School of Science and Health

**HDR Projects 2014**

**TITLE OF PROJECT:** Mechanism of actions and synergistic effects of a standardised herbal extract for stroke  
**SUPERVISOR:** A/Prof Chun Guang Li  
**EMAIL:** c.li@uws.edu.au  
**CO-SUPERVISOR/S:**  
1. A/Prof Dennis Chang  
   **EMAIL:** d.chang@uws.edu.au  
2. Prof Alan Bensoussan  
   **EMAIL:** a.bensoussan@uws.edu.au

**BACKGROUND (200 WORDS):**
A standardised extract of the leaf of the Persimmon tree has been used for the management of diseases induced by atherosclerosis such as ischemia stroke and coronary heart disease. This extract is reported to possess various pharmacological properties including microbial inhibition, radical scavenging, neuroprotection, vasodilatation, and inhibition of thrombosis. Synergism underpins the therapeutic actions of herbal medicines which contain multiple bioactive components. Synergistic effects can occur in many ways, such as via improved efficacy and bioavailability, or reduced side effects of ingredients. This project aims to undertake pharmacological studies for a better understanding of the synergistic effects of the active ingredients of the standardised extract.

**AIM OF STUDY:** The project will investigate the neuroprotective actions of a standardised herbal extract using in vitro cell-based assays and in vivo animal model.

**METHODS:**

**Cell studies**
Antioxidant activity - involving determining the activities of free radical scavenging and lipid peroxidation.  
Endothelial function - involving studying the effects of the extract and active ingredients on endothelial dysfunctions induced by oxidative stress in cultured endothelial cells.  
Neuroprotection - involving investigating the effects of the extract and active ingredients on hypoxia-induced oxidative stress in hippocampal neurons isolated from Sprague-Dawley rat embryos.

**In vivo studies**
The effects of the extract and active ingredients on hypoxia-induced brain injury in zebra fish will be studied.

**ETHICS APPLICATION REQUIREMENTS:** N/A

**KEY REFERENCES:**