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Poster Presentation

Protective Effects of Crocin on D-Galactose Induced Aging Model in Human Neuroblastoma Cells

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Abstract

Introduction: D-galactose (D-gal) is well known as an appropriate agent to induced aging effects in the in vivo and in vitro models. In the present study, we selected crocin, the main constituent of *Crocus sativus* L. (Saffron), against D-gal cytotoxicity in human neuroblastoma SH-SY5Y cells. **Materials and Methods:** Cells were pretreated with crocin (25-500 μ M) for 24 h and then exposed to D-galactose (25–400 mM) for 48 h. MTT assay was used for Cell viability investigation and dichlorofluorescein diacetate assay (DCF-DA) was used to evaluate the generation of reactive oxygen species. Betagalactosidase aging marker studied in D-gal treated cells at 200 mM with or without 24 h crocin 500 μ M pretreated. Also advanced glycation end products (AGEs) expression which are known as the main mechanism of age-related diseases were measured by western blot. **Results:** The finding of our study showed that treatment of cells with D-gal significantly decreased cell viability and Senescence *beta-galactosidase* (SA-Bgal) staining positive cells. Also D-gal caused increase in carboxymethyl lysine (CML) expression, is an AGE protein, and reactive oxygen species (ROS) level which are the main factors in age-related diseases. Crocin pretreatment significantly reduced D-gal neurotoxic effects. **Conclusion:** Treatment of SH-SY5Y cells with crocin before adding of D-gal dose dependency restored aging effects of D-gal. This finding indicated that crocin has potent anti-aging effects through alleviating of AGEs and ROS formation.

Keywords: D-galactose, Crocin, Aging, SHSY⁵-Y cells

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