

天然多酚物對人類血液流變學參數及人類肝癌細胞(Hep3B)纖維蛋白

原基因表現之影響－體外試驗

The Influence of Human Hemorheological Parameter and Fibrinogen Gene Expression of Human Liver Cancer Cell (Hep3B) with Natural Polyphenols –In Vitro Test

中文摘要

就血液流變學的觀點來看，許多的心血管疾病病患之血液流變學參數均有不同於正常人，如血漿黏度較高、紅血球的聚集度增加、紅血球的變形度降低…等，使得全血血液的黏度增加，造成血液流速的下降，體內養份的獲取降低。本研究主要是以高壓氧艙給予血液造成大量自由基的生成，並添加以天然多酚物 (Trolox、Genistein、EGCG、Curcumin 以及 Salvianolic acid B)，針對其對紅血球膜的抗氧化能力、纖維蛋白原基因抑制性為研究主軸，探討血液流變學的性質及機制。

實驗結果發現各多酚物於低剪切率下黏度改善能力：

Trolox>Curcumin>Genistein>SAB>EGCG；於高剪切率下黏度改善能力：

Curcumin>Genistein>SAB>Trolox>EGCG；於全血液中自由基清除能力：

SAB>Trolox>Genistein>Curcumin>EGCG；對紅血球膜抑制丙二醛產生能力：

SAB>Trolox>Genistein>Curcumin>EGCG；對紅血球變形度改善能力：

Curcumin>Trolox>EGCG>SAB>Genistein；對紅血球聚集度抑制能力：

Curcumin>Genistein EGCG>Trolox>SAB>。

英文摘要

For hemorheological opinion, many patients of heart and blood vessel disease have un-normal hemorheological parameter with common, such as higher plasma viscosity, increasing of red blood cell aggregation, decreasing of red blood cell deformation and so on. It can make whole blood viscosity increased and than the blood flow rate decreased. Thus, gets the lower nutrition. In this study, we use hyperbaric oxygen to induce the free radical formation and add five polyphenols- Trolox, Genistein, Epigallocatechin-3-gallate (EGCG), Curcumin and Salvianolic acid B. Focus on the antioxidative ability of polyphenols to red blood cell membrane and fibrinogen gene expression. And have a discussion for hemorheological characteristic and mechanism.

The result detected that the improvement of viscosity in every polyphenol under low share rate is Trolox > Curcumin > Genistein > SAB > EGCG. For the improvement of viscosity in every polyphenol under high share rate is Curcumin > Genistein > SAB > Trolox > EGCG. For the clearance ability of free radical in whole blood is SAB >

Trolox > Genistein > Curcumin > EGCG. For the restraining ability of red blood cell membrane to MDA is SAB > Trolox > Genistein > Curcumin > EGCG. For the improvement of deformation in red blood cell is Curcumin > Trolox > EGCG > SAB > Genistein. For the restraining ability of red blood cell aggregation is Curcumin > Genistein > EGCG > Trolox > SAB.