

论著

红景天提取物对微粒体LPO模型的影响

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摘要 背景与目的: 探讨红景天醇提物和水提物的抗氧化作用及其剂量反应关系。材料与方法: 回流法和煎煮法分别制备红景天醇提物和水提物。钙沉淀法提取雄性SD大鼠肝微粒体。采用四种激发剂Vc/Fe²⁺、过氧基异丙苯(Cumine hydroperoxide, CHP)、CCl₄/辅酶II(Nicotinamide-adenine dinucleotide phosphate, NADP)和还原型辅酶II(Reduced form of nicotinamide-adenine dinucleotide phosphate, NADPH)-腺苷二磷酸(Adenosine diphosphate, ADP) / Fe²⁺建立微粒体脂质过氧化(Lipid peroxidation,LPO)模型, 加入浓度为 25 mg/ml、12.5 mg/ml、6.25 mg/ml、3.13 mg/ml、1.56 mg/ml的红景天醇提物和水提物, 观察在4种模型系统中抗氧化作用。在VC/Fe²⁺、CHP、CCl₄/NADP模型中通过比色法测定对丙二醛(Malondialdehyde, MDA)的抑制作用, NADPH-ADP / Fe²⁺模型通过氧电极法测定对耗氧量的抑制作用。结果: 红景天水提物在浓度为6.25~25.00 mg/ml范围内, 其CHP模型中的MDA含量显著低于阳性模型对照组。在Vc/Fe²⁺、CHP和CCl₄/NADP模型中, 红景天醇提物和水提物各浓度组MDA含量均非常显著低于对照组, 并且在一定终反应浓度内有剂量-反应关系。在NADPH-ADP / Fe²⁺模型中, 最高浓度的醇提物和水提物的抑制率分别达到76%和43%。结论: 红景天的两种提取物都具有较强的抗氧化作用, 并存在一定的剂量效应关系。其中红景天醇提物对酶参与性反应的作用强于水提物。该研究初步探讨了红景天抗氧化作用的机制, 其结果为红景天在自由基损伤中的保护作用提供了实验依据。

关键词 [红景天](#); [抗氧化](#); [脂质过氧化](#); [氧电极](#)

Effect of Rhodiola on the Peroxidative Damage Model in Microsomes

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Abstract BACKGROUND & AIM: To investigate the antioxidative action of the ethanol and water extract of Rhodiola and their dose relationship. MATERIAL AND METHODS: Sprague-Dawley rats were killed and the livers were removed to isolate the microsomes by calcium ion precipitation. The ethanol and water of Rhodiola were extracted by recirculating and boiling. Four LPO models were built which were stimulated by Vc/Fe²⁺, CHP, CCl₄/NADP and NADPH-ADP / Fe²⁺. Two different extracts were added into four models and titrated to final concentrations of 25 mg/ml, 12.5 mg/ml, 6.25 mg/ml, 3.13 mg/ml and 1.56 mg/ml. Then the contents of malondialdehyde (MDA) were measured to assess the antioxidative action of Rhodiola extracts in the first three models. The electrode oxygraph was used to determine the inhibition rate of oxygen consumption in NADPH-ADP / Fe²⁺ model. RESULTS: In CHP model, compared with control group, the content of MDA in group 6.25, 12.5 and 25.00 mg/ml of water extract decreased significantly (P<0.05). In the Vc/Fe²⁺, CHP and CCl₄/NADP models, the content of MDA in those groups with different dosages of the two extracts decreased significantly (P<0.01), and there was dose-dependent relationship between the final concentration and the inhibition rate of MDA to some extent. In NADPH-ADP / Fe²⁺ model, the inhibition rates of the highest concentration of the ethanol and water extracts reached 76% and 43%, respectively. CONCLUSION: The two extracts of Rhodiola had good antioxidative effects. The ethanol extract had comparatively stronger effect in the models containing enzymes.

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