



اَللّٰهُمَّ صَلِّ وَسَلِّمْ عَلٰى  
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TEKNOLOGI  
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**EFFECTS OF PRECOOLING TREATMENTS OF *Cosmos caudatus* (ULAM RAJA) METHANOLIC EXTRACT ON TOTAL FLAVONOID CONTENT AND FREE RADICAL SCAVENGING ACTIVITY.**

**By**

**NOOR SHAHIMAH BINTI MOHD SHAH**

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## DECLARATION

I hereby declare that this thesis is my original work and has not been submitted previously or currently for any other degree at UiTM or any other institutions.

  
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Noor Shahimah binti Mohd Shah

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## ABSTRACT

*Cosmos caudatus* (ulam raja) is one of the herbs that are consumed by several communities in Malaysia especially the Malay community that acts as a natural antioxidant. Many studies had been conducted in order to determine antioxidant activities of this plant. However, there still lacking of information regarding the effect of pre-cooling treatment in the total flavonoid content and antioxidant activities of *C. caudatus*. The objective of this study is to determine the effect of pre-cooling treatment on the total flavonoid content and antioxidant activity of *C. caudatus*. A methanolic extract of *C. caudatus* was analysed using aluminium chloride colorimetric assay for determination of total flavonoid content (TFC) and 1, 1-diphenyl-2-picrylhydrazyl free radical scavenging assay (DPPH) was used to determine the antioxidant activity. The result showed the total flavonoid content at temperature -20°C, 4°C and 25°C were 326.07±0.40, 299.47±1.15 and 208.03±0.40 mg QE/100 g dry weight respectively. There were significant differences ( $P < 0.05$ ) between the temperatures at -20°C, 4°C and 25°C for the total flavonoid contents. While the antioxidant activity at temperature -20°C, 4°C and 25°C were 77.17±0.03%, 84.21±0.12% and 90.58±0.00% respectively. There were significant differences ( $P < 0.05$ ) between the temperatures at -20°C, 4°C and 25°C for the antioxidant activities. As the conclusion freezing and refrigeration temperature does not significantly affect antioxidant activity. Total flavonoid content is not the main contributor of the antioxidant activity in *C. caudatus* as reflected by the negative correlation result ( $R^2 = -0.994$ ) between the two suggestive of other components in *C. caudatus* contributing to the high antioxidant activity.