薑黃素的生物效應
The Biological Effects of Curcumin

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摘 要：薑黃素(Curcumin)，是屬於薑科植物的一種，通常被使用在黃色染料和食品香料上。最近在許多文獻研究已證實薑黃素有許多的醫學特性，分別在動物實驗和分子生物研究皆能顯示出有抑制環氧化酶 (cyclo-oxygenase-2；COX-2)和細胞激素(cytokines)達到抗發炎的作用，有能力抑制基質金屬蛋白酶 (matrix metalprotease)的活性，減少對細胞外基質降解，避免腫瘤細胞侵襲到鄰近組織，並能調節 Bcl-2 和 caspase 的活化進而誘導癌細胞株凋亡，有抑制核因子 κB(nuclear factor kappa B；NF-κB)和 activating protein-1(AP-1)等轉錄因子的活化，減少發炎反應與腫瘤增生等生物效應。這篇文獻回顧主要描述薑黃素在動物實驗與分子生物研究上的化學預防效應與生物機轉。

關鍵詞：薑黃素、抗發炎、抗腫瘤和核因子 κB

Abstract: Curcumin is one kind of Zingiber plant, usually used on yellow dyestuffs and food spices. It has already verified by many studies the curcumin has a lot of medical characteristics, and can be demonstrated in animal's experiment and molecular biological studies. Curcumin has the ability of anti-inflammation through suppressing cyclo-oxygenase-2 (COX-2) and cytokines, prevent tumor metastasis from blocking matrix metalproteases (MMP2 and MMP9), and can

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regulate the activation of Bcl-2 and caspases then induce cancer cells to apoptotic program. On the other hand, it can inhibit the transcriptional activation of nuclear factor kappa B (NF- kB) and activating protein-1 (AP-1) ,etc., reduce the biological effects of, such as inflammation, tumour hyperplasia, etc.. This document reviews and describes mainly that curcumins' chemoprevention effects and biological mechanisms in animal's experiment and molecular biological studies.

Key words: Curcumin, Anti-inflammation, Anti-tumor, NF-B

雙核含鈷(Ⅱ)金屬配位錯合物製備及結構分析

Synthesis and Crystal Structure Characterization of Binuclear Cobalt (II)-Complex via Hydrothermal Reaction

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摘　要： 本研究利用水熱合成反應，得到雙核的鈷(Ⅱ)錯合物，其化學式為 $\{[Co_2(pda)_2(dp)(H_2O)_4]\cdot 4H_2O\}$ **(1)** （其中 pda = 2,6-吡啶雙羧酸, dp = 4,4′-雙吡啶）。使用元素分析儀、**FT-IR** 光譜儀及 **X-Ray** 晶體繞射儀，測定產物晶體結構及其性質，X-Ray 測定結果顯示錯合物是以鈷(Ⅱ)離子為反置中心，鈷(Ⅱ)離子配位的兩個氧原子為吡啶雙羧酸第二位置及第六位置羧酸上的 O 原子，以及分別為雙羧酸吡啶環及雙吡啶環上的兩個氮原子，和兩個配位水分子，配位構成六配位些微扭曲的八面體型幾何結構。兩個非對稱性的單元體，構成啞鈴型的二聚體，整個二聚體包含兩個鈷原子，兩個吡啶雙羧酸配位基和一個雙吡啶配 位基，以及四個配位水分子和四個未配位晶格水分子。由於吡啶雙羧酸及配位水分子的分子間氫鍵作用，以及吡啶環之間的π-π 吸引力，自組裝成**(3-D)**三維空間無限延伸的網狀結構，使得此晶體結構很穩定。

關鍵詞： 混合配位基、晶體結構、自組裝、水熱反應

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Abstract: A metal-organic **Co(Ⅱ)** complex, $\{[Co_2(pda)_2(dp)(H_2O)_4]\cdot 4H_2O\}$ **(1)** (pda = 2,6-pyridine-dicarboxylate, dp = 4,4′-bipyridine), has been synthesized with hydrothermal reaction and characterized by elemental analysis, FT-IR spectroscopy and single crystal X-ray diffraction. X-ray structure analyses show the title compound, the coordination sphere of the **Co(Ⅱ)** metal lies on an inversion centre and has slightly distorted octahedral coordination. The cobalt **(II)** atom is coordinated by two oxygen atoms, two nitrogen atoms and two water molecules. The two oxygen atoms are belong to carboxyl acid (at pyridine 2 and 6 position). One of the nitrogen atoms is belong to pda ligand and the other is belong to dp ligand. These two asymmetric units then form a dumbbell-shaped dimer which contains two cobalt atoms, two pda ligands, one dp ligand, four composed water ligands and four lattice water molecules. The stable structure of the compound exhibits a new **3-D** supramolecular network that formed by π-π stacking interactions between aryl rings and intermolecular O-H···O hydrogen-bonding between pyridine-dicarboxylate and coordinated water molecules.

Key words: Mixed ligand, Crystal structure, Self-assembly, Hydrothermal reaction

大豆胰蛋白酶抑制劑之抗氧化能力分析

Antioxidative Activity of Kunitz-type Trypsin Inhibitor Isolated from Soybean (*Glycine max*)

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摘　要：自由基常會引起老化作用、心血管疾病、癌症、阿茲海莫症等退化性疾病。大豆(soybean, *Glycine max*)，是世界普遍食用的一種食物，特別是在亞洲國家。最近研究發現，多食用大豆食品，可降低罹患骨質疏鬆(osteoporosis)、一些慢性疾病、心血管疾病及癌症。本實驗由大豆種子中分離出Kunitz-type胰蛋白酶抑制劑(Kunitz-type soybean trypsin inhibitor；SBTI)，發現其具有抗氧化能力，在試管(in vitro)試驗中，探討其對活性氧(reactive oxygen species，$O_2^{-\cdot}$，$\cdot OH$及H_2O_2)及DPPH自由基的清除能力，結果清除$O_2^{-\cdot}$自由基的IC_{50} 為27.49 ± 2.75μg/ml，清除$\cdot OH$自由基的IC_{50} 為1.48 ± 0.15mg/ml清除，H_2O_2的IC_{50} 為2.47 ± 0.25mg/ml，但對DPPH自由基的清除能力較弱。由結果得知，大豆Kunitz-type SBTI對活性氧具有清除的能力，特別對於清除$O_2^{-\cdot}$自由基的能力最強。

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關鍵詞：自由基、Kunitz-type 胰蛋白酶抑制劑、抗氧化能力、活性氧

Abstract: Reactive oxygen species and free-radical-mediated reactions have been reported in degenerative or pathological processes such as aging, cancer, coronary heart disease, and Alzheimer's disease. Meanwhile, there are many epidemiological data revealing an association between people who have a diet rich in soybean foods and a decrease in the risk of cardiovascular diseases and certain forms of cancer. In the present study, a Kunitz-type soybean trypsin inhibitor (SBTI) was isolated from soybean seed was evaluated for its in vitro scavenging effects on reactive oxygen species ($O_2^{-\bullet}$, OH, and H_2O_2) and DPPH radical. In scavenging assays the Kunitz-type SBTI showed to be effective against all the assayed reactive oxygen species, specially for $O_2^{-\bullet}$ (IC_{50} = 27.49 $\pm$ 2.75μg/ml), OH (IC_{50} = 1.48 $\pm$ 0.15 mg/ml), H_2O_2 (IC_{50} = 2.47 $\pm$ 0.25 mg/ml), but displayed weak activity in the DPPH assay. These results provide scientific support for the empirical use Kunitz-type SBTI, one of the soybean seed storage proteins, may play a role as an antioxidant and may be beneficial to health when it is consumed.

Key words: Free radical, Kunitz-type SBTI, Antioxidative activity, Reactive oxygen species

中藥黃芩、槐花與薑黃抗發炎效果之比較

Comparisons of the Anti-inflammatory Effect between *Scutellaria baicalensis*、*Sophora japonica* and *Curcuma longa*

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摘　要：活化巨噬細胞大量生成一氧化氮 (NO) 的現象在發炎反應的許多病理進展過程中，扮演一個重要的指標。本研究以對 lipopolysaccharide (LPS) 刺激活化之 RAW 264.7 細胞的 NO 生成抑制試驗法，探討黃芩、槐花與薑黃 50% 乙醇粗抽物抗發炎作用。結果顯示，黃芩、槐花與薑黃 50% 乙醇粗抽物都具有抗發炎效果，其抑制 NO 生成的 IC_{50} 各為 0.20 mg/mL、2.35 mg/mL 及 0.64 mg/mL。同時，在添加相同濃度(0.4 mg/mL)下，以未添加待測藥物 NO 生成量為 100% 時，其生成 NO 量各自為 18 ± 1.1% (黃芩)、87 ± 1.6% (槐花)和 71.6 ± 2.9% (薑黃)。經比較結果，三種中藥 50% 乙醇粗抽物中，黃芩抗發炎的能力最強，而薑黃略優於槐花。

關鍵詞：抗發炎、巨噬細胞、黃芩、槐花、薑黃、一氧化氮

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Abstract: Overproduction of nitric oxide (NO) by activated macrophage play a central role in many pathological processes during inflammation. In this study, the anti- inflammatory effect of the Chinese herb *Scutellaria baicalensis, Sophora japonica* and *Curcuma longa* were assessed by measuring the decreased amounts of NO production by lipopolysaccharide (LPS) activated murin macrophage-like RAW 264.7 cells compared with that of drug-untreated control sample. The results showed that the 50% ethanol crude extracts of *Scutellaria baicalensis, Sophora japonica* and *Curcuma longa* suppressed NO production with the values of 50% inhibitory concentration (IC_{50}) about 0.20, 2.35 and 0.64 mg/mL, respectively. Meanwhile, by addition of same concentration (0.4 mg/mL) of these tested crude herb extracts, *Scutellaria baicalensis, Sophora japonica* and *Curcuma longa* produced $18 \pm 1.1\%$, $87 \pm 1.6\%$ and $71.6 \pm 2.9\%$ of NO production, when the NO produced by drug-untreated control samples was treated as 100%. The results indicated that anti- inflammatory effect of these three 50% ethanol crude extracts, *Scutellaria baicalensis* exerted the strongest potent, and *Curcuma longa* was better than *Sophora japonica*.

Key words: Anti–inflammation, Macrophage, *Scutellaria baicalensis*, *Sophora japonica*, *Curcuma longa* , Nitric oxide

護理人員對無線射頻辨識系統接受度模式建構與比較分析：知覺創新特性模式與科技接受模式觀點

The Construction and Comparison Acceptance Model of Nursing Staff Using RFID System: PIC and TAM View

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摘 要：無線射頻辨識系統運用於醫護臨床流程中是頗為創新的嘗試，對醫護人員作業流程亦產生重大的改變。許多研究證實，新科技的導入往往導致使用者的抗拒，故本研究欲了解護理人員對 RFID 接受度之影響因素，並以結構方程式模式對某已導入 RFID 系統醫院之護理人員進行實證。雖在科技接受行為研究領域中已發展出相當多的理論模式，然各模式之構念、變數、因果關係卻有所不同。本研究將該領域中之創新接受度與科技接受模式二大理論作一回顧整理，除建構多階層 PIC（知覺創新特性）模式之實證架構外，並與過去相關研究常見之一階層 PIC、TAM（科技接受模式）、與 TAM II 模式進行比較，除探討各模式之適用性外，並探究不同模式下各潛在變數間之關係。研究發出343 份問卷，回收 225 份有效問卷，結果顯示：（1）多階層 PIC 模式與 TAM、TAM II 模式皆具一定之適用性。（2）雖不同理論架構所包含之變項關係不同，導致實證結果有所差異，然本研究多階層 PIC、一階層 PIC、TAM、與 TAM II 四個模式皆驗證使用行為意圖明顯受知覺有用性所影響，而知覺易用性對知覺有用性的影響力也在多階層 PIC、

TAM、TAM II 三個模式中被驗證。

關鍵詞：無線射頻辨識技術、知覺創新特性、創新接受度、科技接受模式、科技接受延
伸模式

Abstract: It is a new attempt to use Radio frequency identification (RFID) technology in Medicine clinical operation, and get great influence in nursing procedures. Many researches have proved that new technology often makes user resistance, so we use structural equation modeling method to empiricism the factors which influence nurse staff intention to use RFID system. Although there are many acceptance theory models in behavior research area, but the constructions, variables, and causal relations in these models are different. So this research first retrospect the most popular acceptance theories of innovationess and technology acceptance model (TAM), then we construct multi-layer PIC (perceived innovation characteristics) model and make comparison with one-layer PIC model, TAM, and TAM II. Bases on 225 questionnaires, we get fellow results. First, multi-layer PIC , TAM, and TAM II models all show certain degree of adaptability in our research data. Second, since different model have different constructions, variables, and causal relations, so the empiricism result were also different, but multi-layer PIC, one-layer PIC, TAM, and TAM II models all confirm that "perceived usage" have positively relationship with "behavioral intention to use"; and multi-layer PIC, TAM, and TAM II models also confirm "perceived ease of use" have positively relationship with "perceived usage".

Key words: Radio Frequency Identification (RFID), Perceived Innovation Characteristics (PIC), Innovationess, Technology Acceptance Model (TAM), TAM II