

南瓜樟芝深層發酵飲品

Antrodia cinnamomea submerged fermentation drink made in pumpkin substrate

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牛樟芝是一種知名的藥用真菌菇類，旨在保護肝功能，有很多研究論文報導，牛樟芝的生理活性成分包括多醣體，三萜類，腺苷，超氧化物歧化酶，麥角甾醇，免疫蛋白和微量元素。南瓜中含有豐富的糖和澱粉，除了富含維生素A、B、C，礦物質和胡蘿蔔素等外，可有效控制高血壓，糖尿病和肝臟疾病，提高人體免疫力。利用皿培牛樟芝確可得到相當量的三萜類，而多醣體含量自製培養基之白牛樟高於市售培養基，在抗氧化力比較亦如此。另外研究發現皿培培養基添加重要元素P的確可增加牛樟芝之指標成份如Antcin A、B、H、DeSA和 DeEA等含量。在抗肝癌細胞試驗發現皿培牛樟芝在62.5ug/ml即有約50%抑制效果，而野生紅牛樟濃度高於125ug/ml以上，有超過80%抑制效果。利用南瓜深層發酵白牛樟芝菌種，本技術研發產品乃結合南瓜及牛樟之優異特色培養基開發為南瓜樟芝飲料對人類之肝臟保護及促進人類健康有相當大的產業發展潛力。

Antrodia cinnamomea (AC) is a well-known fungus that is believed to protect liver function. There are many research papers reported that the physiological active ingredients of *Antrodia cinnamomea* include polysaccharides, triterpenes, adenosine, superoxide dismutase, ergosterol, immune protein, and trace elements. Pumpkin is rich in sugars and starch, in addition to rich in vitamins A, B, C, minerals and carotene, etc., can effectively control high blood pressure, diabetes and liver disease and improve human immunity. The antioxidant effects (DPPH) of white and red AC in the Petri-dish culture were greater than that of Basswood white AC (culture growth only for 1 month). In addition, it was found that addition of P element to the culture medium increased the contents of DeEA, DeSA, antcin B and antcin H. Anti-B cancer cell tests showed that approximately 50% inhibition was achieved at 62.5 $\mu\text{g}/\text{mL}$. The wild-type AC fruiting bodies extract concentration was higher than 125 $\mu\text{g}/\text{mL}$, and the anti-B cancer cell effect was over 80%. This invention study demonstrated the development of a suitable culture medium for culture white *Antrodia cinnamomea* products that confer protective effects against B liver cancer cells, which has potential applications in the healthcare industry.



圖 1. 白牛樟芝之南瓜深層發酵
Fig. 1. White *Antrodia cinnamomea* subculture in pumpkin medium



圖 2. 白牛樟芝南瓜深層發酵 12 天後之成果
Fig. 2. Obtained pumpkin white *Antrodia cinnamomea* subculture drink of the 12 days fermentation.

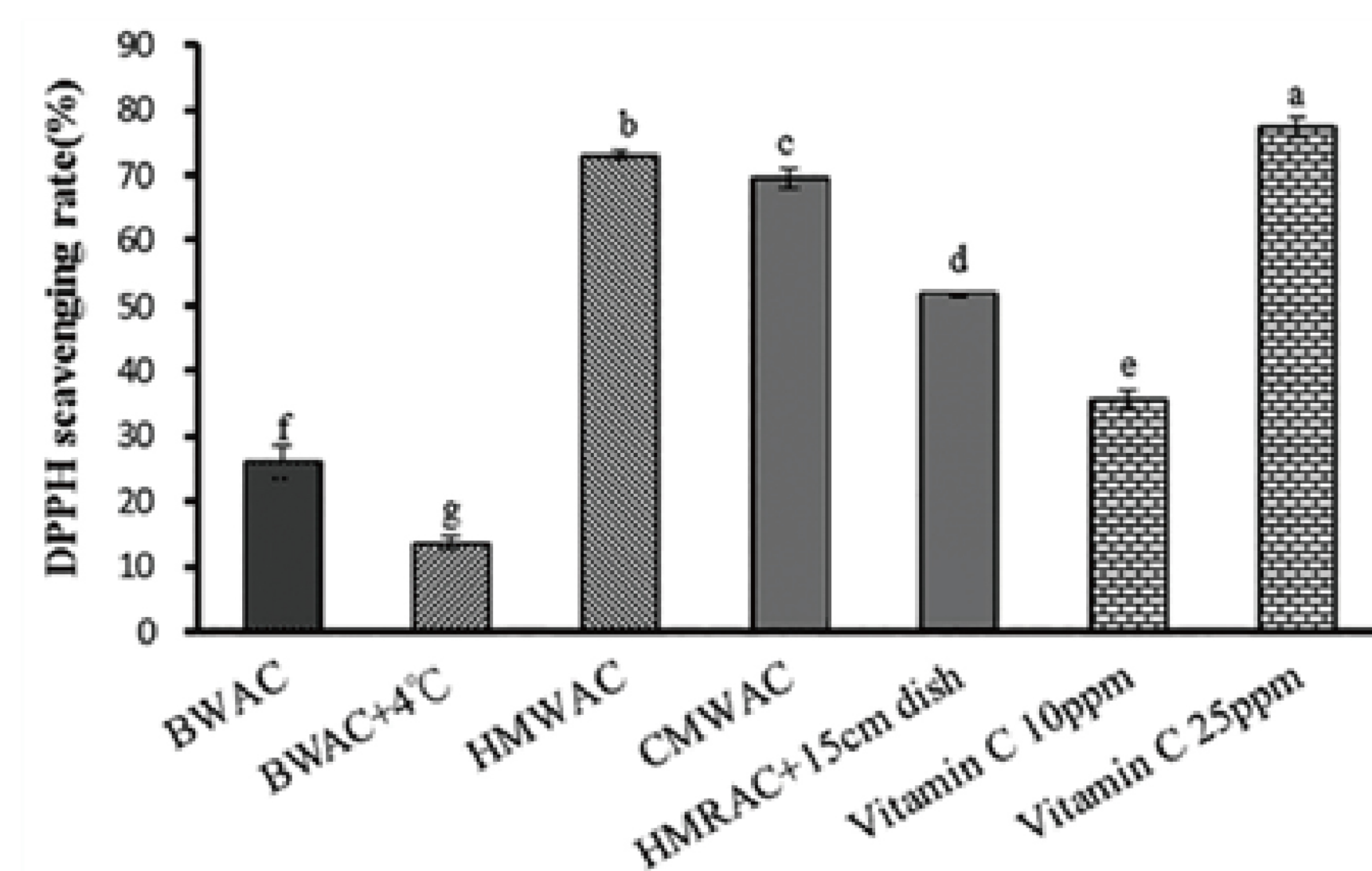


圖 3. 不同培育方式紅、白牛樟萃取物抗氧化力比較
Fig. 3. Comparison of antioxidant activities of different extracts of *Antrodia cinnamomea*.

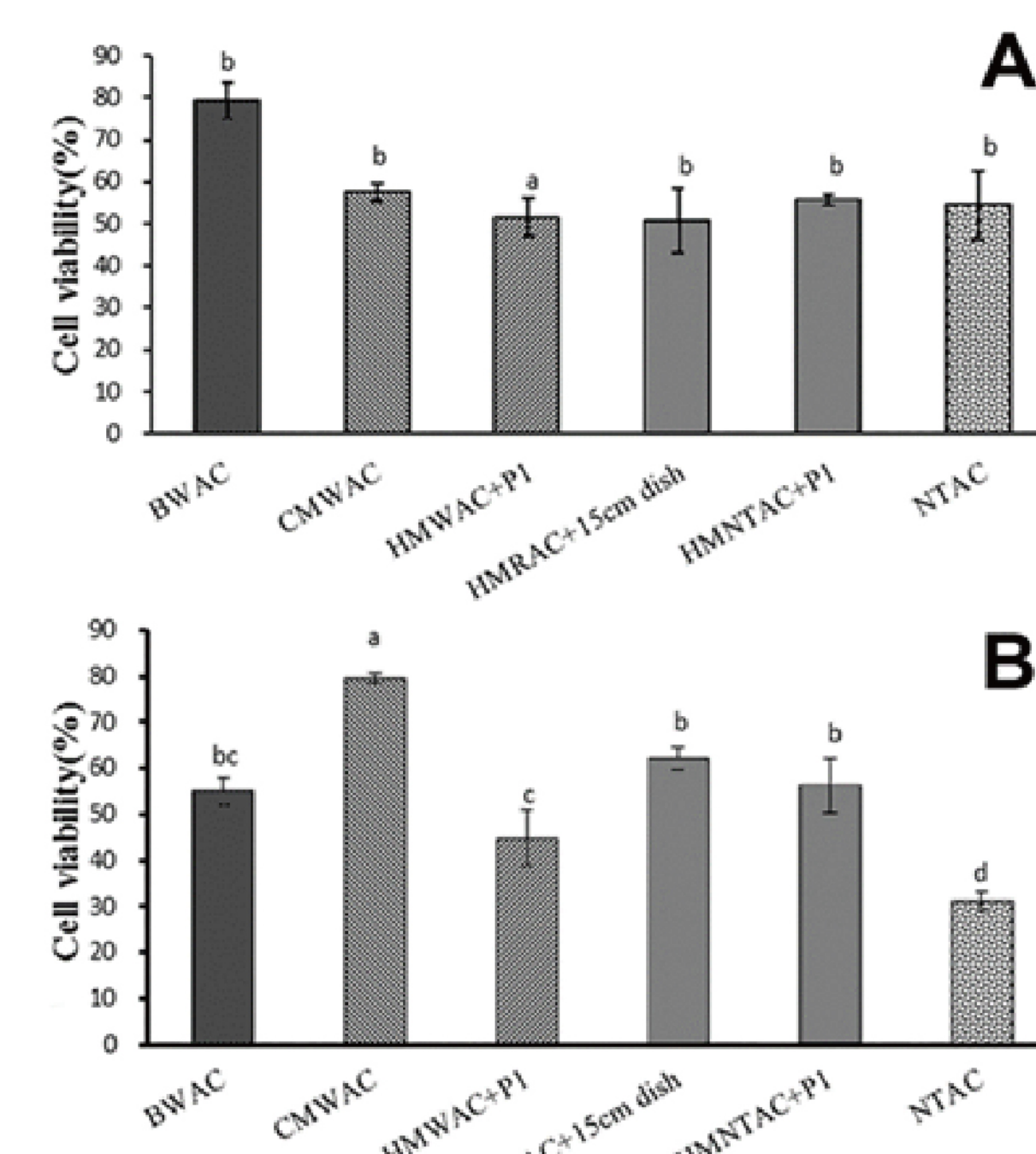


圖 4. 不同培育方式紅、白牛樟萃取物對人類肝癌細胞之抑制效果比較
Fig. 4. Comparison of cell viability (%) of human liver HepG2 cells incubated with (A) 62.5 $\mu\text{g}/\text{mL}$ and (B) 125 $\mu\text{g}/\text{mL}$ of different extracts of *A. cinnamomea* for three days.

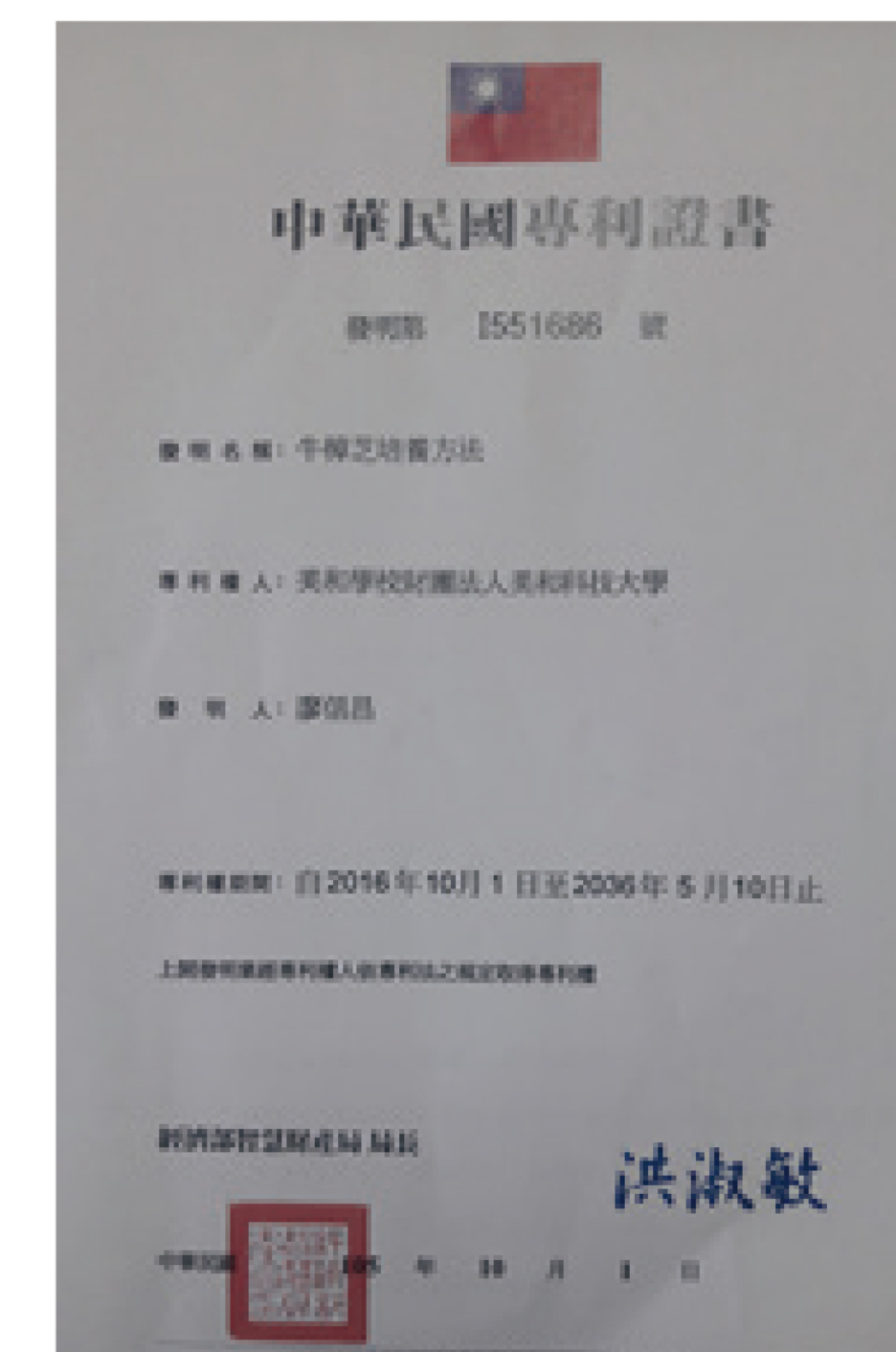


圖 5. 本研發技術已取得中華民國發明專利 1551686 號
Fig 5. This invention has obtained Taiwan patent 1551686.