**附件一：摘要格式**

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**拟投主题：**

标题(中文，黑体，三号；英文， Times New Roman 三号)

作者（宋体，四号，之间加逗号,通讯作者标注星号表示）

（单位）（宋体 小五号）

**摘 要**：不超过500字。中文，宋体，五号；英文， Times New Roman 五号

**关键词**：宋体 五号，关键词4-6个，中间用分号分隔

**Title （Times New Roman, 三号,** 第一个单词的首字母大写, 其余小写, 特定除外**）**

Author （Times New Roman, 四号， 逗号分隔，例如: Chaobin Qin, Liping Yang）

(Adress ) (Times New Roman, 小五号)

**Abstract:** Times New Roman, 五号，不超过1000词

**Keywords:**英文关键词与中文关键词一一对应，用分号分隔，首个英文字母大写，特定除外，Times New Roman, 五号

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**通讯作者：**宋体，5号， E-mail：Times New Roman, 五号

**基金项目：**宋体，5号

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**拟投主题：营养生理与代谢调控**

营养生理与代谢调控 第十二届世界华人鱼虾营养学术研讨会

|  |
| --- |
| 葡萄糖负荷、胰岛素和胰高血糖素对草鱼*glut2*表达的影响 |
| 赵文丽1,2，秦超彬1,2，杨国坤1,2，闫潇1,2，聂国兴1,2\* |
| （1. 河南师范大学，水产学院，河南省水产动物养殖工程技术研究中心，河南 新乡 4530071；2. 河南省水产动物养殖工程技术研究中心，河南 新乡 4530071） |
| **摘要：**通常认为鱼类对糖类的利用能力有限。鱼类在摄食后血糖的清除速率较慢，导致其处于持续性的高血糖状态。葡萄糖转运体(GLUTs)在葡萄糖的利用中发挥着重要作用。为了探讨GLUT2在草鱼葡萄糖稳态调控中的作用，本研究采用荧光定量PCR技术检测了草鱼不同组织中*glut2* mRNA的表达水平。此外，我们还研究了口服葡萄糖耐量实验（OGTT）中，草鱼肝脏、肠道和肾脏中*glut2* mRNA表达的变化，并探讨了胰岛素和胰高血糖素对草鱼原代肝细胞*glut2* mRNA表达水平的影响。结果发现，*glut2* mRNA在草鱼肝脏中的表达水平最高，其次是肠道和肾脏，而在其它组织中的表达水平较低。口服葡萄糖耐量实验结果显示，草鱼在OGTT 3 h后血糖水平最高，6 h后恢复到基础水平，OGTT 1 h后肠道*glut2* mRNA表达水平升高。然而，草鱼肝脏中*glut2* mRNA的表达水平在OGTT 1、3、6 h后没有发生变化，甚至在OGTT 12 h后时下降。此外，在孵育 3 h后，胰岛素和胰高血糖素均可促进草鱼原代肝细胞中*glut2* mRNA的表达。研究结果表明，草鱼肝脏*glut2*表达对胰岛素和胰高血糖素敏感，而对血糖的升高则不敏感。胰岛素和胰高血糖素均能够促进草鱼*glut2 mRNA*的表达，表明这些激素可能参与了葡萄糖在草鱼肝脏中的双向转运。 **关键词：**草鱼；葡萄糖转运蛋白2；组织分布; 葡萄糖耐量；胰岛素；胰高血糖素 |
| Expression of *glut2* in response to glucose load, insulin and glucagon in grass carp (*Ctenophcuyngodon idellus*) |
| Wenli Zhao1,2, Chaobin Qin1,2, Guokun Yang1,2, Xiao Yan1,2, Guoxing Nie1,2\* |
| (1. College of Fisheries, Henan Normal University, Xinxiang 453007, PR China; 2. Engineering Technology Research Center of Henan Province for Aquatic Animal Cultivation, Xinxiang 453007, PR China) |
| **Abstract:** Generally, fish are thought to have a limited ability to utilize carbohydrate. Postprandial blood glucose is cleared sluggishly in fish, resulting in prolonged hyperglycemia. Facilitative glucose transporters (GLUTs) play an important role in glucose utilization. In order to investigate the role of GLUT2 in the regulation of glucose homeostasis in grass carp, the expression levels of *glut2* in different tissues were detected using RT-qPCR in the present study. Furthermore, the effects of oral glucose administration on *glut2* mRNA expression in the liver, intestine and kidney were investigated, and we also evaluated the response of *glut2* mRNA to insulin and glucagon in the primary hepatocytes of grass carp. The expression level of *glut2* mRNA was highest in the liver, followed by the intestine and kidney, but lower in other tissues. The result of oral glucose tolerance test (OGTT) showed that blood glucose reached the highest level at 3 h after OGTT and recovered to the basic level at 6 h. The *glut2* mRNA in the intestine was up-regulated at 1 h after OGTT. However, the *glut2* mRNA expression in the liver of grass carp was unchanged after OGTT for 1, 3, 6 h, and even decreased at 12 h after OGTT. In addition, the expression of *glut2* mRNA in the primary hepatocytes was enhanced by insulin and glucagon at 3 h post treatment. These results suggested that *glut2* expression in the liver of grass carp was sensitive to insulin and glucagon, but not blood glucose. The up-regulation of *glut2* by these hormones might be involved in the bi-directional transportation of glucose in the liver.**Keywords:** Grass carp; *glut2*; tissue distribution; glucose tolerance; insulin; glucagon |

**通讯作者：**聂国兴，**E-Mail：**niegx@htu.cn

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