表2 已克隆的影响水稻光合作用的叶色基因

Table 2 The leaf colour of affect photosynthetic that have been cloning in rice

基因 Gene	染色体 Chromosome	作用 Function	途径 Pathway	参考文献 Reference
CDE(t)(谷氨酸 tRNA 合成酶基因) Chlorophyll *deficient 1, temporally*	2	CDE(t)编码谷氨酸 tRNA 合成酶 Cde1(t) gene encode glutamyl Trna synthetase	叶绿素合成途径 Chlorophyll biosynthesis pathway	Liu et al., 2007
CHLI 和 *CHLD*(镁离子螯合酶 I 和 D 亚基) *Chlorophyll I and D subunit*	3	CHLI 和 CHLD 编码镁离子螯合酶 I 和 D 亚基 CHLI and CHLD encodes Mg-chelatase I and D subunit	叶绿素合成途径 Chlorophyll biosynthesis pathway	Zhang et al., 2006
CHLH(镁离子螯合酶 H 亚基) *Chlorophyll H subunit*	3	CHLH 编码镁离子螯合酶 H 亚基 CHLH encodes Mg-chelatase H subunit	叶绿素合成途径 Chlorophyll biosynthesis pathway	Jung et al., 2003
YGL1(叶绿素合成酶基因) *Yellow-green leaf1*	5	YGL1 编码叶绿体蛋白，这些蛋白受 Chl 或 Chl 的前体细胞的反馈调节 YGL1 encodes various chloroplast proteins might be feedback regulated by the level of Chl or Chl precursors	叶绿素合成途径 Chlorophyll biosynthesis pathway	Wu et al., 2007
OsDVR(联乙烯还原酶基因) *Divinyl reductase in rice*	3	OsDVR 编码一个有功能的联乙烯还原酶基因 OsDVR encodes a functional divinyl reductase	叶绿素合成途径 Chlorophyll biosynthesis pathway .	王平荣等，2009 Wang et al., 2009
osCAO1 和 *osCAO2*(叶绿素 a 加氧酶基因) *Chlorophyll a oxygenase*	10	OsCAO1 在叶绿素 b 合成中起主要作用，OsCAO2 可能在暗中行使功能 OsCAO1 plays a major role in chlorophyll b biosynthesis, and OsCAO2 may function in the dark	叶绿素循环途径 Chlorophyll circulation pathway	Lee et al., 2005
NYC1 和 *NOL*(叶绿素 b 还原酶基因) *Non-yellow coloning1and Non-yellow coloning1 like*	1	NYC1 和 NOL 都是叶绿体 b 还原酶基因，编码短链脱氢酶/还原酶 NYC1 is a chlorophyll b reductase gene, encodes a membrane-localized short-chain dehydrogenase/reductase	叶绿素降解途径 Chlorophyll degradation pathway	Kusaba et al., 2007 Sato et.al.,2009
SGR1(持绿性叶片) *Staygreen1*	9	SGR 编码一个新的叶绿体蛋白，降低叶绿素降解的转录水平 SGR encode a new chlorophyll protein and reduce Chl degradation at the transcriptional level	叶绿素降解途径 Chlorophyll degradation pathway	Park et al., 2007
V3(水稻核糖核酸还原酶大亚基编码基因) *Virescent 3*	6	V3 编码一个核糖核酸酶还原大亚基 V3 encode the large subunits of ribonucleotide reductase	叶绿体发育和分化途径 Development and differentiation pathway of chlorophyll	Yoo et al., 2009
St1(水稻核糖核酸还原酶小亚基编码基因) *Stripe1*	6	ST1 编码核糖核酸还原酶小亚基 ST1 encode the small subunits of ribonucleotide reductase	叶绿体发育和分化途径 Development and differentiation pathway of chlorophyll	Yoo et al., 2009

ZN *ZEBRA-NECROSIS*	6	ZN 编码一种类囊体结合蛋白，对早期的叶绿体的发育具有重要作用 ZN encode a thylakoid-bound protein, and play a key role in the photoprotection of developing chloroplasts during early leaf development	叶绿体发育和分化途径 Development and differentiation pathway of chlorophyll	Li et al., 2010b
OsGLK		在光照和植物激素的控制下，OsGLK1 能调节叶绿体的发育，是叶绿体发育过程中一个关键的调节因子 OsGLK1 regulates chloroplast development under the control of light and phytohormones, and that it is a key regulator of chloroplast development	质核信号途径 Plastid-to-nucleus signaling pathway	Nakamura et al., 2009