

Supplemental Material

Table S1. Effects of Mg²⁺ ions on activity of *Tricholoma matsutake* α -galactosidase.

| Concentration (mM) | CK | OD405 | Average of OD405 | OD405-CK | Realtive Activity (%) |
|--------------------|-------|-------|------------------|----------|-----------------------|
| 10 | 0.094 | 0.223 | 0.200333 | 0.106333 | 30.6 ± 0.03 |
| | | 0.167 | | | |
| | | 0.211 | | | |
| 5 | 0.089 | 0.382 | 0.370333 | 0.281333 | 80.9 ± 0.01 |
| | | 0.355 | | | |
| | | 0.374 | | | |
| 2.5 | 0.086 | 0.372 | 0.373333 | 0.287333 | 82.6 ± 0.02 |
| | | 0.392 | | | |
| | | 0.356 | | | |
| 1.25 | 0.084 | 0.448 | 0.407333 | 0.323333 | 93.0 ± 0.04 |
| | | 0.398 | | | |
| | | 0.376 | | | |

The activity of α -galactosidase without incubation with metal ions was set as 100%, it was 0.34767.

Table S2. Effects of Mn²⁺ ions on activity of *Tricholoma matsutake* α -galactosidase.

| Concentration (mM) | CK | OD405 | Average of OD405 | OD405-CK | Realtive Activity (%) |
|--------------------|-------|-------|------------------|----------|-----------------------|
| 10 | 0.084 | 0.230 | 0.234667 | 0.150667 | 43.3 ± 0.03 |
| | | 0.207 | | | |
| | | 0.267 | | | |
| 5 | 0.082 | 0.365 | 0.322333 | 0.240333 | 69.1 ± 0.07 |
| | | 0.362 | | | |
| | | 0.24 | | | |
| 2.5 | 0.082 | 0.412 | 0.435333 | 0.35333 | 101.6 ± 0.02 |
| | | 0.436 | | | |
| | | 0.458 | | | |
| 1.25 | 0.1 | 0.455 | 0.449 | 0.349 | 100.4 ± 0.02 |
| | | 0.431 | | | |
| | | 0.461 | | | |

The activity of α -galactosidase without incubation with metal ions was set as 100%, it was 0.34767.

Table S3. Effects of Pb²⁺ ions on activity of *Tricholoma matsutake* α -galactosidase.

| Concentration (mM) | CK | OD405 | Average of OD405 | OD405-CK | Realtive Activity (%) |
|--------------------|-------|-------|------------------|----------|-----------------------|
| 10 | 0.1 | 0.152 | 0.13333 | 0.0333 | 9.6 ± 0.02 |
| | | 0.134 | | | |
| | | 0.114 | | | |
| 5 | 0.91 | 0.236 | 0.369 | 0.278 | 80.0 ± 0.12 |
| | | 0.411 | | | |
| | | 0.460 | | | |
| 2.5 | 0.98 | 0.301 | 0.405 | 0.307 | 88.3 ± 0.09 |
| | | 0.441 | | | |
| | | 0.473 | | | |
| 1.25 | 0.083 | 0.460 | 0.414333 | 0.33133 | 95.3 ± 0.05 |
| | | 0.427 | | | |
| | | 0.356 | | | |

The activity of α -galactosidase without incubation with metal ions was set as 100%, it was 0.34767.

Table S4. Effects of Al³⁺ ions on activity of *Tricholoma matsutake* α -galactosidase.

| Concentration (mM) | CK | OD405 | Average of OD405 | OD405-CK | Relative Activity (%) |
|--------------------|-------|-------|------------------|----------|-----------------------|
| 10 | 0.076 | 0.332 | 0.320667 | 0.250667 | 72.1 ± 0.01 |
| | | 0.327 | | | |
| | | 0.321 | | | |
| 5 | 0.086 | 0.340 | 0.280667 | 0.280667 | 80.7 ± 0.03 |
| | | 0.398 | | | |
| | | 0.362 | | | |
| 2.5 | 0.072 | 0.267 | 0.254 | 0.254 | 73.1 ± 0.05 |
| | | 0.354 | | | |
| | | 0.357 | | | |
| 1.25 | 0.074 | 0.380 | 0.286667 | 0.286667 | 82.5 ± 0.02 |
| | | 0.334 | | | |
| | | 0.368 | | | |

The activity of α -galactosidase without incubation with metal ions was set as 100%, it was 0.34767.

Table S5. Effects of Cu²⁺ ions on activity of *Tricholoma matsutake* α -galactosidase.

| Concentration (mM) | CK | OD405 | Average of OD405 | OD405-CK | Relative Activity (%) |
|--------------------|-------|-------|------------------|----------|-----------------------|
| 10 | 0.515 | 0.147 | 0.141333 | -0.37367 | ND |
| | | 0.139 | | | |
| | | 0.138 | | | |
| 5 | 0.267 | 0.149 | 0.142 | -0.125 | ND |
| | | 0.138 | | | |
| | | 0.139 | | | |
| 2.5 | 0.123 | 0.270 | 0.233667 | 0.110667 | 31.8 ± 0.01 |
| | | 0.146 | | | |
| | | 0.258 | | | |
| 1.25 | 0.118 | 0.390 | 0.399333 | 0.281333 | 80.9 ± 0.05 |
| | | 0.373 | | | |
| | | 0.435 | | | |

The activity of α -galactosidase without incubation with metal ions was set as 100%, it was 0.34767.

Table S6. Effects of Fe³⁺ ions on activity of *Tricholoma matsutake* α -galactosidase.

| Concentration (mM) | CK | OD405 | Average of OD405 | OD405-CK | Relative Activity (%) |
|--------------------|-------|-------|------------------|----------|-----------------------|
| 10 | 1.198 | 0.787 | 0.796333 | -0.40167 | ND |
| | | 0.807 | | | |
| | | 0.795 | | | |
| 5 | 0.678 | 0.452 | 0.401333 | -0.27667 | ND |
| | | 0.341 | | | |
| | | 0.411 | | | |
| 2.5 | 0.370 | 0.350 | 0.320667 | -0.04933 | ND |
| | | 0.288 | | | |
| | | 0.324 | | | |
| 1.25 | 0.224 | 0.345 | 0.333333 | 0.190333 | 31.4 ± 0.02 |
| | | 0.348 | | | |
| | | 0.307 | | | |

The activity of α -galactosidase without incubation with metal ions was set as 100%, it was 0.34767.