

## ASSOCIATIONS BETWEEN MARKER GENE ALLELES AND EGYPTIAN SUFFOLK SHEEP, NUBIAN (ZARAIBI) GOAT AND BUFFALO TRAITS

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In Egyptian Suffolk (70-90 % UK Suffolk. 10 – 30% Ossimi sheep) ewes, blood serum proteins examined for biochemical polymorphism showed that the highly significant ( $P < 0.01$ ) associations were between the Bovine-serum Albumin (Alb) marker gene alleles  $A^{a1}$ ,  $A^{a2}$  and the highest values of each of age at first lambing and lambs weight at weaning,  $A^{b1}$ ,  $A^{b2}$  and fertility (number of lambs produced /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 lowest age at first lambing, fertility and lambing interval, respectively.

In Nubian (Zaraibi) goat does, plasma proteins showed that allele  $C^b$  of Carbonic Anhydrase Erythrocyte marker gene was associated ( $P < 0.05$ ) with the shortest age at first kidding. The allele  $I^a$  of Trepsinogen Inhibitor marker gene was associated ( $P < 0.01$ ) with the highest values of litter size and litter weight at birth and at weaning. The allele  $A^a$  of Albumin marker gene was associated ( $P < 0.01$ ) with the highest values of kilograms produced at birth and at weaning/ lifetime of doe. The allele  $P^c$  of Immunoglobulin P marker gene was associated ( $P < 0.05$ ) with the lowest value of abortion and the allele  $P^b$  of the same marker gene was associated ( $P < 0.05$ ) with the lowest value of mortality rate.

In buffaloes, examination of plasma proteins of male calves and plasma and milk proteins of cows showed that the Immunoglobulin G allele  $G^a$  was associated ( $P < 0.01$ ) with the highest values of daily milk yield, while the effects of the studied other marker genes on most the studied traits were not significant.

The beneficial results may suggest that marker assisted selection could be carried out at a very early age on marker gene types for improvement of local animals studied traits, since such marker genotypes could be scored at very early age, which may save time, effort and costs.

**Key words:** Marker genes, traits of Egyptian Suffolk ewe sheep, Nubian (Zaraibi) doe goats and buffaloes.