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## DISCOVERY OF NEW ANTITUMOR AGENTS FROM MEDICINAL PLANTS

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Many types of compounds have been isolated from higher plants till now, that is, alkaloids, terpenes, lignans, steroids and so on. One of them, named as RA series Cyclic hexapeptides isolated from *Rubia akane* and *R. cordifolia* also have strong antineoplastic activity against various types of tumors. Till now 10 kinds of RA series compounds were isolated and named as RA - I, II, III, IV, V, VI, VII, VIII, IX and X. Moreover, monoglucoside of RA - V newly isolated from same plant. Many kinds of derivatives including natural RA compounds were tested for QSAR, and one of them, RA - VII was screened up as a most suitable substance as an antitumor agent. RA - VII (=RA - 700) has strong cytotoxic activity against KB cells, P388 lymphocytic leukemia and MM2 mammary carcinoma cells. RA - VII has been under investigation for Phase I clinical trials.

Key words : *Rubia akane*, *Robia Cordifolia*, Antitumor agent, Cytotoxic activity.

### Practices of Antitumor Screening Tests for Natural Products

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Present anticancer drugs in the clinical side have not showed a conclusive effect of the chemotherapy for cancer patients. In order to find much more efficient antitumor agents from natural resources, various screening methods *in vivo* and *in vitro* have been developed by many researchers. The intention of this paper is to provide an outline of some background on the tumor system in drug development of natural products, to review some screening programs for the evaluation of antitumor activity and to introduce the practical procedures of some antitumor screening methods *in vivo* and *in vitro*. At the end of this paper, the current literatures related to antitumor natural products from higher plants at our laboratory are described.

Key words : anticancer drugs, screening methods.

## The Present Condition and the View of Herb Culture in Japan

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It was explained in detail that the present condition of herb culture in Japanese agriculture and the requirement of crude drugs of good and regular very hard hit by the market condition of crude drugs taking ginseng (*Panax ginseng* C.A.Meyer) and *Coptis Rhizome* (*Coptis japonica* Makino) as examples. It is not too much to say that the market is now under the control of crude drugs imported from China. The main current of herb culture in Japan will be the contract agriculture that the seedlings of good and regular quality are received and are cultivated until the enough time, and the farm products are directly handed to the medicinal company following the example of zedoary (*Curcuma zedoaria* Roscoe).

Key words : herb culture, crude drugs.

## TAXONOMICAL STUDY ON KOREAN HIGHER FUNGI

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### Abstract

Higher fungi were collected from many places of Korea from 1975 to 1991 and were identified. Lee(1990) reported 68 families 261 genera and 885 species. After, many species were reported newly to be Korea, total number of Korean higher fungi is more than 1000 species.

Dominant species are Russulaceae, Amanitaceae, Tricholomataceae and Boletaceae. Also edible, poisonous, ectomycorrhizal, wood-rotten and insect-pathogenic fungi are developed.

Higher fungi are found most from June to September, especially many species are developed during two months of July and August.

## Screening for Antitumor Efficacy from the Wild Plants in Korea

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This experiment was conducted to screening for the anti-cancer efficacy from the wild plants which are naturally growing in the Korea. The results are as follows. The results were shown that *Zea mays* L. had significantly effects on medicinal efficacy against anti-tumor by using the total packed cell volume methods and also, several plants, such as *Solanum nigrum*, *Patrinia hispida* Bunge, *Eragrostis ferruginea* Beauv, *Salaginella pouzoliana* Spring, *Platycarya strobilacea* Bunge, *Codonopsis lanceolata* Benth. et Hook fil. which are collected from Giri and Mooju mountain in Korea and Nagano in Japan were showed effects on anti-tumor. But the pharmacological activities of *Pharbitis nil* Choisy was believed to strong effects on anti-cancer tumors, while toxicity of its was shown high that induced to kill all used mice. Extraction of *Patrinia hispida* Bunge, *Pharbitis nil* Choisy, *Torilis japonica* DC, *Eragrostis ferruginea* Beauv. and *Forsythia koreana* Nakai showed effectively suppressed on growth rate of cancer tumor by the below 50 percent of T/C ratio at 30  $\mu$ g/ml of extraction from plant. That is strong activity while *Reynoutria japonica* Houtt. was observed only mild activities. The above results may possibly suggest that *Patrinia hispida* Bunge and *Eragrostis ferruginea* Beauv. inhibited the growth of cancer tumor by the both total packed cell volume method and cytotoxicity method. Although basic research is still going on, we will find out an accurate method for developing useful medicinal plant to improve pharmacological activities against anti-cancer tumor, especially, in *Eragrostis ferruginea* Beauv.

**Key words :** Anti-cancer, Total packed cell volume method, Cytotoxicity method, Pharmacological activity

## 약초재배의 문제점과 그 대책

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안상득

한국은 南北을 軸으로 한 반도국가로 온난한 남부지방에서 한냉한 북부지방에 이르기까지 수많은 식물이 서식하고 있다.

이들 식물중에는 오랜 세월동안 약용으로 채취되어 이용되어 왔을 뿐 아니라 需要의 증가와 더불어 自然生 採取에서 栽培形式으로 전환되므로 品質의 향상과 需要에 대한 供給의 安定化를 기할 수 있게 되었다. 더욱이 최근 農産物의 輸入開放化와 더불어 경제적 代替作物으로 약초재배에 관한 관심이 높아지기 시작하면서 1985년 이후 매년 14-40%씩 재배면적이 증가하여 1991년도에는 9000ha 이상으로 증가하였는 바 이와같은 증가 추세는 금후에도 계속될 것으로 예상된다.

그러나 약초재배 농민들이 U.R. 대체의 경제작물로서 약초를 안정적으로 재배하는데는 여러가지 어려운 문제가 있는 것이 사실이다. 이 문제점들은 一定分野에 국한된 것이 아니고 다양한 분야의 문제들이 상호 연관되어 있으므로 개선하기에 용이한 점은 아니지만 종합적인 처방에 의해 점진적으로 해결해 나가야 할 것이다.

### 1. 한약재에 대한 올바른 인식 : 소비자, 한약업 종사자

① 약재의 이용 : 옛날의 선조-우리나라의 자연채취약으로 모든 질병 치유  
아프리카, 남미의 인디언-질병의 自體治療-身土不二

② 수입한약재의 재평가 : 唐材의 우수성 再考,  
생산지 저장기간-1년이상  
輸送期間중 변질-방제-약제처리

③ 需要가 있는 곳에 輸入

### 2. 행정적 支援擴大

① 貯藏施設, 加工施設, 農資金 低利 長期融資

② 輸入藥材의 철저한 품질검사(성상, 순도)-전문인력 활용(관능검사, 성분농약, 방부제)

③ 가격정보 제공(價格豫測, 計劃生産 指導)-확실한 재배면적의 파악

### 3. 流通體系의 개선

① 中間加工 및 貯藏施設-出荷時期 調整

② 契約栽培-生藥組合, 약품maker, 大去來商, 輸出入 商社

③ 直營 共販場 운영-中間利益 배제

④ 생산물의 等級別 選別-판매수익 증대

### 4. 特化作目的 개발과 榮農 團地化

① 行政支援 強化

② 藥草 生産組合 결성-共同 資材購入, 生産 및 出荷-생산비절감

### 5. 情報利用의 극대화 : 價格動向, 栽培面績, 輸出入 動向, 栽培技術, 先進 栽培地 見學

6. 研究體制的 강화

- ① 특수 작물 연구소—경제작물의 개발
- ② 재배기술의 확립(품종, 작부체계, 병해충방제)—품질 및 수량증대
- ③ 栽培適地選定—생리생태 연구
- ④ 乾燥, 加工, 包裝, 貯藏方法에 대한 연구—품질향상
- ⑤ 省力栽培技術 개발—木質部, 種子 제거기
- ⑥ 신 약초식물의 개발

7. 經營의 合理化

- ① 栽培作物的 多樣化—가격변동에 대한 適應力 強化
- ② 栽培面積의 조절(소규모→대규모)
- ③ 作付體系 확립—收穫年限, 계절적인 時期, 間作

## 中國에서의 抗癌植物藥利用의 現況과 展望

金 洙 哲

延邊農學院

中國에서 癌은 都市成人에 있어서 死亡率이 가장높은 疾病을 되고 있으며 해마다 100~200萬名の 새로운 癌患者가 發生하며 80~90萬名の 높은 死亡率을 보이고 있다. 그러므로 中國역시 癌은 社會와 醫療界의 頭痛거리로 되지않을 수 없다.

中國에 있어서 治癌臨床에 採用되는 것으로서 手術, 放射線, 化學, 中草藥, 針灸, 氣功等 療法을 들수 있다. 中草藥은 中藥과 草藥을 包括하며 中藥은 歷史的으로 廣範한 中醫 즉 漢醫들이 長期的으로 써내려온 傳統的인 漢藥이며, 草藥은 部分的으로 民間에서 쓰이는 藥 즉 民間藥을 이른다. 中草藥에는 植物, 動物, 礦物, 農産製造物 및 若干의 化學製品이 包含된다.

本文에서는 中草藥中の 植物性 抗癌藥이 現在 中國에서 利用되는 現況과 그의 發展進도에 대하여 略述한다.