蜂王蛹蛋白及水解物對細胞 DNA 氧化性傷害及 LDL 氧化之抑制研究

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摘 要

本研究以蜂王蛹蛋白為材料，利用alcalase及flavourzyme進行一階段與兩階段水解，探討蜂王蛹蛋白經酵素水解前後對細胞DNA氧化性傷害及LDL氧化之抑制作用。

在蜂王蛹蛋白水解研究方面，蜂王蛹蛋白以1、1.5及2 % alcalase進行水解20小時，水解率分別為8.89、8.99及9.19 %；以1、1.5及2 % flavourzyme進行水解16小時，水解率分別為9.57、8.59及9.91 %；蜂王蛹蛋白以1.5% alcalase水解4小時後，再以1、1.5及2 % flavourzyme水解12小時，水解率分別為9.03、9.49及8.98 %。

在Fenton reaction誘導DNA氧化傷害之抑制研究方面，蜂王蛹蛋白、一階段（alcalase、flavourzyme）及兩階段水解物皆有抑制去氧核糖氧化傷害的效果，其中以蜂王蛹蛋白效果最大，於1 mg/mL濃度時，分別可抑制47.06、33.70、24.19及43.09 %之氧化傷害。蜂王蛹蛋白及其水解物皆有降低8-OH-2'-dG之生成，其抑制能力大小順序為蜂王蛹蛋白＜flavourzyme一階段水解物＜alcalase一階段水解物　兩階段水解物。在Bleomycin-Fe3+ 誘導DNA氧化傷害研究方面，蜂王蛹蛋白及水解物皆無明顯的促氧化效果。

在LDL的氧化修飾研究方面，對Cu2+誘導LDL氧化生成TBARS之影響，以1 mg/mL之兩階段水解物之效果最大，其抑制能力大小順序為兩階段水解物＞alcalase一階段水解物＞蜂王蛹蛋白＞flavourzyme一階段水解物。在共軛雙烯的生成量方面，蜂王蛹蛋白及水解物皆可延滯共軛雙烯的生成。在濃度1 mg/mL時，蜂王蛹蛋白及水解物皆有明顯的抑制效果，其lag time約為240 min，為控制組的2倍。

關鍵詞 : 蜂王蛹、抗氧化性、氧化傷害、低密度脂蛋白

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