

Postprandial Glycemic and Appetite Responses of Muffins Supplemented with Different Vegetables in Young Males

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Abstract : Background and Objectives: Different vegetables have been reported to possess diabetic potential in in-vitro studies; however, the same role of these vegetables has not been much explored through human intervention. Therefore, the present study was conducted to examine the comparative effects of muffins supplemented with bitter melon (BM), and other vegetables like spinach (SPM) and eggplant (EPM) on subjective appetite, blood glucose (BG), gut hormones and food intake in healthy young males through a randomized, cross over experiment. Methods and Study Design: After 12 hours fasting, twenty-four healthy young males (18-30 Y) were fed 250ml of plain muffins (control) or supplemented with bitter melon powder, BM (10g/100g flour), or spinach powder, SPM (10g/100g flour), or eggplant powder, EPM (10g/100g flour). An ad libitum pizza meal was served at 120min to measure the food intake. Subjective appetite, blood glucose, and gut hormones (insulin, GLP-1, active ghrelin) were measured at intervals from baseline to 120min. Results: Post-treatment (0-120min) glucose, but not insulin, decreased following all the vegetables supplemented muffins compared to the control ($p < 0.0001$) with a more pronounced effect of BM. However, post-treatment avg. subjective appetite ($p=0.0017$) and food intake ($p=0.0021$) were reduced following BM but not SPM and EPM. BM further improved GLP-1 concentration ($p < 0.0001$), and reduced active ghrelin ($p=0.0022$), compared with control. Conclusions: The bitter melon supplemented baked foods possess potential more than other vegetables to regulate postprandial appetite and glycemic responses, without a disproportionate increase in insulin concentration.

Keywords : vegetables, muffins, glucose homeostasis, subjective appetite, food intake

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