Charuwan Rattanasakultham 2012: Effects of Cultivars and Drying on Phenolic Compounds, Antioxidant Capacity and Volatile Compounds of Fig Fruit. Master of Science (Food Science), Major Field: Food Science, Department of Food Science and Technology. Thesis Advisor: Assistant Professor Wannee Jirapakkul, Ph.D. 225 pages.

Effect of cultivars (cv. Black Genoa, Black Mission, Brown Turkey, Hourai and Kadota) and drying methods (freeze drying and hot air oven) on phenolic compounds, antioxidant capacity and volatile compounds of fig fruit were studied. The results showed that Black Genoa cultivar had the highest amounts of total phenolic, total flavonoid, total monomeric anthocyanin contents, antioxidant capacity (DPPH and ABTS assay), quercetin-3-rutinoside, cyanidin-3-glucoside and cyanidin-3-rutinoside. Black Mission cultivar had the highest content of chlorogenic acid but this compound was not found in Hourai and Kadota cultivars. Cyanidin-3-glucoside was not found in Brown Turkey and Kadota cultivars. Freeze drying method caused the decrease of total phenolic, total flavonoid, total monomeric anthocyanin contents, antioxidant capacity (DPPH and ABTS assay) and quercetin-3-rutinoside but chlorogenic acid, cyanidin-3-glucoside and cyanidin-3-rutinoside were increased in freeze dried fig when compared with the fresh one. Oven drying method caused higher reduction in total phenolic, total flavonoid, total monomeric anthocyanin contents, antioxidant capacity (DPPH and ABTS assay), quercetin-3-rutinoside and cyanidin-3-rutinoside than freeze drying method did. For volatile compounds, Black Genoa cultivar had the highest of volatile compounds content. Majority of these volatile compounds were hydrocarbons and aldehydes groups. Key aroma volatile compounds (with aroma active value > 1) were *l*-limonene, octanal, nonanal, *(E)*-2-nonenal and *(E,E)*-2,4-nonadienal. Freeze dried and oven dried fig had decrease of volatile compounds when compared with fresh fig. Moreover, ethers group (1,8-cineole) was not found in both dried figs. However, lactones, furans and sulphur compound groups were detected only in oven dried fig. Results of this study suggested that cultivars and drying methods had effect on phenolic compounds, antioxidant capacity and volatile compounds of fig fruit.

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