

# **Effects of Lyophilized Banana Passion Fruit (*Passiflora Mollissima*) on Cell Dead Mechanism in PC12 Cells**

(PC12細胞における凍結乾燥バナナパッションフルーツ標品の細胞死機構に及ぼす影響)

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Banana passion fruit is a specie native from the Andes region of South America. This fruit has been proven to have high content of phenolic compounds; however, there is no previous research concerning its properties in biological models. In this study, the effects of lyophilized banana passion fruit extracts (*passiflora mollissima*) on cell dead mechanism in PC12 cells were investigated. First, it was determined the toxicity of the fruit extracts at different concentrations (0.2, 10, 200 and 400  $\mu\text{g}/\text{mL}$ ) in PC12 cells. The cells were incubated cultured in the medium with 10 % FBS at 37 °C and 5% of CO<sub>2</sub> until reaching 80 % of confluence, and then the cells were treated with the fruit extracts for 48 h. Cell viability was determined by trypan blue assay, and DNA fragmentation was carried out by agarose gel electrophoresis. The obtained results suggested that the fruit extracts is not toxic until 10  $\mu\text{g}/\text{mL}$ .

After this, the effects of the fruit extracts on PC12 cells under serum deprived condition were investigated. The PC12 cells cultured in medium without FBS were treated with banana passion fruit extracts (1, 10, 200 and 400  $\mu\text{g}/\text{mL}$ ) for 48 h. It was determined the cell viability by trypan blue assay, the DNA fragmentation by agarose gel electrophoresis, and the protein contents (Bax, NF- $\kappa$ B (p65), Bcl-Xs and active caspase-3) by western blotting. The results obtained indicated that the fruit extracts decrease the cell viability in concordance with increasing concentration of banana passion fruit extracts until 400  $\mu\text{g}/\text{mL}$ . The DNA fragmentation results, as well as the western blotting analyses indicated that the fruit extracts enhanced the apoptosis induced by the serum deprivation until 10  $\mu\text{g}/\text{mL}$  of them. As results, the cell death mechanism is not proved to be apoptotic.

The apoptotic properties due to banana passion fruit extracts have not been tested previously, and the results of the present study suggest that this fruit is a potential source for cancer research due to its property to enhance apoptosis induced by serum deprivation in PC12 cells with relative low toxicity against healthy cells.