

H1: Evidence for the Use of Ayurvedic Herbs for the Management of Diabetic Retinopathy

Kumar SVA

Division of Ayurveda, VCAN Healthcare, Malaysia

ABSTRACT

Introduction: Diabetes mellitus is a chronic disease that afflict millions around the world and is associated with a range of co-morbidities and complications. One of the most common microvascular complication is diabetic retinopathy. Ayurvedic herbal medicine offers several treatments for diabetic retinopathy. We examined studies conducted on the efficacy of these herbal treatments in the management diabetic retinopathy. **Methods:** PubMed, SpringerLink, Google Scholar, ScienceDirect and Cochrane databases were searched. References of key articles were also hand searched. The articles were retrieved and those that fulfilled the inclusion criteria were examined. **Results:** In-vitro studies documented several herbs that may be capable of halting the progression of diabetic retinopathy. The presence of dilated vessels and laser spots reversed following treatment with *Azadirachta indica* extract in diabetic rat models. *Tinospora cordifolia* extract prevented the increase of TNF- α and IL-1 β and reduced levels of VEGF and PKC. In addition, *Boswellia serrata* may be useful for management of retinopathy as it reduced neovascularization in the retina and reduced VEGF expression. Clinical trials of Ayurvedic formulations, though mostly short term, have also demonstrated success. These formulations have been shown to be effective in inhibiting micro-aneurysm, reducing haemorrhages and retinal oedema. **Conclusion:** Findings suggest that Ayurvedic herbs may be useful in halting and reversing diabetic retinopathy. Long term and large scale clinical studies are required to provide conclusive evidence. Nevertheless, there is remarkable potential for the application of Ayurveda for the treatment of diabetic retinopathy.

KEY WORDS:

Azadirachta indica, diabetic retinopathy, Ayurveda, diabetes, herbs

H2: Protective Effects of Kelulut Honey on Genome Integrity of WIL2- NS Cell

Yaacob M, Stanis AJ, Sharif R

Nutritional Science Programme, Faculty of Health Sciences, Universiti Kebangsaan Malaysia

ABSTRACT

Introduction: Kelulut honey contained high antioxidant content and may prevent the cells from oxidative stress and DNA damage. **Methods:** Kelulut honey sample from two different location (MARDI - KHM and Tampoi, Kedah) were tested for antioxidant content and capacity, using DPPH assay, FRAP assay and total phenolic content. The ability of honey to protect the human lymphoblastoid (WIL2- NS) cell line from hydrogen peroxide- induced DNA damage was also investigated via MTT assay and Alkaline Comet assay. **Results:** Total phenolic content varied between two sample of honey which is 15.38 + 0.1709 mg GAE/ 100g of raw honey from KHM and 11.41 + 0.2062 mg GAE/ 100g of raw honey from Kedah. Meanwhile the radical scavenging activity of honey is 53.53% for KHM and 57.6% for Kedah in the DPPH reaction system ($p < 0.0001$). For FRAP assay, honey from KHM give a higher value which is (73.4 + 1.75) mmol Fe²⁺/per 100g honey compared with honey from Kedah which is (50.72 + 2.18) mmol Fe²⁺/per 100g honey ($p < 0.0001$). Both sample of honey and at the concentration 0.2% v/v ($p < 0.0001$) gave an optimal protection from hydrogen peroxide- induced cytotoxicity and the highest protection was observed at 0.8% v/v ($p < 0.0001$). Furthermore, result for Alkaline Comet assay for KHM showed shorter tail moment and lower tail intensity (TM- 0.582 + 0.12; TI- 4.667 + 0.98) compared to Kedah (TM- 2.328 + 0.27; TI- 11.470 + 2.05) as compared to positive control (TM- 41.62 + 12.92; TI- 46.00 + 5.766), respectively. **Conclusion:** Both sample of honey showed the presence of antioxidant capacity and can prevent the cell from oxidative stress and DNA damage towards WIL2- NS cells.

KEY WORDS:

Kelulut honey, DNA damage, hydrogen peroxide, antioxidant