

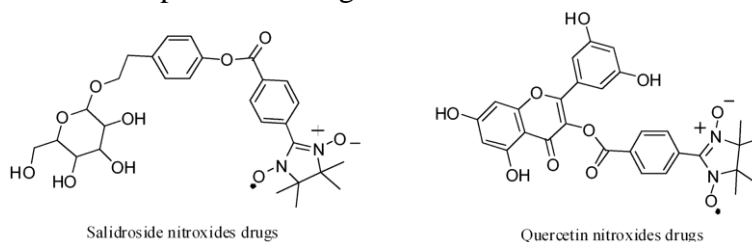
RADIOPROTECTIVE PROPERTIES OF THE NITROXIDES FUNCTIONALIZED NATURAL MEDICINE

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Biological effects of radioprotection are an important and active research field in biological and physical subject. The development of the new synthetic drugs and natural medicine, contribute to find new radioprotective lead drugs, enrich and improve the research content of the biological effects of radiation protection. Therefore, the modification of natural medicine and radioprotective performance research has attracted much attention[1, 2].

Judging from the results of research, the natural medicine exerts the radioprotective properties in high dosage with the good biocompatibility and low toxicity, meanwhile, the steady-state nitroxyl radical molecules also have fine the radioprotective properties [3,4]. Thus, the nitroxides functionalized natural medicine as new radioprotective drugs have been designed and synthesized, which combined the advantages of low toxicity of natural medicine and efficient radiation resistance of nitroxides. The new system of radioprotective drugs has been constructed with the combination of natural medicine and nitroxides, which can help us to find better radioprotective lead drugs than amifostine. The new radioprotective drugs are as follow:



Now, the two radioprotective drugs have been synthesized and characterized by ^1H NMR, ^{13}C NMR, IR, ESI-MS. The further research on radioprotective properties is being carried out in cell, organ and whole animal. At the same time, in view of radioprotective effect of the nitroxides functionalized natural medicine, the biological effect of radiation protection will be systematic researched, the radioprotective mechanism of the new radioprotective drugs will be revealed, a new radioprotective lead drugs with low toxicity and high efficiency will be exploited, which has important application value in the aspect of the radioprotection for the radiotherapy of malignant tumour, outer space astronauts and radiation related staff etc..

Keywords: Nitroxides functionalized natural medicine; Radioprotective properties; Biological effect of radiation; Free radical scavenging

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