

转大麻哈鱼生长激素基因鲤表型性状与体质量的相关性及途径分析

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Correlation and path analyses of phenotypic traits and body mass of transgenic carp with growth hormone gene of salmon.

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摘要 随机选取二龄转大麻哈鱼生长激素基因鲤和对照鲤各30尾,运用相关分析和途径分析的方法研究全长、体长、体高、尾柄高、尾柄长、头长、吻长、眼径、眼间距、体厚10个表型性状对体质量的影响程度,以此确定影响二龄转基因鲤和对照鲤体质量的主要表型参数。相关分析结果表明:转基因鲤和对照鲤的大部分表型性状与体质量间的相关系数均达到极显著水平($P<0.01$)。途径分析结果显示:体长和体高可以作为预测转基因鲤体质量的主要表型参数,转基因鲤体长对体质量的途径系数为0.572,体高对体质量的途径系数为0.415,体长和体高直接决定体质量;而体厚和头长可以作为预测对照鲤体质量的主要表型参数,对照鲤体厚对体质量的途径系数为0.610,头长对体质量的途径系数为0.377,体厚和头长对体质量具有决定作用。

关键词: 转基因鲤 体质量 表型性状 相关分析 途径分析

Abstract: Thirty 2-year old transgenic carp individuals with growth hormone gene of salmon were randomly selected to study the affecting degree of their phenotypic traits on their body mass by the methods of correlation and path analyses, with 30 individuals of non-transgenic carp as the control, aimed to ascertain the main phenotypic parameters affecting the body mass of the transgenic and non-transgenic carps. The test phenotypic traits were total length, body length, body height, least height of caudal peduncle, length of caudal peduncle, length of head, snout length, eyes horizontal diameter, inter-orbital distance, and body depth. Correlation analysis showed that for both of the transgenic and non-transgenic carps, most of the test phenotypic parameters were significantly correlated to body mass ($P<0.01$). Path analysis indicated that for transgenic carp, its body length and body height were the main predictable factors affecting body mass, with the path coefficient being 0.572 and 0.415, respectively, while for non-transgenic carp, its body depth and tail length were the main predictable factors affecting body mass, with the path coefficient being 0.610 and 0.377, respectively.

Key words: transgenic carp body mass phenotypic trait correlation analysis path analysis

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