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The ameliorating effects of brown algae extracts on diabetes induced reproductive damage

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Aim: Diabetes is a major problem in the present stress-rich environment by increasing the energy imbalance and disrupting the cross-talk between the endocrine systems. The algae ingredients were investigated toward reproductive protection regarding to diabetes complication. Fucoxanthin 40% rich-brown algae extracts (FXE) were obtained from *Sargassum glaucescens* of Taiwan. Fucoxanthin has been shown to have good anti-oxidant, anti-inflammatory, anti-obesity effects and preliminary confirmed the neuro protective effect.

Methods: For spermatogenesis evaluation, FXE were given *p.o.* by gavages after Cisplatin *i.p.* injection (6 mg/kg body weight) or Streptozotocin-Nicotinamide (STZ-NA) induced diabetes. FXE showed strong efficacy on both assay system of cell culture and animal model. Furthermore, the immuno modulatory functions of fucoidan found in brown algae were also investigated on both cultured cells and animal model.

Results: We revealed that the protective function of FXE will be via its immune modulating effects. Furthermore, FXE also showed increasing antioxidant ion and detoxification genes mRNA expression level (Nrf2, HO-1). It is also suggested that FXE (26 mg/kg B.W/day) may ameliorated hypogonadism of diabetic rats through regulation of brain KiSS1/GPR54 system that affect testosterone level.

Conclusion: Increasing evidence from the past decade indicates that the previously distinct disciplines of immunology, metabolism and neuron should now be considered as a new field of investigation. This study suggested that brown algae extracts may pay an important role in prevention of diabetes and related infertility via dietary supplement.

Biography

Zwe Ling Kong has completed his PhD from Kyushu University, Japan. He is currently the Journal Editorial Board Member of both *Cyto technology* and *Zebra fish*. He has been the General Secretary of Taiwan Society of Health Food as well as CEO and Cofounder of Alarvita Biolife Corporation. At present, he is the Chair of Department of Food Science, National Taiwan Ocean University and the Chairman of Biotaiwan Foundation.

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