

# INHIBITORY EFFECTS OF EXTRACTS FROM VANDELLIA CORDIFOLIA ON TUMOR CELLS PROLIFERATION

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*Vandellia cordifolia* *V. cordifolia*

*V. cordifolia*

μ

± ± ± ± ± ±

*V. cordifolia*

**Key words** *Vandellia cordifolia*

## INTRODUCTION

*Vandellia cordifolia*

*Vandellia cordifolia*

*V. cordifolia*

*V. cordifolia*

*V. cordifolia*

*V. cordifolia*

*V. cordifolia*

## **MATERIALS AND METHODS**

### **Source of *V. cordifolia***

*V. cordifolia*

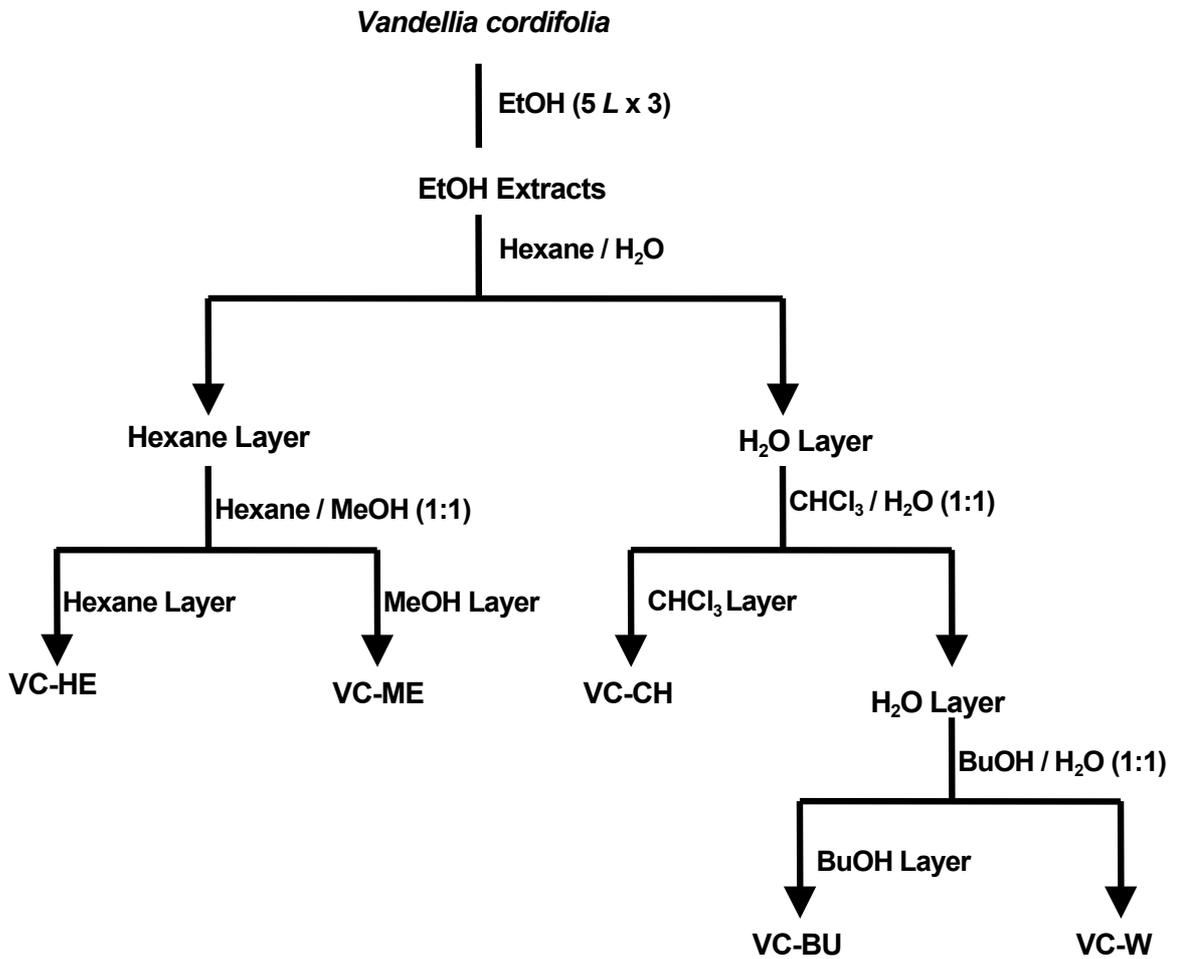
### **Preparation of *V. cordifolia* Crude Extracts**

*V. cordifolia*

*L* ×

*cordifolia*

*V.*



**The Growth Inhibition Assay**

*V. cordifolia*

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## Cell Cycle Analysis

*V. cordifolia*

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μ

## Statistical Analysis

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# RESULTS

## Fractionation of Crude Extracts of *V. cordifolia*

*V. cordifolia*

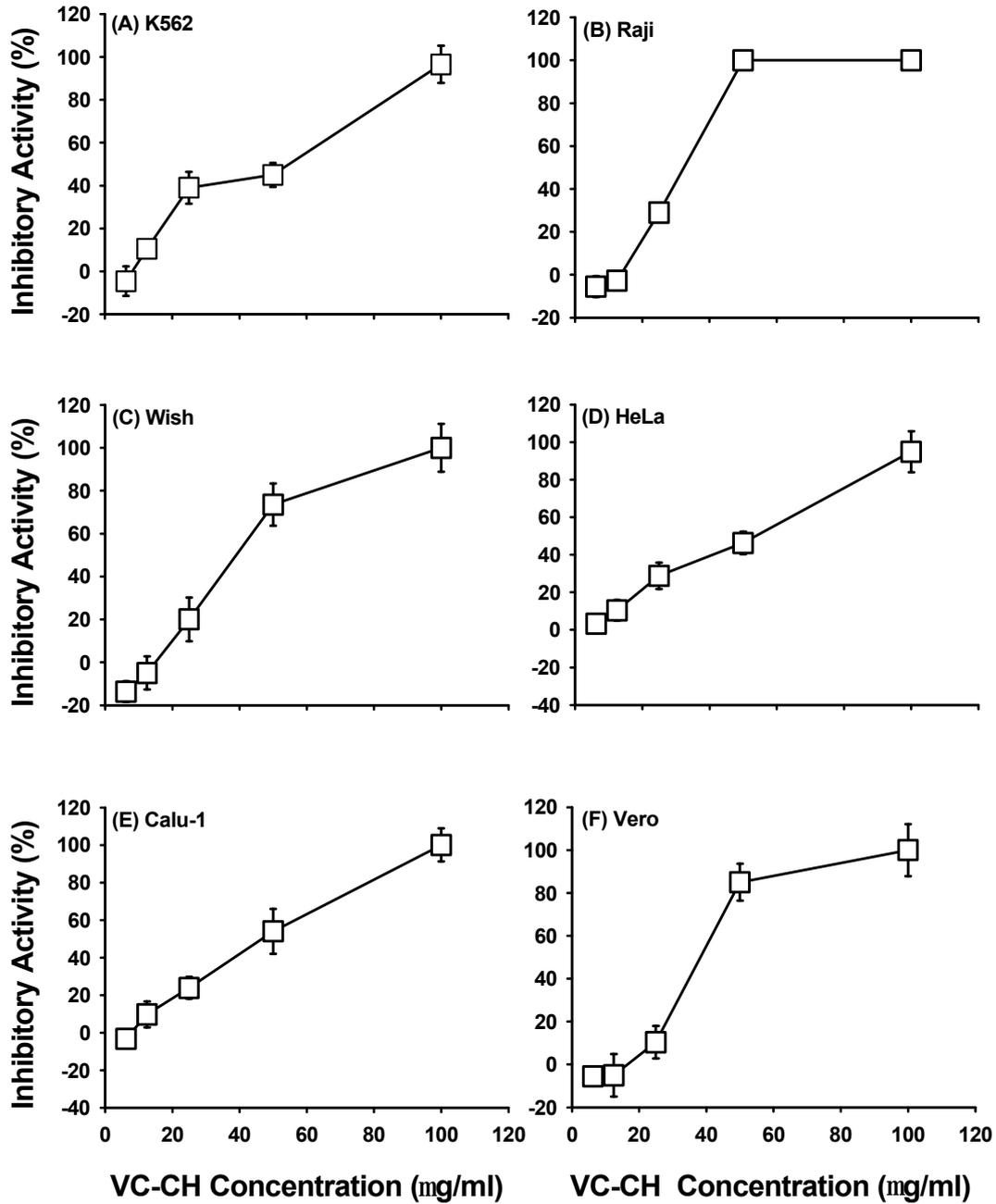
**Table 1.** Five fractions were separated from *V. cordifolia* ethanolic extracts

<i>Fraction</i>	<i>Partitioned Solvent (v:v)</i>	<i>Yield (%)</i>	<i>Weight (gm)</i>



**Fig. 1. Effects of five fractions from *V. cordifolia* on various tumor cells proliferation.**

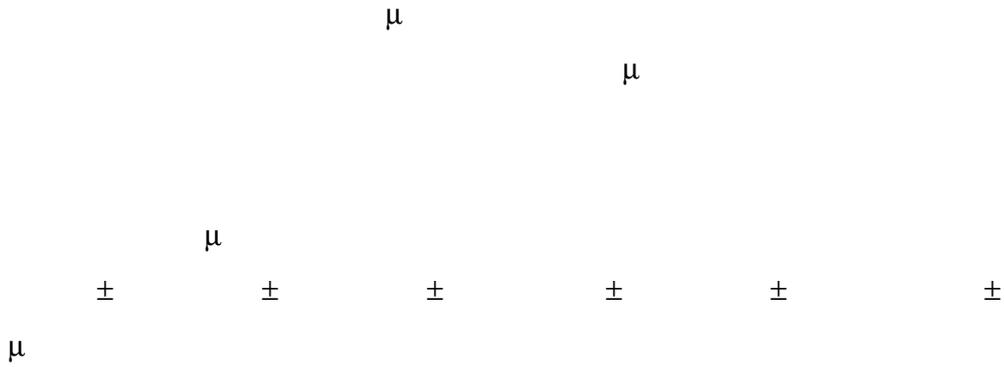
The tumor cells (A) K562, (B) Raji, (C) Wish, (D) HeLa, (E) Calu-1, and (F) Vero ( $1 \times 10^5$ /well) were cultured with or without 100 mg/mL of 5 fractions (VC-HE, VC-ME, VC-CH, VC-BU, and VC-W) separated from *V. cordifolia* for 3 days, respectively. The proliferation of cells were detected by  $^3\text{H}$ -thymidine uptake (1 mCi/well). After a 16 hr incubation, the cells were harvested by an automatic harvester then radioactivity was measured by a scintillation counting. Each bar represents the mean  $\pm$  S.D. of three independent experiments.



**Fig. 2.** VC-CH suppressed various tumor cells proliferation in a concentration dependent manner. The tumor cells (A) K562, (B) Raji, (C) Wish, (D) HeLa, (E) Calu-1, and (F) Vero ( $1 \times 10^5$ /well) were cultured with or without various concentration of VC-CH for 3 days. The proliferation of cells were detected by  $^3\text{H}$ -thymidine uptake (1 mCi/well). After a 16 hr incubation, the cells were harvested by an automatic harvester then radioactivity was measured by a scintillation counting. Each point represents the mean  $\pm$  S.D. of three independent experiments.

## Effects of Five Extracted Fractions from *V. cordifolia* on Tumor Cell Proliferation

*V. cordifolia*

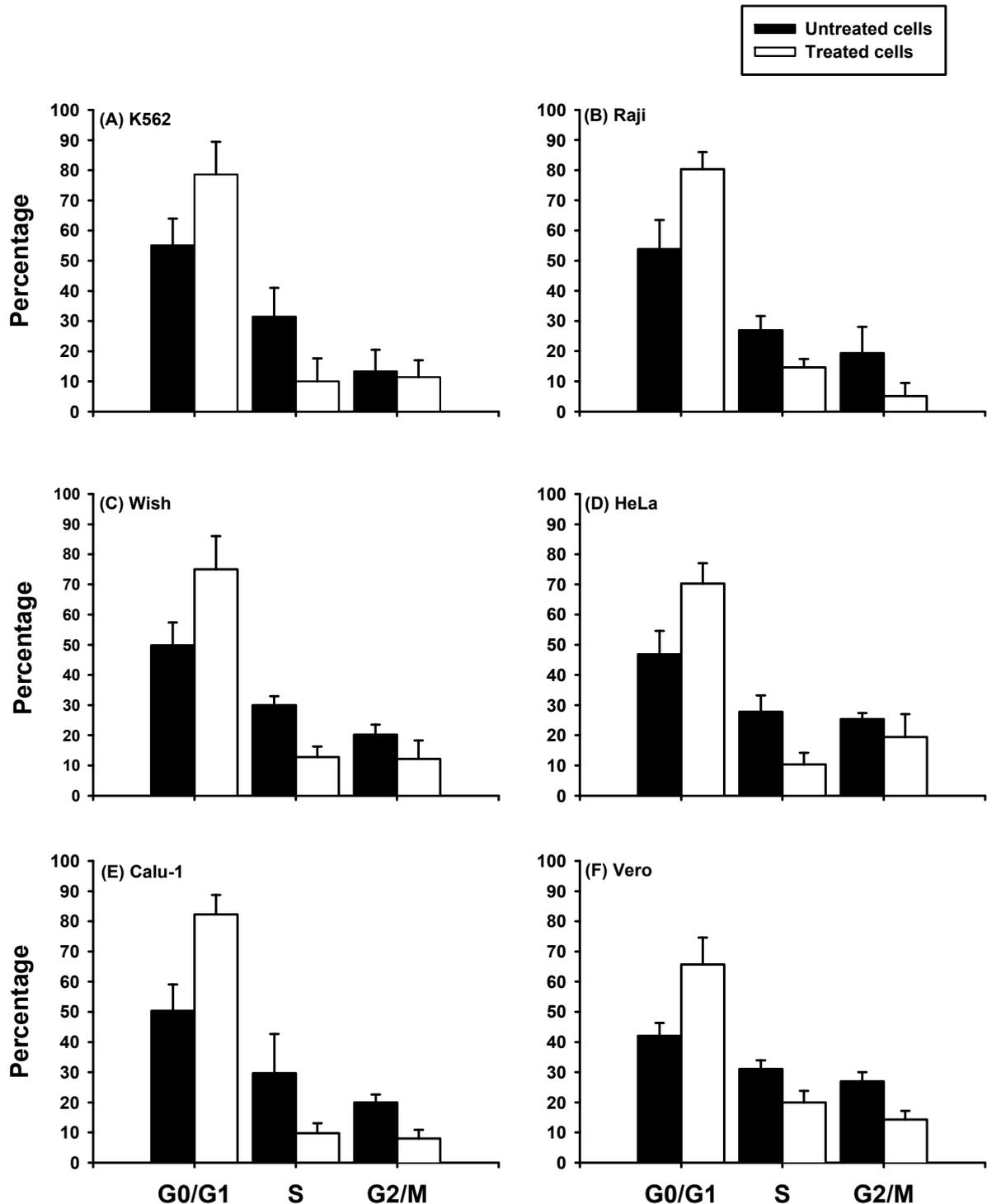


## Effects of VC-CH on the Cell Cycle

$\mu$

**Table 2.  $IC_{50}$  of VC-CH on various tumor cells proliferation**

	$\mu$
	$\pm$



**Fig. 3.** Ability of VC-CH to block various tumor cells progression into the S phase of the cell cycle. (A) K562, (B) Raji, (C) Wish, (D) HeLa, (E) Calu-1, and (F) Vero tumor cells ( $2 \times 10^6$ ) were cultured with or without 100 mg/mL of VC-CH for 24 hr. For determining the cell counts that entered into the cell cycle, the DNA content of the cells was analyzed by flow cytometry as described in *Materials and Methods*. A computer program was then used to determine the percentage of various tumor cells in the G0/G1, S, and G2/M phases. Each bar is the mean  $\pm$  S.D. of three independent experiments.

## DISCUSSION

*V. cordifolia*

*V. cordifolia*

*Panax ginseng*

μ

μ

*Vandellia cordifolia*

*V. cordifolia*

*V. cordifolia*

*in vitro*

*in vivo*

*in vivo*

## ACKNOWLEDGEMENT

## REFERENCES

*sinensis*

*Cordyceps*

*Saposhnikoave divaricata*

*Cordyceps sinensis*

*Cordyceps sinensis*

*Piper*

*kadsura*

*Vandellia cordifolia*

*Agaricus blazei*

*Polygonum hypoleucum Ohwi*

*Panax ginseng*

# 心葉母草抽出物對於腫瘤細胞 增生之抑制作用

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心葉母草 (*Vandellia cordifolia*) 在傳統中醫上用於治療發炎現象與癌症，在此研究中我們將之用於抗腫瘤活性分析。實驗中，我們由心葉母草乙醇抽出物中分離出五組成份，分別為、 、 、 與 ，並將之各別加入、 、 、 、 、 ，與 等腫瘤細胞培養中，以放射線氬 胸嘧啶吸收法 ( ) 分析腫瘤細胞增生情形。結果顯示， 能夠明顯抑制各腫瘤細胞增生並隨著藥物濃度增加而活性漸增，它對於抑制、 、 、 、 、 、 及 細胞增生百分之五十作用濃度 ( ) 分別為  $\pm$ 、  $\pm$ 、  $\pm$ 、  $\pm$ 、  $\pm$  及  $\pm$   $\mu$ 。此外，細胞週期分析結果顯示， 可阻斷各腫瘤細胞株細胞週期進行於 階段轉換至 階段。因此我們認為， 可藉由阻斷、 、 、 、 、 及 等腫瘤細胞其細胞週期進行而抑制了各腫瘤細胞之增生，而在心葉母草中可能含有腫瘤細胞生長抑制因子。

關鍵詞：心葉母草，腫瘤細胞，增生，細胞週期進行。