MARKER GENE ALLELES ASSOCIATED WITH EGYPTIAN SUFFOLK EWE TRAITS

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SUMMARY

The application of molecular gene the markers in traits assisted selection are of great significance in improving specific traits of breeds. Currently, there is a great interest in detecting gene-marker alleles that are associated with reproductive and productive livestock traits. To test for possible associations between certain marker gene alleles in Egyptian Suffolk (70-90 % UK Suffolk. 10 – 30 Ossimi sheep; ES) ewes traits, their blood plasma proteins were examined for biochemical polymorphism of Myosin (M), β-Galactosidase (β-Gal), Phoshorylase β (P), Bovine-serum Albumin (Alb), Catalase (Cat) and Aldolase (Ald) by using-one-dimensional sodium dodecyl sulfate polyacrylamide gels electrophoresis (SDS-PAGE), with high-range protein molecular weight marker standard as reference bands.

Analysis of results indicated clear associations between productive and reproductive traits of heterozygous ewes and marker gene alleles. The associations were highly significant ($P<0.01$) between Alb marker gene alleles and the highest values of some of the traits studied as follows: A^{a1}, A^{a2} and each of age at first lambing and lambs weight at weaning, A^{b1}, A^{b2} and fertility (number of lambs born / number of ewes exposed during the breeding season) and A^{01}, A^{02} and lambing interval. Alb alleles A^{b1}, A^{b2} & A^{01}, A^{02} and A^{b1}, A^{b2} were significantly ($P<0.01$) associated with the youngest age at first lambing, fertility and lambing interval, respectively. The β-Gal alleles G^{c1},G^{c2} and Cat C^{b1},C^{b2} were insignificantly associated with the highest values of lamb weight at birth and kilograms of lambs weaned / ewe / season (kilograms of lambs weaned / ewe / season combine the output of group of traits: lambing rate, milk yield, growth rate and pre-weaning mortality). Meanwhile, β-Gal alleles G^{d1}, G^{d2} were insignificantly associated with the lowest lamb weight at birth. The Cat alleles C^{01}, C^{02} were insignificantly associated with the lowest of each lamb weight at weaning and kilograms of lambs weaned / ewe / season. The present results may suggest that marker assisted selection could be carried out at a very early age depending on marker gene types for improvement of Egyptian Suffolk sheep traits. This is due to the fact that marker genes could be scored at very early ages.

Keywords: *Egyptian Suffolk sheep, marker gene alleles, ewe traits*