

+國立屏東科技大學食品科學系碩/博士班

題目:

中文題目：傳統熱加工與冷壓芝麻油之品質比較

英文題目：**The comparison of sesame oil quality between traditional heating process and cold press**

研究生專題報告書面摘要

指導教授：吳明昌博士、吳美莉

博士 吳明昌

報告同學：黃承智

學號：M10436026

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指導教授簽章：

摘要

油脂氧化已被公認為影響食用油脂品質的主要原因，因為這會造成油脂在化學上、感官上以及營養上劣變的原因。芝麻油對於抵抗油脂氧化酸敗有顯著性的表現，直至今日，其超級抗氧化能力的原因仍尚未明朗。在本實驗中，冷壓油係以乙醇為溶劑萃取芝麻，在前處理時，本實驗以不同濃度的乙醇(10、30、50、70、95%)來測試其萃取效果。然後，為了確認芝麻油中抗氧化劑在油中的貢獻，進行了以下的實驗操作，包括了 DPPH 自由基清除能力測定、總酚測定以及維生素 E 測定。同時，與另一組芝麻以烘焙、壓榨所得的傳統芝麻油做比較。結果顯示，隨著乙醇下降，總酚以及 DPPH 自由基清除能力測定也隨著下降；然而 95% 以萃取卻得到最好的總類黃酮及 ABTS 總抗氧化能力。芝麻中最具功效性的芝麻素，也發現經由 30% 乙醇萃取結果比傳統熱加工方式有顯著性的差異。因此，冷壓芝麻油確可以保留芝麻較多的營養元素，但由梅納反應所產生的香氣及色澤會較少。

關鍵字：油脂氧化、冷壓油、DPPH 自由基清除能力測定、總酚測定

Abstract

Lipid oxidation has been recognized as the major problem affecting the quality of edible oils, as it is the cause of important deteriorative changes in their chemical, sensory and nutritional properties. Sesame oil is known to be significantly resistant to oxidative rancidity, the reasons for this superior oxidative stability remain unclear till now. In this experiment, ethanol will be used as the solvent to extract sesame oil, which is regarded as cold-press oils. Different concentrations of ethanol (10、30、50、70、95%) will be used to survey the extraction efficiency, in order to confirm the contributions of the antioxidants, DPPH radical scavenging activity, total phenolic content and tocopherol content will be carried. At the same time, the traditional sesame oil which was processed from roasting and squeezing treatment was used as the control one, the result showed the lower ethanol concentration used, the lower DPPH radical scavenging activity and total phenolic content was. The extraction with 95% ethanol got the higher total flavonoid content and ABTS scavenging activity. Sesamin was regarded as the most active compound in sesame, the content of sesamin with 30% ethanol extraction had significantly different than traditional heating process. Therefore, the cold-press oil may contain more nutrients, while the aroma and color came from Maillard reaction should be less.

Keywords: Lipid oxidation, cold-press oils, DPPH radical scavenging activity, total phenolic content

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