



50% Ethanolic Extract of Apple Polyphenols Protects Pancreatic β -cells from Damage by H_2O_2 via its Anti-apoptotic Effects

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SUMMARY. Apple polyphenols (AP) were chromatographed by resin column and different polar extraction of AP were obtained. Through the proliferation function test of pancreatic RIN-m5F β cells, 50% ethanolic extract of apple polyphenols (AP50E) shows the strongest activity. In this paper, the protective effect of against H_2O_2 induced oxidative stress was investigated using pancreatic RIN-m5F β cells. H_2O_2 (100 μ M) treatment induced pancreatic RIN-m5F β cells to death, and AP50E at 50, 10, 2, 0.4, or 0.08 μ g/mL, significantly inhibited the H_2O_2 induced oxidative damage and increased cell viability. Furthermore, the treatment with AP50E increased the expression of AKT gene and decreased caspase-3 gene. These findings indicated that AP50E might be used as potential phytomedicine which will protect the H_2O_2 induced oxidative stress associated with diabetes.

RESUMEN. Se cromatografiaron polifenoles de manzana (AP) por columna de resina y mediante extracción polar se obtuvieron diferentes fracciones de AP. En el ensayo de proliferación de células RIN-M5F β pancreáticas, el extracto etanólico al 50% de polifenoles de manzana (AP50E) demostró la mayor actividad. En este trabajo, el efecto protector frente al estrés oxidativo inducido por el H_2O_2 se investigó mediante el uso de células RIN-M5F β pancreáticas. El tratamiento con H_2O_2 (100 μ M) indujo la muerte de las células pancreáticas RIN-m5F β , en tanto que AP50E a 50, 10, 2, 0.4 o 0.08 μ g/mL, inhibió significativamente el daño oxidativo inducido por el H_2O_2 y aumentó la viabilidad celular. Además, el tratamiento con AP50E aumentó la expresión del gen de AKT y la disminución del gen de la caspasa-3. Estos hallazgos indican que AP50E podría ser utilizado como potencial fitomedicina para proteger el estrés oxidativo inducido por H_2O_2 asociado con la diabetes.

KEY WORDS: Apple polyphenols, H_2O_2 , Oxidative stress, Protective effect, RIN-m5F cells.

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