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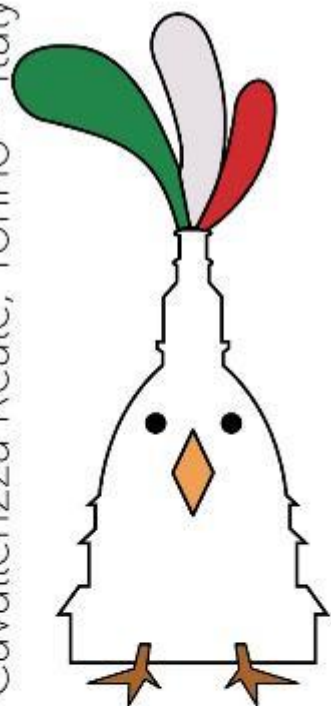


Book of

WORLD'S SCIENCE JOURNAL

6TH MEDITERRANEAN
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ABSTRACTS

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[05-04]: *Genetics and breeding* (ID: 120173)

[Italy]

PAX7 gene polymorphism analysis in Bianca di Saluzzo and Bionda Piemontese poultry breeds

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The polymorphism of PAX7 gene, an important transcription factor regulating myogenesis of skeletal muscle, was investigated in two slow growing chicken breeds, namely Bionda Piemontese (BP, n=108) and Bianca di Saluzzo (BS n=93) in order to detect a positive association with growth traits. The birds were raised in the same environmental conditions. Body Weight (BW) was individually measured every two weeks from hatch to 32 weeks of age. BW was significantly different between the two sexes from 6 weeks of age for both breeds, and the difference increased with age. At 32 weeks of age, the average BW was 2474 g in males and 1819 g in females for BP, and 2575 g in males and 1855 g in females for BS. The data analysis showed a significant allele association with BW in females of both breeds from the 14th week onward. The association between PAX7 and BW, with a dominant effect of G allele, was significant in BP ($P < 0.05$) from 14 to 32 weeks, except in 22th week of age. Nevertheless, a different BW among genotypes was evident already from 14 to 24 weeks, with a slowdown between 18 to 22 weeks. An incomplete dominance of allele G revealed a significant additive effect ($P < 0.05$) at week 14, 16, 24, 28 and 30. In BS, PAX7 association was evident ($P < 0.05$) only at 14, 16 and 30 weeks of age and positive dominant effect was associated with F allele. In both breeds the most frequent allele is associated with positive effect on BW: in BP G allele frequency was 0.6 with 83% of favourable genotypes (0.47 for F/G and 0.36 for G/G) while in BS allele F frequency was 0.53 with 80% of favourable genotypes (0.30 for F/F, 0.5 for F/G), even if the two allele showed very similar frequencies. As the survival of autochthonous poultry breeds is related to the marketing of their products, the selection schemes of these small size populations should consider PAX7 gene polymorphism in order to increase female body weight using the marker assisted selection on males.

Keywords: PAX7; polymorphism; growth trait; poultry; slow growing chicken.