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茶多酚及其主要成分EGCG在辐射损伤小鼠模型中的保护作用

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中文摘要:目的: 评价不同含量茶多酚(TP)及其主要成分表没食子儿茶素没食子酸酯(EGCG)的抗辐射及抗氧化作用。 方法 :采用$^{60}Co_{\gamma}$射线照射小鼠造成亚急性损伤模型,给予不同剂量TP及EGCG后1,3,7,14,21,28 d检测对小鼠外周血指标和脏器系数的影响,同时检测血清中抗氧化酶(SOD)和脂质过氧化物(MDA)水平。 结果 :与非照射组相比,辐射组可明显降低脾脏指数,降低外周血白细胞(WBC)、红细胞(RBC)和血小板(PLT);同时降低过氧化物歧化酶并升高脂质过氧化物水平。 给予TP(50 mg·kg^{-1})及EGCG(20 mg·kg^{-1})治疗后,可明显缓解由于辐射损伤所造成的全血象下降,且表现出较好的体内抗氧化活性。 结论 :含50%EGCG的茶多酚(TP50)具有明显缓解辐射所造成的造血功能损伤和抗氧化作用。

中文关键词:抗氧化 表没食子儿茶素没食子酸酯 茶多酚 辐射损伤

Protective activity of different concentration of tea polyphenols and its majorcompound EGCG against whole body irradiation-induced injury in mice

Abstract: Objective : To evaluate the different concentrate of tea polyphenols (TP) and its compound for irradiation-protection and investigate its mechanism. Method : To evaluate the radioprotective activity, mice were exposed to whole body gamma irradiation. TP 80 and TP 50 (50, 10 mg·kg^{-1}) and its major constituent epigallocatechin gallate (EGCG) (50, 10 mg·kg^{-1}) were administered after irradiation to examine its inhibition against irradiation-induced injury. Result : This study indicate that in comparison with non-irradiated controls, irradiation resulted in a significant reduction the spleen index (spleen weight/body weight 100), haematological parameters (RBC, WBC and PLT), activity of superoxide dismutase (SOD), and increase of malondialdehde (MDA) level in 28 days. Oral administration of TP (50 mg·kg^{-1}) shown the best effect on reducing the irradiation-induced injury on mice studied, and showed a protective effect against irradiation-induced haematological parameters (RBC, WBC and PLT), the spleen index and MDA level significant reduction, and antioxidase activity (SOD) decrease. Conclusion : The results suggest that TP 50 mg·kg^{-1} and EGCG have *in vivo* antioxidant potential and radioprotective activity against whole body gamma irradiation in mice. It may be concluded that TP (50% EGCG) possess good irradiation-protective and antioxidant effect.

keywords:antioxidant epigallocatechin gallate tea polyphenols irradiation injury

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