Dog Parentage Testing in Siberian Husky and Pomeranian using Microsatellite-based DNA Fingerprint

Benjawan Tonjai[1], Watcharasak Jomtun[1], Korakot Nganvongpanit[1], Waranee Pradit[2] and Siriwadee Chomdej[2*]

[1]Department of Veterinary Biomedical Sciences and Veterinary Public Health, Faculty of Veterinary Medicine, Chiang Mai University

[2]Department of Biology, Faculty of Science, Chiang Mai University

Abstract This study was aimed to study the use of microsatellite DNA to determine the dog parentage testing in Siberian Husky and Pomeranian by using four microsatellite markers RYR1, MEP1A, PON3 and APP1 that located on chromosome 1, 12, 14 and 31, respectively. Two families of Siberian Husky (8 dogs) and 3 families of Pomeranian were subjected to collect the blood sample. DNA was isolated from the blood using phenol-chloroform method and four primer pairs of microsatellites were selected to amplify the DNA by Polymerase Chain Reaction (PCR). The PCR products were evaluated in 5% polyacrylamide gel electrophoresis. The results revealed that all of four microsatellite primers could be used to determine the dog parentage in Siberian Husky for 100 percentage. Microsatellite primers RYR1, MEP1A, PON3 and APP1 can used to determine the dog parentage in Pomeranian for 100 (3/3), 100 (3/3), 66.67 (2/3) and 66.67 (2/3) percentage, respectively. Consequently, dog parentage testing in Siberian Husky and Pomeranian breed can revealed by four microsatellite primers.

Keywords: microsatellite, DNA fingerprint, Siberian Husky, Pomeranian