

通用线性模型筛选家禽生化多态遗传标记的探讨 Screening Biochemical Polymorphisms as Genetic Markers Applied in Marker-Assisted Selection in Poultry

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收稿日期 修回日期 网络版发布日期 接受日期

摘要 本研究首次采用线性模型估计生化基因(表)型对产蛋量相关性状的效应,排除环境和遗传背景的差异,检测出效应显著的3种生化基因(表)型。Akp座位F型和Es-1座位AB型的开产蛋重显著降低,效应的遗传本质有待于深入研究确认。Tf位点对于36周龄体重的影响不属于基因多效或紧密连锁效应,可能是距离较远基因连锁的结果,效应随基因间连锁与交换会在品系和世代间产生较大波动;或可能源于非控制误差。本研究还表明生化基因座位与数量性状基因位点(QTL)间的非紧密基因连锁可能大量存在,但育种意义不大。

Abstract:The literature on associations between biochemical polymorphisms with a Mendelian basis and quantitative traits is abundant, but it is often difficult to draw conclusions from results that vary in statistical significance and that are sometimes conflicting. Linear models were found capable in estimating associated effects of biochemical genes, precluding deviations due to environmental and population differences. Three biochemical gene- or phenotypes were detected to be significantly associated with laying-related traits. F of Akp locus and AB of Es-1 locus showed large associated effects on egg weight at onset of lay as the result of pleiotropy or close linkage, or caused by heterogeneity, whereas association of BB at Tf locus with body weight at 36 weeks of age could be due to loose linkage or non-controlled errors which exhibited large variations between populations and possibly through generations. Many biochemical loci were also revealed to be occasionally associated with laying-related traits, but few of them could be of breeding importance.

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