大豆芽萃出物之抗氧化性與生物機能性之探討=studies of soybean sprout extract to antixidant activity and biofunctions

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摘 要

中文摘要 大豆中富含異黃酮(isoflavon)，其具有強抗氧化性，可清除自由基(free radicals) 以達到防癌及降低血管粥狀硬化的形成；此外由於異黃酮具有類雌激素的作用，亦可以幫助婦女減輕更年期的症候群。 本研究首先利用體外(in vitro)試驗測定大豆芽萃出物 (soybean sprout extract) 的抗氧化性質及其保護脂質被氧化之能力。在?,?-diphenyl-?-picryhydrazyl (DPPH) 自由基清除效應試驗中，結果顯示大豆芽萃出物與一般常見具高效率清除DPPH的Vit E與Vit C一樣具有此功效；在赤血鹽 (potassium ferricyanide) 的還原力測定結果顯示大豆芽萃出物也具有很強還原Fe3+之能力；在thiobarbituric acid reactive substances (TBARs) 方法中，測得其亦具有保護低密度脂蛋白 (low-density lipoprotein) 脂質過氧化(lipid peroxidation)之作用。經體外試驗結果中顯示大豆芽萃出物具有多樣性的抗氧化能力，故用以供給後續之動物試驗。 在新鮮公豬精液保存試驗中，添加大豆芽萃出物並無法顯著改善其因超氧歧化? (superoxide dismutase)活性抑制劑dithyl-dithiocarbamic acid (DDC) 添加所引起之精子活力顯著下降的現象。DDC亦被添加於小鼠飼料中，用以評估同時供應大豆芽萃出物是否會改善小鼠因DDC所造成的生理機能缺失的問題。供給DDC之小鼠肝臟組織中麩胱??過氧化? (glutathione peroxidase)含量與過氧化氫? (catalase) 活性皆有顯著降低的趨勢 (P < 0.05)；而且母鼠的胚胎著床率及產仔數皆極顯著減少(P < 0.01)。在飼料中同時添加DDC與大豆芽萃出物試驗中，食用大豆芽萃出物可顯著改善小鼠因食用DDC對其組織抗氧化物組成及胚胎著床之負面影響。再則，在飼料中添加2%大豆芽萃出物有顯著降低大鼠血脂濃度的功效，其血中總膽固醇與三酸甘油酯濃度分別較對照組低22% (P < 0.05) 與42% (P < 0.01)。 由實驗結果得知食用大豆芽萃出物可改善因DDC造成的繁殖問題，並有降血脂之功效，此可能與大豆中所含之抗氧化物質有關。此外，大豆芽萃出物中尚具許多保健機能性，這些都有待科學研究證實之。

關鍵詞 : 抗氧化性 ; 自由基 ; 大豆芽萃出物 ; 超氧歧化酵素 ; 異黃酮 ; 活性氧分子 ; 脂質過氧化

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