

Fig. S1. Agarose gel (1%) electrophoresis of the 12 candidate reference genes. PCR products for *ACTB*, *CYP*, *GAPDH*, *TUB α* , *TUB β 1*, *UBQ*, *MSF1*, *SPRYp*, *L-asp*, *MAPK*, *18S*, and *28S* are presented in lanes 1-12, respectively.

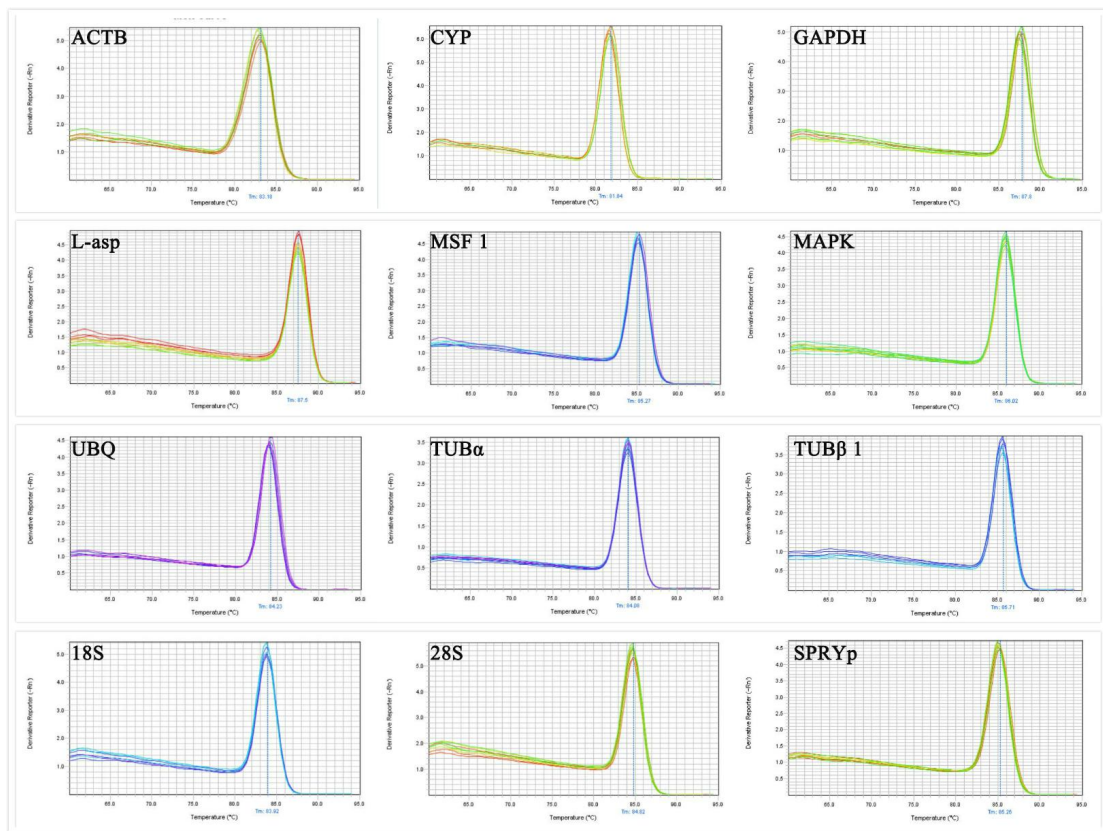


Fig. S2. Melt curves for the 12 candidate reference genes

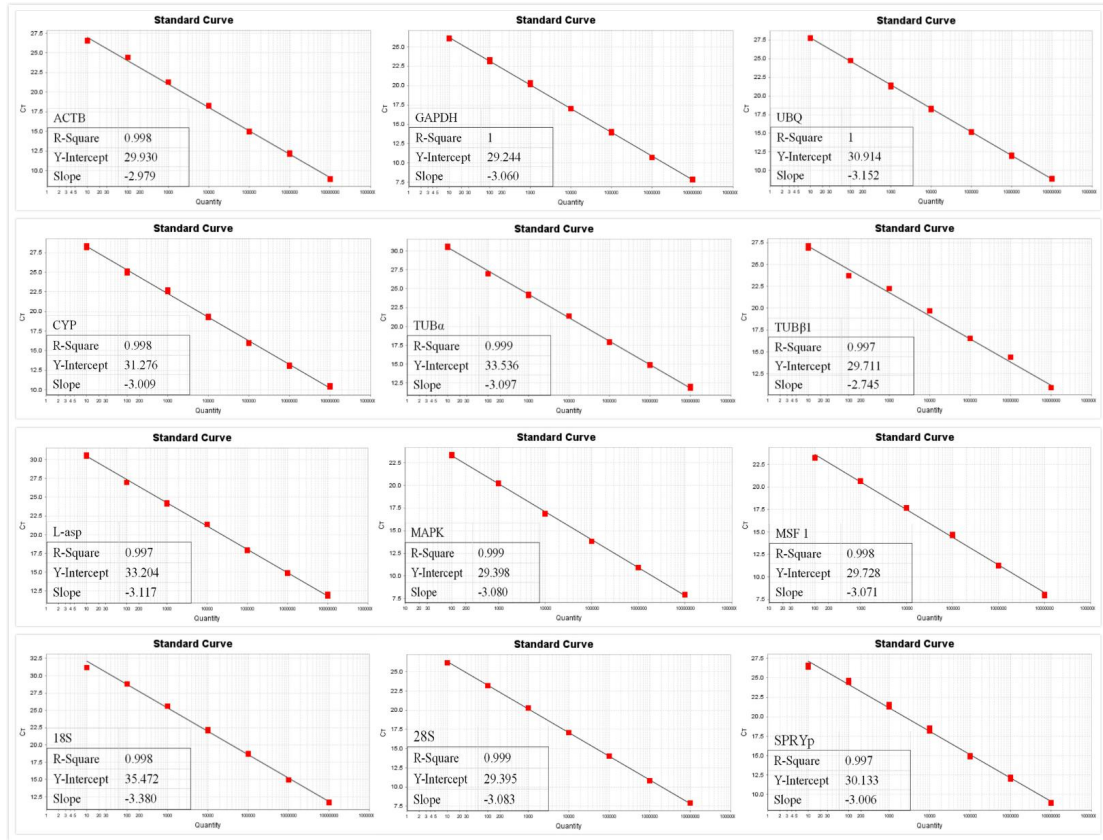


Fig. S3. Standard curves for the 12 candidate reference genes

Table S1. Raw Cp values for *V. volvacea*

Cps for *V. volvacea* mycelia exposed to NaCl, CuSO₄, H₂O₂, HCl, NaOH, heat, and cold, as well as *V. volvacea* samples from different developmental stages.

| | ACT B | CYP | GAP DH | TUB α | UBQ | MSF 1 | SPR Yp | L-asp | TUB β 1 | MAP K | 18S | 28S |
|-------------|----------|-------|-----------|--------------|-------|----------|-----------|-------|------------------|----------|------|-------|
| | 21.91 | 20.07 | 21.03 | 19.17 | 21.99 | 28.17 | 24.30 | 28.22 | 24.05 | 28.70 | 8.12 | 12.47 |
| | 20.36 | 19.71 | 21.44 | 19.00 | 21.90 | 28.48 | 24.35 | 28.06 | 23.96 | 28.78 | 8.07 | 11.31 |
| | 21.03 | 19.55 | 20.93 | 18.97 | 21.55 | 28.09 | 24.36 | 28.36 | 23.85 | 28.77 | 8.03 | 11.31 |
| | 20.04 | 19.80 | 21.75 | 19.65 | 21.91 | 29.75 | 25.34 | 29.79 | 23.42 | 28.17 | 9.59 | 10.85 |
| NaCl | 21.06 | 19.55 | 22.40 | 20.31 | 22.28 | 29.58 | 25.09 | 29.83 | 22.91 | 28.30 | 9.53 | 10.89 |
| | 20.22 | 19.84 | 21.97 | 20.46 | 21.93 | 29.58 | 24.95 | 30.01 | 19.97 | 28.71 | 9.52 | 10.95 |
| | 23.10 | 21.49 | 24.42 | 21.64 | 23.44 | 29.71 | 26.10 | 30.08 | 21.71 | 26.75 | 7.92 | 8.80 |
| | 23.15 | 21.40 | 24.34 | 21.34 | 23.24 | 32.50 | 25.98 | 31.03 | 21.57 | 26.77 | 7.82 | 8.78 |
| | 23.26 | 21.70 | 24.16 | 21.46 | 23.44 | 27.90 | 26.16 | 30.41 | 21.53 | 26.67 | 7.80 | 8.70 |

| | | | | | | | | | | | | |
|-----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 22.69 | 23.65 | 22.82 | 22.70 | 21.86 | 26.49 | 29.22 | 32.96 | 25.30 | 28.88 | 8.51 | 11.30 |
| | 21.67 | 24.00 | 23.24 | 22.75 | 21.64 | 26.09 | 28.93 | 31.58 | 25.51 | 28.81 | 8.44 | 11.19 |
| | 23.02 | 23.97 | 22.39 | 22.57 | 21.95 | 25.97 | 28.68 | 31.66 | 25.29 | 28.58 | 8.42 | 11.14 |
| | 20.50 | 21.39 | 18.48 | 19.60 | 21.23 | 25.93 | 27.30 | 28.75 | 22.83 | 29.20 | 7.56 | 11.44 |
| H₂O₂ | 19.85 | 21.27 | 18.58 | 19.76 | 21.72 | 25.88 | 26.99 | 29.05 | 22.63 | 29.00 | 7.45 | 11.51 |
| | 19.65 | 21.17 | 18.69 | 19.60 | 21.72 | 26.29 | 26.97 | 29.03 | 22.58 | 28.99 | 7.43 | 11.79 |
| | 22.02 | 20.39 | 20.42 | 21.63 | 21.85 | 25.91 | 28.78 | 29.89 | 24.17 | 28.95 | 10.62 | 13.55 |
| | 22.02 | 20.80 | 20.45 | 21.56 | 22.20 | 25.89 | 28.38 | 29.85 | 24.20 | 29.04 | 10.53 | 13.61 |
| | 21.54 | 20.66 | 20.30 | 21.95 | 21.72 | 25.70 | 28.69 | 29.74 | 24.09 | 28.91 | 10.49 | 13.67 |
| | 23.99 | 24.96 | 22.37 | 23.36 | 22.79 | 24.97 | 28.04 | 30.86 | 26.81 | 28.55 | 9.37 | 10.20 |
| | 24.27 | 24.65 | 22.43 | 23.36 | 22.72 | 25.00 | 28.09 | 30.11 | 26.83 | 28.51 | 9.39 | 10.35 |
| | 24.48 | 24.66 | 22.51 | 23.37 | 22.74 | 24.91 | 28.47 | 30.28 | 26.89 | 28.48 | 9.32 | 10.31 |
| | 22.91 | 22.12 | 21.11 | 22.37 | 21.93 | 25.72 | 28.68 | 29.55 | 25.64 | 29.37 | 11.41 | 11.81 |
| CuSO₄ | 23.52 | 22.07 | 21.11 | 22.51 | 22.01 | 25.72 | 28.83 | 29.83 | 25.65 | 29.28 | 11.21 | 13.81 |
| | 23.66 | 21.99 | 21.17 | 22.52 | 21.93 | 25.52 | 28.73 | 29.63 | 25.54 | 29.64 | 11.16 | 12.38 |
| | 22.40 | 23.06 | 19.46 | 22.31 | 21.84 | 26.57 | 27.82 | 30.42 | 25.96 | 30.98 | 9.79 | 10.74 |
| | 22.95 | 22.89 | 19.34 | 22.35 | 21.91 | 26.47 | 27.86 | 30.49 | 25.85 | 30.63 | 9.72 | 10.81 |
| | 22.50 | 23.14 | 19.74 | 22.26 | 21.89 | 26.39 | 27.83 | 29.54 | 25.85 | 30.35 | 9.74 | 10.70 |
| | 23.66 | 23.01 | 26.61 | 22.85 | 16.88 | 22.62 | 25.42 | 32.92 | 27.73 | 29.31 | 9.98 | 8.06 |
| | 23.61 | 23.69 | 25.81 | 24.56 | 16.78 | 22.55 | 25.46 | 32.76 | 27.80 | 29.28 | 9.91 | 8.27 |
| | 23.81 | 22.85 | 25.42 | 23.59 | 16.92 | 22.69 | 25.82 | 33.11 | 27.66 | 29.30 | 9.88 | 7.97 |
| | 21.88 | 21.56 | 25.53 | 21.96 | 15.67 | 21.78 | 25.39 | 30.11 | 25.49 | 31.58 | 9.66 | 9.52 |
| Heat | 21.33 | 21.81 | 22.86 | 21.83 | 15.67 | 21.75 | 25.49 | 29.86 | 25.44 | 31.37 | 9.44 | 9.39 |
| | 21.34 | 21.96 | 23.25 | 21.69 | 15.65 | 21.93 | 25.85 | 30.11 | 25.36 | 31.55 | 9.25 | 9.41 |
| | 24.58 | 24.45 | 25.81 | 23.44 | 18.20 | 23.92 | 27.65 | 32.89 | 28.46 | 34.36 | 8.83 | 7.92 |
| | 24.73 | 24.99 | 25.89 | 23.47 | 18.36 | 23.91 | 28.23 | 32.72 | 28.13 | 34.88 | 8.70 | 7.86 |
| | 24.50 | 24.35 | 26.27 | 23.57 | 17.92 | 23.94 | 28.11 | 31.62 | 27.91 | 34.48 | 8.68 | 7.77 |
| | 21.28 | 19.82 | 21.95 | 23.33 | 18.24 | 25.93 | 21.53 | 30.94 | 21.46 | 27.91 | 8.06 | 8.17 |
| | 21.11 | 19.79 | 21.96 | 23.36 | 18.19 | 25.93 | 21.39 | 29.97 | 25.42 | 26.11 | 7.45 | 8.56 |
| | 20.97 | 19.66 | 21.96 | 23.32 | 18.11 | 25.96 | 21.56 | 30.04 | 27.28 | 27.51 | 8.62 | 8.65 |
| | 23.61 | 21.12 | 21.40 | 25.84 | 18.95 | 27.93 | 23.47 | 31.95 | 26.65 | 31.03 | 15.76 | 9.36 |
| Cold | 23.51 | 20.95 | 21.28 | 25.90 | 18.88 | 27.81 | 23.56 | 31.98 | 27.36 | 31.29 | 13.45 | 9.49 |
| | 23.37 | 20.88 | 21.27 | 25.84 | 18.78 | 27.83 | 23.81 | 31.93 | 28.62 | 30.29 | 14.34 | 9.67 |
| | 21.50 | 20.74 | 21.13 | 24.69 | 18.32 | 26.15 | 22.13 | 29.98 | 25.08 | 29.16 | 11.64 | 9.87 |
| | 21.92 | 20.69 | 21.22 | 24.69 | 18.62 | 26.51 | 22.15 | 30.12 | 24.37 | 29.54 | 14.10 | 10.22 |
| | 20.73 | 21.93 | 21.55 | 24.42 | 18.98 | 26.15 | 22.15 | 30.47 | 23.84 | 28.95 | 13.97 | 10.33 |
| | 22.11 | 21.67 | 16.58 | 21.67 | 22.94 | 27.50 | 28.48 | 31.29 | 25.00 | 27.95 | 9.37 | 11.70 |
| | 22.20 | 21.78 | 17.79 | 21.78 | 22.66 | 27.71 | 28.16 | 29.92 | 25.00 | 27.91 | 9.44 | 11.72 |
| | 22.29 | 21.46 | 16.55 | 21.46 | 22.91 | 27.85 | 28.54 | 31.20 | 24.88 | 28.06 | 9.44 | 11.71 |
| | 24.88 | 23.81 | 17.84 | 22.69 | 24.96 | 28.95 | 28.06 | 32.39 | 25.33 | 28.19 | 10.00 | 12.34 |
| pH 4 | 23.86 | 22.62 | 18.53 | 23.57 | 24.55 | 28.68 | 29.12 | 32.66 | 25.22 | 28.04 | 10.97 | 12.39 |
| | 23.68 | 22.83 | 18.34 | 22.21 | 24.92 | 28.19 | 28.44 | 33.57 | 25.84 | 27.57 | 10.96 | 12.47 |
| | 24.31 | 22.01 | 18.18 | 22.74 | 23.33 | 29.00 | 29.36 | 31.47 | 25.59 | 28.85 | 11.91 | 13.94 |
| | 23.95 | 21.94 | 18.90 | 22.63 | 23.25 | 28.84 | 29.70 | 31.30 | 25.45 | 28.72 | 11.89 | 13.87 |

| | | | | | | | | | | | | |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 23.89 | 21.81 | 19.48 | 22.64 | 23.12 | 29.11 | 29.45 | 31.06 | 25.39 | 28.78 | 11.85 | 13.99 |
| | 19.61 | 21.41 | 21.96 | 24.85 | 19.43 | 24.67 | 27.23 | 28.19 | 23.27 | 28.37 | 7.94 | 10.17 |
| | 19.89 | 21.30 | 21.49 | 24.93 | 18.08 | 24.64 | 26.01 | 28.29 | 23.18 | 28.52 | 8.02 | 9.01 |
| | 20.16 | 21.94 | 23.16 | 24.48 | 19.50 | 24.41 | 24.82 | 28.56 | 23.07 | 28.57 | 8.02 | 9.36 |
| | 22.73 | 22.63 | 22.51 | 25.87 | 19.49 | 24.13 | 26.23 | 28.66 | 24.52 | 27.75 | 7.86 | 7.43 |
| pH 9 | 22.69 | 22.73 | 21.40 | 25.86 | 19.69 | 24.03 | 25.86 | 28.72 | 24.32 | 27.85 | 7.84 | 7.60 |
| | 22.76 | 22.17 | 21.01 | 25.68 | 19.67 | 23.92 | 25.58 | 28.76 | 24.20 | 27.75 | 7.86 | 7.32 |
| | 23.95 | 23.05 | 22.04 | 26.94 | 20.64 | 24.89 | 26.45 | 29.22 | 25.55 | 28.96 | 9.16 | 9.67 |
| | 23.89 | 22.90 | 21.87 | 26.86 | 20.70 | 24.80 | 26.39 | 29.06 | 25.44 | 28.77 | 9.04 | 9.63 |
| | 23.76 | 22.69 | 21.89 | 26.78 | 20.62 | 24.92 | 26.39 | 29.25 | 25.40 | 28.79 | 9.05 | 9.94 |
| | 25.20 | 24.87 | 24.71 | 20.61 | 17.67 | 30.09 | 25.30 | 30.93 | 22.32 | 27.95 | 11.01 | 15.96 |
| | 25.10 | 24.85 | 24.38 | 20.38 | 17.88 | 30.05 | 25.38 | 29.64 | 22.26 | 27.99 | 10.93 | 15.92 |
| | 24.96 | 24.75 | 24.34 | 20.44 | 17.71 | 30.12 | 25.45 | 29.35 | 22.13 | 27.95 | 10.91 | 15.88 |
| | 21.95 | 23.37 | 21.89 | 15.89 | 14.95 | 25.47 | 21.80 | 25.63 | 17.76 | 22.72 | 8.09 | 11.65 |
| | 21.77 | 23.06 | 21.81 | 15.90 | 14.86 | 25.39 | 21.73 | 25.66 | 17.66 | 22.70 | 8.00 | 11.62 |
| | 21.72 | 22.97 | 21.76 | 15.79 | 14.76 | 25.30 | 21.89 | 25.68 | 17.53 | 22.60 | 7.94 | 11.47 |
| | 22.15 | 22.95 | 22.16 | 16.55 | 15.22 | 26.55 | 23.22 | 26.65 | 19.23 | 24.29 | 8.15 | 13.49 |
| Devel- | 22.17 | 23.16 | 23.12 | 16.47 | 15.47 | 26.85 | 23.46 | 26.49 | 19.09 | 24.15 | 8.05 | 13.54 |
| opme- | 22.85 | 23.15 | 22.95 | 16.46 | 15.49 | 26.51 | 23.47 | 26.65 | 19.06 | 24.13 | 7.99 | 13.58 |
| ntal | 16.53 | 21.38 | 20.67 | 15.62 | 17.78 | 24.12 | 22.67 | 26.94 | 16.58 | 22.30 | 7.59 | 13.82 |
| Stages | 16.33 | 21.18 | 20.50 | 15.67 | 17.76 | 24.00 | 22.59 | 25.28 | 16.40 | 22.32 | 7.50 | 12.28 |
| | 16.19 | 21.13 | 20.47 | 15.42 | 17.70 | 24.06 | 22.63 | 25.26 | 16.39 | 22.24 | 7.48 | 11.89 |
| | 16.36 | 22.31 | 21.57 | 16.18 | 16.84 | 24.00 | 22.20 | 25.64 | 17.75 | 22.20 | 6.96 | 10.25 |
| | 16.01 | 21.99 | 21.53 | 16.24 | 16.80 | 23.93 | 22.20 | 25.64 | 17.40 | 22.15 | 6.94 | 10.44 |
| | 15.84 | 21.87 | 21.46 | 16.20 | 16.67 | 23.91 | 22.35 | 25.66 | 17.32 | 22.13 | 6.93 | 10.28 |
| | 17.52 | 21.53 | 22.12 | 16.53 | 16.99 | 24.54 | 23.28 | 25.80 | 17.99 | 23.73 | 8.63 | 12.19 |
| | 17.34 | 21.43 | 21.94 | 16.45 | 16.94 | 24.39 | 23.27 | 25.81 | 17.81 | 23.84 | 8.47 | 12.19 |
| | 17.26 | 21.26 | 21.91 | 16.30 | 16.95 | 24.39 | 23.26 | 25.86 | 17.74 | 23.69 | 8.50 | 11.84 |