaging the developing world. While there is a battle to develop pharmaceuticals which may combat these diseases, the rapid adoption of drug resistance in these organisms is hindering efforts. Ethnopharmacology looks at how people have traditionally treated diseases, often with the use of plants, potentially providing clues to an alternate understanding for the treatment of the disease and for the novel treatment of problem conditions. For example, people in developing countries discovered that by using an age-old Chinese medicinal plant, *Artemisia annua*, they could cure malaria [1]. This antimalarial action has already resulted in the development of artemisinin derivatives from this plant, which are currently being used as the first line treatment for malaria.

There have been reports in Africa that people infected with HIV have also benefitted from the use of this same plant, *A. annua*. This is of obvious benefit, due additionally to the problem that HIV poses in the region and the potential low cost and high accessibility of the plant. We have therefore tested *A. annua* against HIV and have shown that it does indeed have very strong activity and importantly the activity is not caused solely by artemisinin [2].

(This project forms part of a larger project where the bioactivity of *A. annua* is being studied [1, 4] and the possible role of synergism of *A. annua* against malaria will be further investigated [1, 5])

AIM OF STUDY:

Identify the compound(s) responsible for the anti-HIV activity of *A. annua*.

METHODS:

Extracts of about 20 different *A. annua* samples will be tested against HIV [2]. These samples will also be subjected to NMR and LC-MS metabolomics analysis. The activity data and the chemical fingerprints will be subjected to metabolomic analysis in order to identify the active compound(s) [3]

ETHICS APPLICATION REQUIREMENTS: N/A

KEY REFERENCES:


School of Science and Health

