Nutritional Science-2013

OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference and Exhibition on
Nutritional Science & Therapy

July 15-17, 2013 Courtyard by Marriott Philadelphia Downtown, Philadelphia, USA

Stevie changes inflammatory processes and increase anti-oxidant proteins in neural cells in culture

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Abstract

Stevie is a plant with sweet flavor used in oriental countries. In China and India Stevie is used to give sweet flavor to tea and all meals. It does not taste sweet, so it does not have problems with diabetes type 2. The polyphenol Stevie has demonstrated to be effective to promote anti-oxidant and anti-inflammatory properties. We report that Stevie do not induce increase in blood glucose in rats and in neurons and astrocytes in primary culture. Furthermore Stevie decreases NFkB and AP-1 obtaining a good control of pro-inflammatory proteins. We think that Stevie will be beneficial in stress situations and in inflammation after trauma. Stevie also activates protein kinase C (PKC) activity induced by phorbol 12-myristate 13-acetate treatment, inhibits tyrosine protein kinase activity, and inhibits arachidonic acid (AA) metabolism. Our data indicate that Stevie can trigger signal transduction pathways linked to apoptosis, such as caspases, p^{53}, and bcl-2 genes diminish the activation of apoptosis and necrosis pathways. How Stevie products do regulate and control the intracellular signaling cascades considered as relevant targets in neurodegenerative preventive approach remains to be elucidated. The results suggest that in neural cells, blocking the cellular signal transduction might trigger the induction of apoptosis and also Stevie can regulate signaling cascades to stop conversion of a normal cell to an affected one by compounds in neurodegeneration.