MOLECULAR GENETIC CHARACTERIZATION OF SOME GOAT BREEDS RAISED UNDER EGYPTIAN CONDTIONS

BY

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B.Sc. Agric. Sc. (Animal Production), Aleppo University, 2004

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ABSTRACT

Ahmad Mohamed Jnied: Molecular Genetic Characterization of Some Goat Breeds Raised Under Egyptian Conditions. Unpublished M. Sc. Thesis, Department of Genetics, Faculty of Agriculture, Ain Shams University, 2009.

Two Egyptian (*Baladi and Barki*) and one Syrian (*Damascus*) goat breeds were characterized using biochemical (SDS-PAGE and Native-PAGE) and molecular genetic (RAPD-PCR and SSR-PCR) techniques. The Syrian breed was previously classified into prolific and non-prolific groups according to litter size trait.

SDS-protein and RAPD analysis showed a high homogeneity value within each of the studied breeds, while native-protein analysis showed a lower homogeneity value within each one of the Damascus breed groups than Baladi and Barki breeds. Moreover, all used analyses showed some specific bands which differentiated among the studied breeds. In addition, Native-protein and RAPD analyses were more prominent than SDS-protein and SSR analyses in distinguishing among the four studied breeds. However, the dendrogram was constructed among the studied breeds based on the combined results analysis which showed that the two groups of Damascus breed were clustered together in one group, while Baladi breed was distantly related from this cluster.

Key words:

Genetic Characterization, Molecular Fingerprint, Biochemical Fingerprint, Genetic Markers, Similarity, Dendrogram, Polymorphism, Goat Breeds.

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I. INTRODUCTION

Goat are widely distributed all over the world. They thrive in a wide variety of environmental conditions. They also consider as one of the most important economic sources of meat and milk in developing countries.

Improving the reproductive efficiency of goat flocks, especially in the developing countries, can increase the efficiency of kid production and consequently goat meat. On the other hand, the need to intensify goat production to conform today's systems of concentrated farming and to make goat raising more economically rewarding necessitated the use of prolific goats to increase returns per unit of production.

In Egypt, there are three major native goat breeds namely; Baladi, Barki (reared for meat production) and Zaraibi (reared for milk production).

Recently, many breeds were imported for crossing with the native breeds to improve their meat and milk production (such as Shami or Damascus goat). As a case, the Ministry of Agriculture in Egypt imported some bucks and does of the Damascus goat for crossing with the Barki goat to improve its meat production and recently the crossing between Damascus and Baladi goat was started for the same reason.

Analysis of genetic diversity as well as relationships between or within genera, species, or even individuals is essential to improve goat production. During the last three decades, classical strategies for evaluating genetic variability such as comparative anatomy, morphology, and embryology, have been increased. Nowadays, biochemical genetic fingerprint as well as molecular genetic fingerprint are quiet useful tools for genetic relationships studies among different resources **(White and Coocke, 1992; Radovic and Vapa, 1996).** Modern DNA manipulation provides unlimited potentialities for establishing accurate fingerprints at the molecular level.