

European Mistletoe Extract: a potential new treatment for inflammatory bowel disease (IBD)

Principal Supervisor: Associate Professor Gordon Howarth

Email: gordon.howarth@adelaide.edu.au

Phone: 8303 7885

Co-supervisor: Dr Luby Simson (University of Canberra)

Background

Inflammatory bowel disease (IBD) is a serious idiopathic and, so-far, incurable condition affecting approximately 1 in 8000 individuals in Australia. It comprises two variants, ulcerative colitis and Crohn's disease. The histopathological features of Crohn's disease are similar to Johne's disease, a debilitating condition that affects livestock. Current therapies for IBD attempt to reduce inflammation and injury to the bowel but these are often ineffective. Recently, researchers have focussed on the potential for certain 'anti-oxidant' plant-sourced extracts to decrease the severity of inflammation in a range of bowel disorders. However, to date, there have been few studies in the setting of IBD.

Aims and Significance

Standardized European Mistletoe (*Viscum album*) has been used for more than 80 years as an anti-cancer medication. Its therapeutic use has tended to be greatest in European countries such as Germany. Indeed, oncology out-patient clinics in Germany describe Mistletoe extract as their most frequently prescribed product, with 40% of cancer patients receiving Mistletoe extract during the course of their treatment regimen. To date, however, there have been few reports of Mistletoe extract being subjected to rigorous scientific scrutiny in proven, fully-characterized models of intestinal disease. Utilizing a proven animal model of IBD, the current study will seek to identify extracts of Mistletoe with the ability to decrease the severity of IBD.

Techniques to be used

European Mistletoe Extract will be administered to rats with experimentally-induced IBD. Efficacy of Mistletoe Extract will be sought by investigating effects on whole body metabolism, digestive function, biochemical analysis of gut tissues and qualitative and quantitative histological analysis of intestinal tissue samples. In selected samples, different types of mucin will be determined and correlated with histological parameters (villus height/crypt depth) and enterocyte kinetics (proliferation/apoptosis) using immunohistochemistry.

Reference

KY Cheah, GS Howarth, RN Butler, C Payne, KA Lymn, R Yazbeck, TH Wright, EJ Whitford and SEP Bastian. An extract from grape seed improves parameters of small intestinal mucositis in rats with mucositis induced by 5-Fluorouracil. *Cancer Biol Ther.*8(4):382-390 (2009).