Chatchainon Pilathong 2012: Effects of Cultivar and Pressing Method on Antioxidant Capacity and Phytochemicals in Grape Juice from Six Cultivars in Thailand. Master of Science (Food Science), Major Field: Food Science, Department of Food Science and Technology. Thesis Advisor: Mrs. Sasitorn Tongchitpakdee, Ph.D. 108 pages.

The objectives of this study were to investigat the effects of cultivar and processing method on the antioxidant capacity and phytochemicals of grape juice obtained from wine grapes (cv. Shiraz, cv. Tempranillo and cv. Cabernet sauvignon) and *table grape* (cv. Black rose, cv. Black queen and cv. Black opor). Five pressing methods, including hot press non enzyme (HPN), cold press non enzyme (CPN), hot press enzyme (HPE), cold press enzyme (CPE) and control, were used in this study. Juice yield, juice color, total phenolic content, total monomeric anthocyanin contents, total proanthocyanidin and antioxidant capacity (1, 1-diphenyl-2-picryhydrazyl radical (DPPH) were also evaluated. Malvidin-3-glucoside and resveratrol were determined using High Performance Liquid Chromatography (HPLC). The results showed that juice yield ranged from 65.6 to 82.4 %. Black opor juice with HPE treatment has the highest juice yield. In general, heating increased average juice yield approximately 2% . Heating also increased juice color. Total phenolic content varied from 310.3 to 1,490.5 mg gallic acid equivalents/L. The DPPH radical-scavenging capacity of grape juice ranged from 82.0 to 1,474.0 mg vitamin C equivalents/L. Tempranillo juice treated with HPE and HPN had the total phenolic content and DPPH radical scavenging capacity. Cabernet sauvignon juice treated with HPN had the highest total monomeric anthocyanin (384.9 mg malvidin-3-glucoside/L). Tempranillo juice also had the highest total proanthocyanidin highest (2,860.7 mg catechin equivalents/L). HPLC analysis showed that Cabernet sauvignon juice treated with HPN contained the highest amount of malvidin-3-glucoside (291mg/L), while Syrah treated with HPE contained the highest amount of resveratrol (4.2mg/L).

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