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Study on the protective effects of tocotrienols in SH-SY5Y cells

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Tocotrienols and tocopherols, naturally occurring isoforms of vitamin E, are found abundantly in food such as palm oil, rice bran oil, corn, oats, barley, rye and wheat. Tocotrienols have four different isomers: α -, β -, γ - and δ -forms. The present study was designed to evaluate the protective effect of tocotrienols against methylglyoxal (MG)-induced cytotoxicity in human neuroblastoma SH-SY5Y cells. In order to assess the protective effect of tocotrienols, α -tocotrienol (α -T3), γ -tocotrienol (γ -T3) and δ -tocotrienol (δ -T3) were administered to SH-SY5Y cells for 2 hours prior to the induction of cytotoxicity by MG, and the cell viabilities of SH-SY5Y cells were analyzed by MTT assay. The cell viability of SH-SY5Y cells were reduced to 40% by 24 h treatment of 0.5 mM MG, and two hours pretreatment of α -T3, γ -T3 and δ -T3 increased the cell viability to 75%, 53% and 82%, respectively. It is shown that T3 has protective effect on the neuro-toxicity induction by MG. Among T3, δ -T3 has the best protective activity. The future work needs to be performed to elucidate the neuro-protective mechanism of T3.

Biography

Chien-Hua Huang is currently pursuing her Master's degree in the Food Science Department at National Pingtung University of Science and Technology. She has a great passion for food science and has the expertise in cell and animal experiments and biochemical techniques such as Western blotting. She is studying the protective effect of *Corbicula fluminea* extracts in RGM-1 cell against indomethacin-induced gastric mucosal injury. She has published 4 posters, one of which was presented at the ISNFF International Conference in 2016.

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