

# 1 高靜水壓輔助殺菁對於茶葉成分及抗氧化活性之影響

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## 4 大綱

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## 10 摘要

11 茶葉嫩芽加工處理後沖泡出的茶湯是全球僅次於水的第二大最受歡迎的非酒  
12 精性飲料。將茶葉進行不同程度之發酵加工可製成常見未發酵的綠茶、半發酵的烏  
13 龍茶及全發酵的紅茶。茶葉中富含的兒茶素 (Catechin)、茶胺酸 (Theanine) 等成分  
14 具有多種健康功效。其中兒茶素會因為加工過程中酵素反應氧化成茶黃素、茶紅素  
15 及茶褐素等氧化產物；茶胺酸則會因環境的光和高溫造成熱降解，在傳統熱加工過  
16 程中會對茶葉生物活性成分的含量有所影響。因此，本次研究透過高靜水壓 (High  
17 Hydrostatic Pressure, HHP) 殺菁處理 (200、400 和 600 MPa)，並進行加速性發酵試  
18 驗 3 小時後製備出茶葉粉末。比較茶葉粉末及沖泡液之  $L^*$ 、 $a^*$ 、 $b^*$  及  $\Delta E^*$  顏色  
19 變化，並比較生物活性成分及整體抗氧化能力之影響。結果顯示與控制組及熱處理  
20 (Thermal Process, TP) 組別相比，HHP 處理的新鮮茶葉皆能有效保留住茶葉原本的  
21 顏色指標，並且在 3 小時發酵過後與控制組相比能減少最多 19.5% 之總色差變化。  
22 比較茶葉主要兒茶素 epigallocatechin gallate (EGCG) 含量，與控制組相比後發現  
23 HHP (600MPa) 組別保留程度 (99.67%) 顯著高於 TP 組別 (78.26%)，在發酵 3 小  
24 時後與未殺菁組別相比能保留住 6.4 倍的 EGCG 含量。在抗氧化能力 Folin-Ciocalteu、  
25 DPPH 自由基清除與 ABTS 檢測試驗中皆發現在發酵 3 小時後 HHP 組別皆高於未  
26 殺菁組別，並與 TP 組別有著相近的抗氧化能力。綜上所述，HHP (600MPa) 在綠  
27 茶茶葉製程中能有效保留住整體茶葉原本之顏色，並保留未發酵茶葉之 31.8% 之  
28 EGCG 含量，且具有整體與 TP 組別相近的抗氧化能力，表明高靜水壓具有能應用  
29 於綠茶茶葉之非熱加工處理之潛力，提高綠茶茶葉整體產品品質。

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