Study on Antioxidant Activities of Methanol Extracts of Kyoho Grape (Vitis vinifera) with Different Maturity Grape

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The present study to assesses and compare the antioxidant properties of the methanol extracts of three growth stages, the first and second stage and the mature stage of lyophilized Kyoho grapes. The antioxidant potential of the extracts was assessed by employing different in vitro radical scavenging activities such as DPPH, ABTS free radicals and H₂O₂. The ability of reducing power was also evaluated. Results indicated the highest total phenolic content in methanol extracts was observed in the first growth stage of grape (142.043 mg GAE/g dry extracts), followed by the second stage (68.121 mg GAE/g dry extracts) and showed the lowest content (11.615 mg GAE/g dry extracts) in mature grapes. Total flavonoid content in methanol extracts from three growth stages of grapes showed the same trend as phenolics. It showed 17.802 mg CTE/g dry extracts, 15.578 mg CTE/g dry extracts, and 2.431 mg CTE/g dry extracts, respectively. However, anthocyanin content increased significantly with grape maturity. The anthocyanin was the highest in the mature grape (1.962 μmole/g dry extracts), followed by the second growth stage of the grapes (0.853 μmole/g dry extracts) and the lowest in the first growth stage of grapes (0.221 μmole/g dry extracts). The first growth stage of grapes exhibited the highest antioxidant activity in all scavenging assays except for H₂O₂ scavenging assay. The antioxidant activity positively correlates with phenolic and flavonoid content. These results demonstrated that the methanol extracts in early growth stages of lyophilized grapes have excellent phytochemical content and antioxidant activities, indicating their potential applications for making functional food products.

Key words: Kyoho grape, Total phenolic content, Free radical scavenging activity, Antioxidant.