

# The Influence of Different Processing Condition and Dehydration Type on Antioxidative Properties of Carrot

施嘉禾、顏裕鴻

E-mail: 9300281@mail.dyu.edu.tw

## ABSTRACT

In our study, Chantenay carrots were used as the materials, and processed by freeze and hot air dried. The anti-oxidative components in these dried carrot samples, before or after storage, were extracted by methanol, and compared the anti-oxidative activity of these different processing methanolic extracts. In the reducing activity test, we found that the reductive activity of all carrot samples were higher than BHA and  $\alpha$ -tocopherol, however, the highest reductive activity are belong to the freeze dried samples. In the analysis of DPPH free radical scavenging activity, data showed us that the methanolic extracts from freeze or hot air dried, when added with antioxidant and glucose, whether they stored or not, had the same DPPH free radical scavenging activity with those of BHA and  $\alpha$ -tocopherol. We also analyzed the ferrous ion chelating activity of these above methanolic extracts, the results indicated that all the dried carrot samples had the strong ferrous ion chelating activity except for BHA and  $\alpha$ -tocopherol, and we also found that there had no effect on the chelating ability when added with antioxidant and glucose. In the quantitative analysis of anti-oxidative components in these dried carrot samples, the freeze dried ones had the highest content of ascorbic acid; most of the dried carrots contained a low level of flavonoids, but only carrots processed by hot air dried and not stored had a slightly higher level of flavonoids. In the total phenolics content analysis, either the freeze or hot air dried carrot samples, when they added with antioxidant and glucose, could maintain more total phenolics than others. After storage, the freeze dried carrot samples contained less content of carotene than the hot air dried ones.

Keywords : Carrot, Anti-oxidative properties, freeze dried, hot air dried, Reductive activity, DPPH free radical scavenging activity, Ferrous ion chelating activity.

## Table of Contents

壹、前言	1	貳、文獻回顧	3
一、冷凍乾燥	3	二、熱風乾燥	4
二、脂質氧化	5	三、抗氧化劑	6
三、胡蘿蔔之性質與成份	19	四、研究架構	21
四、方法	23	參、材料與方法	23
一、實驗材料	23	二、藥品	23
二、實驗儀器	23	三、實驗方法	25
三、結果與討論	25	四、實驗方法	30
四、結論	47	五、結論	30
五、參考文獻	47	參、材料與方法	23
		二、藥品	23
		三、實驗方法	25
		四、實驗方法	30
		五、結論	30
		參、材料與方法	23
		二、藥品	23
		三、實驗方法	25
		四、實驗方法	30
		五、結論	30

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