ABSTRACT

This research was aimed to study genotypic diversity of myogenin gene, and to investigate influence of the genotypes on carcass quality and meat quality in fattening pig. Blood samples of the two hundred and forty terminal crossbreds in a commercial farm, with slaughtering weight of 76 to 121 kg were collected. The breeds of Duroc or Newline were used as sire lines mean while the dam line was the crossbred, Large White and Landrace. All pigs were slaughtered at an international standard slaughterhouse for studying the carcass and meat qualities traits.

To study the genotypic diversity of the gene, the DNA from the buffy coat was extracted and it was digested by MspI restriction endonuclease enzyme. PCR technique was used to increase the amount of fragments of the gene at the promoter site. The result showed that two patterns of DNA were detected: the first one was un-digested DNA, which the length of base size was 364 bp, and the second was the digested DNA, which had 2 fragments with different base size lengths, 260 and 104 bp. Therefore, it could be identified the polymorphism of the gene into 3 genotypes, which as following: homozygous AA had the DNA fragment of 364 bp, heterozygous AB, consisted of the fragments 364, 260 and 104 bp, and homozygous BB consisted of the 260 and 104 bp fragments, respectively. The frequency percentage of genotype AA, AB, and BB were 18.45, 55.36 and 26.18, respectively and the frequency of the alleles A and B were 0.461 and 0.539, respectively.
For studying the influence of the myogenin genotypes on the carcass quality, it was found that the genotype had no significantly influenced on all most of the studied traits, except the trait of loin eye area (LEA). The pigs who had genotype AA and BB showed the higher LEA than those who had genotype AB, 54.39, 52.91 and 48.88 cm², respectively (p≤0.01). In the case of the meat quality, the result showed that the gene had significantly effected to the meat color especially, on the L* and b* values (p ≤ 0.05). The L* and b* values of the pigs with had BB and AA genotypes were higher than those of the pigs with had AB genotype, 51.04, 49.94 and 49.09 for the L* value and 1.67 1.28 and 1.11 for the b* value, respectively. The myogenin gene had no significantly influenced on the traits of pH, drip loss and most of the muscle fiber traits, except the percentage of white fiber, which the gene showed significantly effected (p≤0.05). The amount of the trait of the pig with had BB and AA genotypes were higher than those of the AB genotype, 67.69, 66.80 and 64.18 %, respectively.