

农产品辐照研究·食品科学

小牛血清对耐辐射奇球菌类胡萝卜素在肿瘤细胞中吸收的影响

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摘要:

耐辐射奇球菌类胡萝卜素deinoxanthin的抗氧化活性高于β-类胡萝卜素等,并且是参与耐辐射奇球菌极端抗性的物质。但是, deinoxanthin溶液在体外对光、氧等因素不稳定。本文旨在研究deinoxanthin的有效溶剂载体系统,并以此载体研究deinoxanthin对人卵巢癌细胞系A2780的药理学作用。通过研究四氢呋喃(tetrahydrofuran, THF)和小牛血清(fetal bovine serum, FBS)2种溶剂系统对deinoxanthin细胞吸收量的影响,发现以FBS(稀释倍数为10)为溶剂时,能够保持deinoxanthin的稳定性,并能够提高类胡萝卜素在人卵巢癌细胞A2780胞内的吸收量。同时, deinoxanthin具有抑制癌细胞生长的生物学活性,在浓度大于1μmol/L时呈现剂量依赖效应。

关键词: deinoxanthin 小牛血清 四氢呋喃 细胞吸收 抑制癌细胞

EFFECT OF FETAL BOVINE SERUM AS DELIVERY VEHICLE ON THE UPTAKE OF DEINOXANTHIN IN CANCER CELL CULTURE

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Abstract:

Deinoxanthin, the major carotenoid of *Deinococcus radiodurans*, has higher antioxidant activity than β-carotene and contributes to cellular resistance of *D. radiodurans* to stresses. However, the solution of deinoxanthin is unstable to light and oxygen. The present study aims to investigate the effect of different delivery vehicles on the cellular uptake and the pharmacological effect of deinoxanthin in delivery vehicles on A2780 human ovarian cancer cells. The effects of tetrahydrofuran (THF) and fetal bovine serum (FBS) on the cellular uptake of deinoxanthin were investigated and compared. Results demonstrated that FBS with a dilution fold of 10 was superior to THF on improving the stability and cellular uptake of deinoxanthin. Also, we found that FBS inhibited significantly the growth of cancer cells and showed a dose-dependent inhibitive effect at the concentrations higher than 1μmol/L.

Keywords: deinoxanthin FBS THF cellular uptake anti-cancer activity

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