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Preliminary Comparative Physiological and Biochemical Study of Five Different Goat Breeds Inhabiting Saudi Arabia

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ABSTRACT

Three arbitrary chosen enzymes were examined by native-polyacrylamide gel electrophoresis to investigate physiological and genetic variations among five different goat breeds inhabiting Saudi Arabia. The goat breeds were Pakistani, Tihami, Syrian, Masri and Aardi while the investigated enzymes were alkaline phosphatase (*ALP*), malate dehydrogenase (*Mdh*) and malic enzyme (*ME*). Six polymorphic loci with six monomeric alleles have been recorded in all studied breeds. The second locus of *ME* was characteristic of Syrian breed where it showed dimeric alleles. The similarity matrix that has been calculated according to the number of sharing bands indicated that these breeds have been divided into two groups: Pakistani and Tihami as one group while the other three breeds clustered in another group. The activity of the metabolic enzymes (*Mdh* and *ME*) showed concordance with the constructed relationship where the percentage amounts of these enzymes showed significant variations between the two groups more than that occurred within each group. *Mdh* was expressed in the second group more than in the first while *ME* showed, nearly, equal expression in the different breeds. Both genetic and physiological results agreed in clustering the studied breeds into Pakistani and Tihami in one group and the other three breeds in another group. This division was based on a few gene loci and a few sampling size and it needs to be supported by collecting more genetic data and more sampling size in a further molecular study.

KEYWORDS

Goat Breeds; Electrophoresis; Isoenzymes; Physiology; Saudi Arabia

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