

P-129**Stevioside Potentiates Insulin Sensitivity by Elevating Insulin-Stimulated Glucose Uptake in 3T3-L1 Adipocytes**

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Stevia rebaudiana Bertoni is a herb common to tropical and subtropical regions particularly Asia and South America. In countries like Malaysia, the sweet leaves of this plant have been used in daily cooking and as a form of alternative therapy by communities practicing folk medicines. The zero-calorie value of stevia leaves also provide a beneficial sweetening alternative to patients with metabolic syndromes like diabetes and obesity. A cell culture model of 3T3-L1 preadipocytes was implemented in this study to investigate the effects of stevioside, a major component extracted from the *Stevia rebaudiana* Bertoni plant on improving insulin sensitivity. 3T3-L1 preadipocytes were first differentiated to mature adipocytes prior to tests. The differentiation process was later confirmed by performing Oil-Red-O staining. The degree of insulin sensitivity was measured by performing counts via the radioactive 2-deoxyglucose uptake assay. A separate assay was done to estimate the optimum insulin concentration in the glucose uptake of the 3T3-L1 adipocytes. Cells treated with stevioside showed significant increase in glucose uptake at lower concentrations compared to a diabetic drug, rosiglitazone maleate at higher concentrations of the compound. The enhancement of glucose uptake was 2.34-fold ($p < 0.001$) in the cells treated with 30 μ M stevioside. Stevioside was thus seen to elevate insulin-stimulated glucose uptake concomitant with potentially enhanced insulin signaling in the 3T3-L1 cell culture model.

Keywords: *Stevia rebaudiana*, stevioside, insulin, 2-deoxyglucose, glucose uptake, rosiglitazone.
