

表 2 开花相关基因 *LFY* 编码氨基酸的同义密码子中相对使用频率(RSCU)Table 2 The relative synonymous (RSCU) codon usage of *LFY* genes that coding amino acid

| 氨基酸 Amino | 密码子 Codon | 甜橙 <i>Citrus sinensis</i> | 桃 <i>Prunus persica</i> | 葡萄 <i>Vitis vinifera</i> | 芒果 <i>Mangifera indica</i> | 枇杷 <i>Eriobotrya japonica</i> | 甜杏 <i>Prunus dulcis</i> | 苹果 <i>Malus</i> | 砂梨 <i>Pyrus pyrifolia</i> | 拟南芥 <i>Arabidopsis thaliana</i> |
|--------------|--------------|----------------------------------|--------------------------------|---------------------------------|-----------------------------------|--------------------------------------|--------------------------------|--------------------|----------------------------------|--|
| Phe | UUU | 0.33 | 0.62 | 0.18 | 0.53 | 0.62 | 0.62 | 0.50 | 0.50 | 0.86 |
| Phe | UUC | 1.67 | 0.38 | 1.82 | 1.47 | 1.38 | 1.38 | 1.50 | 1.50 | 1.14 |
| Leu | UUA | 0.36 | 0.19 | 0.39 | 0.22 | 0.19 | 0.00 | 0.00 | 0.00 | 1.00 |
| Leu | UUG | 1.64 | 1.31 | 0.58 | 1.78 | 1.50 | 1.50 | 1.31 | 1.31 | 1.17 |
| Leu | CUU | 1.09 | 1.12 | 1.35 | 1.56 | 1.69 | 1.12 | 2.06 | 2.06 | 0.82 |
| Leu | CUC | 1.27 | 1.88 | 1.35 | 0.67 | 1.50 | 1.88 | 1.31 | 1.31 | 1.09 |
| Leu | CUA | 0.00 | 0.94 | 0.39 | 0.00 | 0.38 | 0.94 | 0.91 | 0.19 | 1.09 |
| Leu | CUG | 1.64 | 0.56 | 1.94 | 1.78 | 0.75 | 0.56 | 1.12 | 1.12 | 1.00 |
| Ser | UCU | 1.50 | 1.50 | 0.95 | 1.76 | 1.89 | 1.50 | 2.33 | 2.33 | 1.64 |
| Ser | UCC | 0.75 | 1.20 | 1.26 | 0.35 | 1.26 | 1.20 | 1.00 | 1.00 | 0.82 |
| Ser | UCA | 0.75 | 0.30 | 0.32 | 0.71 | 0.32 | 0.30 | 0.00 | 0.00 | 1.09 |
| Ser | UCG | 0.75 | 0.60 | 0.63 | 1.06 | 0.63 | 0.60 | 0.67 | 0.67 | 0.55 |
| Tyr | UAU | 0.71 | 0.43 | 0.15 | 1.33 | 0.86 | 0.62 | 0.77 | 0.86 | 0.33 |
| Tyr | UAC | 1.29 | 1.57 | 1.85 | 0.67 | 1.14 | 1.38 | 1.23 | 1.14 | 1.67 |
| Cys | UGU | 0.29 | 0.86 | 1.00 | 0.33 | 1.14 | 1.00 | 1.25 | 1.25 | 0.89 |
| Cys | UGC | 1.71 | 1.14 | 1.00 | 1.67 | 0.86 | 1.00 | 0.75 | 0.75 | 1.11 |
| Pro | CCU | 0.38 | 0.86 | 0.40 | 0.95 | 1.18 | 0.86 | 0.53 | 0.75 | 1.20 |
| Pro | CCC | 0.38 | 1.14 | 1.00 | 0.76 | 0.71 | 1.14 | 1.07 | 1.00 | 0.20 |
| Pro | CCA | 1.90 | 0.57 | 2.00 | 1.52 | 1.18 | 0.57 | 1.33 | 1.00 | 1.20 |
| Pro | CCG | 1.33 | 1.43 | 0.60 | 0.76 | 0.94 | 1.43 | 1.07 | 1.25 | 1.40 |
| His | CAU | 0.91 | 1.08 | 1.11 | 1.25 | 0.91 | 0.91 | 1.00 | 0.89 | 1.17 |
| His | CAC | 1.09 | 0.92 | 0.89 | 0.75 | 1.09 | 1.09 | 1.00 | 1.11 | 0.83 |
| Gln | CAA | 0.75 | 0.94 | 0.80 | 0.82 | 0.59 | 0.89 | 0.75 | 0.88 | 0.87 |
| Gln | CAG | 1.25 | 1.06 | 1.20 | 1.18 | 1.41 | 1.11 | 1.25 | 1.12 | 1.13 |
| Arg | CGU | 0.86 | 1.00 | 0.51 | 1.33 | 0.88 | 1.00 | 1.12 | 0.97 | 2.18 |
| Arg | CGC | 0.69 | 0.67 | 1.20 | 0.17 | 1.24 | 0.67 | 1.12 | 1.35 | 0.36 |
| Arg | CGA | 0.51 | 0.50 | 0.51 | 0.33 | 0.00 | 0.50 | 0.19 | 0.19 | 0.55 |
| Arg | CGG | 0.51 | 0.67 | 0.86 | 0.50 | 1.41 | 0.67 | 1.31 | 1.55 | 0.91 |
| Arg | AGA | 1.20 | 1.17 | 1.54 | 1.67 | 1.06 | 1.33 | 0.94 | 0.77 | 1.64 |
| Arg | AGG | 2.23 | 2.00 | 1.37 | 2.00 | 1.41 | 1.83 | 1.31 | 1.16 | 0.36 |
| Ile | AUU | 1.91 | 1.00 | 0.69 | 1.07 | 1.09 | 1.00 | 1.36 | 1.36 | 0.82 |
| Ile | AUC | 0.82 | 1.25 | 1.85 | 0.43 | 1.36 | 1.50 | 1.09 | 1.09 | 1.09 |
| Ile | AUA | 0.27 | 0.75 | 0.46 | 1.50 | 0.55 | 0.50 | 0.55 | 0.55 | 1.09 |
| Thr | ACU | 1.09 | 0.80 | 0.36 | 0.92 | 0.62 | 0.80 | 1.25 | 1.25 | 0.42 |
| Thr | ACC | 1.45 | 1.87 | 0.73 | 0.92 | 1.54 | 1.87 | 1.00 | 1.00 | 0.63 |
| Thr | ACA | 0.36 | 0.27 | 0.73 | 0.92 | 0.31 | 0.27 | 0.25 | 0.50 | 0.84 |
| Thr | ACG | 1.09 | 1.07 | 2.18 | 1.23 | 1.54 | 1.07 | 1.50 | 1.25 | 2.11 |
| Asn | AAU | 1.08 | 1.14 | 0.43 | 0.77 | 0.71 | 1.14 | 0.80 | 0.67 | 0.50 |
| Asn | AAC | 0.92 | 0.86 | 1.57 | 1.23 | 1.29 | 0.86 | 1.20 | 1.33 | 1.50 |
| Lys | AAA | 0.55 | 0.48 | 0.27 | 0.32 | 0.36 | 0.40 | 0.38 | 0.52 | 0.80 |
| Lys | AAG | 1.45 | 1.52 | 1.73 | 1.68 | 1.64 | 1.60 | 1.62 | 1.48 | 1.20 |
| Ser | AGU | 0.75 | 0.30 | 0.63 | 0.35 | 0.32 | 0.30 | 0.33 | 0.00 | 1.36 |
| Ser | AGC | 1.50 | 2.10 | 2.21 | 1.76 | 1.58 | 2.10 | 1.07 | 2.00 | 0.55 |
| Val | GUU | 0.89 | 0.67 | 0.76 | 1.19 | 0.86 | 0.64 | 0.91 | 0.91 | 1.71 |
| Val | GUC | 0.44 | 0.67 | 0.57 | 0.15 | 0.86 | 0.64 | 0.91 | 0.91 | 0.57 |
| Val | GUA | 0.15 | 0.17 | 0.76 | 0.15 | 0.29 | 0.32 | 0.00 | 0.18 | 0.38 |

续表 2

Continuing table 2

| 氨基酸 | 密码子 | 甜橙 | 桃 | 葡萄 | 芒果 | 枇杷 | 甜杏 | 苹果 | 砂梨 | 拟南芥 |
|-------|-------|------------------------|-----------------------|-----------------------|-------------------------|----------------------------|----------------------|--------------|------------------------|-----------------------------|
| Amino | Codon | <i>Citrus sinensis</i> | <i>Prunus persica</i> | <i>Vitis vinifera</i> | <i>Mangifera indica</i> | <i>Eriobotrya japonica</i> | <i>Prunus dulcis</i> | <i>Malus</i> | <i>Pyrus pyrifolia</i> | <i>Arabidopsis thaliana</i> |
| Val | GUG | 2.52 | 2.50 | 1.90 | 2.52 | 2.00 | 2.40 | 2.18 | 2.00 | 1.33 |
| Ala | GCU | 1.36 | 0.78 | 1.04 | 1.37 | 0.72 | 0.73 | 0.70 | 0.70 | 1.89 |
| Ala | GCC | 0.77 | 1.48 | 1.11 | 0.59 | 1.33 | 1.64 | 1.30 | 1.22 | 0.33 |
| Ala | GCA | 0.94 | 1.13 | 1.26 | 1.07 | 0.82 | 1.09 | 0.96 | 1.04 | 0.44 |
| Ala | GCG | 0.94 | 0.61 | 0.59 | 0.98 | 1.13 | 0.55 | 1.04 | 1.04 | 1.33 |
| Asp | GAU | 1.24 | 0.71 | 1.00 | 1.36 | 0.88 | 0.77 | 1.15 | 1.20 | 0.80 |
| Asp | GAC | 0.76 | 1.29 | 1.00 | 0.64 | 1.12 | 1.23 | 0.85 | 0.80 | 1.20 |
| Glu | GAA | 0.63 | 0.36 | 0.46 | 0.72 | 0.32 | 0.40 | 0.26 | 0.26 | 1.03 |
| Glu | GAG | 1.37 | 1.64 | 1.54 | 1.28 | 1.68 | 1.60 | 1.74 | 1.74 | 0.97 |
| Gly | GGU | 1.33 | 0.88 | 1.38 | 1.33 | 0.98 | 0.98 | 0.76 | 0.76 | 1.65 |
| Gly | GGC | 0.85 | 1.07 | 0.00 | 0.74 | 0.59 | 1.07 | 0.95 | 0.86 | 0.96 |
| Gly | GGA | 0.61 | 0.39 | 1.50 | 0.74 | 0.59 | 0.39 | 0.86 | 0.86 | 0.87 |
| Gly | GGG | 1.21 | 1.66 | 1.12 | 1.19 | 1.85 | 1.56 | 1.43 | 1.52 | 0.52 |

注: 数值带下划线表示 RSCU 值大于 1 的密码子为相应果树 *LFY* 的偏好密码

Note: The data underline means the RSCU value is more than 1