Nisakorn Kanjanakesorn 2013: Assessment of Genetic Purity and Variation of Waxy Corn (*Zea mays* L. *ceratina*) using DNA Markers. Master of Science (Agronomy), Major Field: Agronomy, Department of Agronomy. Thesis Advisor: Assistant Professor Jutamas Romkaew, Ph.D. 82 pages.

Assessment of genetic purity of 6 waxy corn varieties; Maxone, Bigwhite-852, Kaimook-49, Tabtim Siam, Ratchata 1 and Neawsawan were studied using SSR markers with bnlg 1012, bnlg 1017, bnlg 1055, bnlg 1118, bnlg 1188 and umc 1086. All of 6 primers exhibited similar banding pattern in each waxy corn variety. It showed 22 total DNA bands and band size 100-500 base pair. The primer bnlg 1188 had a potential to separate Maxone from other waxy corn varieties. The principal component analysis (PCA) based on morphology data gave 88.38 percent explained by PC1 and PC2. AFLP marker with 3 pairs of primers; E-AGG:M-CAC, E-AGC: M-CAG and E-AGG:M-CAG were used to evaluate genetic variation of waxy corn. Three primers amplified 31 polymorphic bands from 74 total DNA representing 41.89 percent. The relationship of 6 waxy corn varieties was analyzed using SSR and AFLP markers. It was found that Dice's similarity coefficient ranged from 0.51 to 0.71. All 6 waxy corn varieties were clustered into 2 groups based on Unweighted Pair Group Method with Arithmetic mean (UPGMA) clustering method. The result revealed that waxy corn varieties as Ratchata 1 were clustered together with Kaimook-49 while, Tabtim Siam, Neawsawan, Maxone and Bigwhite-852 were clustered in the same group.

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