

Anti-oxidant characterization of Staranise (*Illiciumverum* Hook)

Kaneez Fatima-Shad

School of Life Sciences, UTS, Ultimo, NSW, Australia

ABSTRACT

We hypothesized that calcium binding proteins can act as predictive biomarkers for a range of vascular diseases from Hypertension to stroke to Alzheimer's disease. Hypertension leads to stroke and to Alzheimer's disease and this association is triggered by a range of calcium binding proteins.

We used both animal [Spontaneous hypertensive rats (SHR)] and cell [Human foetal astrocytes (HFAs)] models to test our hypothesis.

Cutting edge techniques such as Confocal Microscopy in conjunction with Liquid chromatography/Mass spectrometry (LC/MS/MS) were applied to study the morphology, immunohistochemistry, and Immunocytochemistry of astrocytes as to identified calcium-binding proteins of our interest.

This study reveals for the first time that reactive (A1) HFAs resemble astrocytes in SHR, as both have similar concentrations of GFAP mimicking the hypertensive condition. We also showed that proteins recognize as the biomarkers for Alzheimer's disease are elevated in reactive astrocytes.

Recent literature revealed a series of proteins are not only responsible for remodelling the calcium signalling pathways but are also liable for neuronal dysfunction and apoptosis. Thus, there is an urgent need for the development of new therapies that target the predictive biomarker proteins of Alzheimer's disease.
