**Sugarcane-derived polyphenols decrease diet-induced obesity**


*La Trobe University, Bundoora, Victoria, Australia
**Howard Florey Institute, University of Melbourne, Victoria, Australia
***Deakin University, Burwood, Victoria, Australia
****Horizon Science, Victoria, Australia

Obesity, the excess accumulation of adipose tissue, is associated with over 30 medical conditions and is a major health problem worldwide. Polyphenols (phenolic acids, anthocyanins, flavones, flavanols, flavanones, procyanidins) are plant chemicals that have antioxidant and, in some instances, anti-obesity properties. Our aim was to investigate the effect of supplementation with sugarcane-derived polyphenols (SDP) in mice fed a high fat (21%) diet. Male C57BL/6J mice, a strain susceptible to diet-induced obesity, were divided into four groups, \( n = 13 \) mice per group. All groups were fed the high fat diet for 10 weeks; the experimental groups were supplemented with 1% molasses, or 1 or 2% SDP. Body weight, food and water intakes were measured daily. At the end of the 10 week period, body composition (DEXA, MRI); adiponectin, insulin and leptin in plasma (ELISA); energy content of faeces (bomb calorimetry); glucose clearance (following glucose load) were determined. The results indicated that relative to the control group, food and fluid intakes were not altered by the experimental treatments. Body weight was decreased by 2% SDP. Adipose tissue mass and plasma leptin were correlated \((r=0.87)\) and decreased, and fat-free mass was increased, by treatment with SDP (1 or 2%), by 30-40%, and molasses, by 20-25%. Insulin and adiponectin were not altered. Compared to control, faecal energy concentration was higher by 11% in the 2% SDP indicating a lower energy digestibility. Animals in the molasses group had increased glucose clearance. In conclusion, the addition of SDP to a high-fat diet reduced diet-induced obesity, possibly via mechanisms that include increased energy excretion, suggesting their potential use as supplements to ameliorate current trends in overweight and obesity.

Acknowledgments: NHMRC, ARC, Horizon Science