**Mulberry-Extract Reduces Total Blood Glucose Rises in Normoglycaemic Adults**

Mark Lown¹, Richard Fuller¹, Helen Lightowler², Ann Fraser³, Andrew Gallagher⁴, Beth Stuart, Christopher D Byrne⁴,5, George Lewith¹

¹ Primary Care & Population Sciences, Faculty of Medicine, University of Southampton, Alder Moor Health Centre, Southampton SO16 5ST

² Functional Food Centre, Oxford Brooks University, Gipsy Lane Campus, Headington, Oxford, OX3 0BP

³ Chief Operating Officer, Phynova Group Ltd, 16 Fenlock Court, Blenheim Office Park, Long Hanborough, OX29 8LN

⁴ Professor of Endocrinology and Metabolism. Nutrition and Metabolism, Faculty of Medicine, University of Southampton and University Hospitals Southampton, UK, SO166YD

⁵ Southampton National Institute for Health Research, Biomedical Research Centre, University Hospital Southampton, Southampton, UK, SO166YD

**Background:** High sugar and carbohydrate intake is associated with obesity and type 2 diabetes (T2DM). Reducing poor quality carbohydrate intake is a public health priority. IminoNorm®, a proprietary mulberry leaf extract (ME) available in liquid and capsular form, may reduce blood glucose responses by reducing gastrointestinal glucose absorption.

**Methods:** The primary objective was to determine the effect of three doses of ME versus placebo on blood glucose and insulin responses when co-administered with 50g maltodextrin in normoglycaemic healthy adults using a phase 2 double-blind, randomised, repeat measure, 4-arm, crossover trial. We also determined the gastrointestinal tolerability of ME.

**Results:** The mean participant (SD) age and BMI were 29.4 (10.9) years and 23.0 (2.3) kg/m², respectively. Mean (95%CI) for the difference in the positive Incremental Area Under the Curve (pIAUC) (glucose) for half, normal and double dose ME compared with placebo were -10.36 (-30.60, 9.88; p=0.316), -23.58 (-43.82, -3.35; p=0.022) and -37.01, (-57.25, -16.77; p<0.001). The difference in the pIAUC (insulin) for half, normal and double dose ME compared with placebo were -350.32 (-927.87, 227.23; p=0.234), -856.09 (-1433.64, 278.54; p=0.004) and -887.35 (-1464.90, 309.80; p=0.003). There were no differences between the groups in experiencing one or more adverse gastrointestinal symptoms.

**Discussion:** ME significantly reduces total blood glucose and insulinemic responses after ingestion of maltodextrin. The pattern of effect demonstrates a classical dose response. This food supplement may help safely modulate glucose absorption and consequent hyperglycaemia from dietary carbohydrates.