**Supplementary Table 3.** Maximum likelihood distance of *Lophodermella* spp. with *Lophodermium* spp. and *Elytroderma* *deformans* in the concatenated dataset.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | L. montivaga\_Gen1 | L. montivaga\_Gen2 | L. montivaga\_Gen3 | Lophodermellasulcigena | Lophophacidiumdooksii\_737873 | Lophophacidiumdooksii\_B13N3 | Lophophacidiumdooksii | Lophodermella\_sp. | L. arcuataRMNP\_LU16 | L. arcuataBPI842080 | L. arcuataRMNP\_LU1 | L. concolor\_Gen3 | L. concolor\_Gen4 | L. concolor\_Gen1 | L. concolor\_Gen2 | Elytrodermadeformans | L. conjunctaPHP19\_0986 | L. conjunctaPH18\_0655 | L. conjunctaPHP19\_0987 | Lophodermiumculmigenum | Lophodermiumnitidum | Lophodermiummolitoris | LophodermiumresinosumJBT-2017a |
| Lophodermella montivaga\_Gen1 |  | 0 | 0.002 | 0.018 | 0.023 | 0.023 | 0.026 | 0.019 | 0.03 | 0.032 | 0.03 | 0.086 | 0.085 | 0.085 | 0.086 | 0.426 | 0.439 | 0.439 | 0.439 | 0.387 | 0.386 | 0.417 | 0.384 |
| L. montivaga\_Gen2 | 0 |  | 0.002 | 0.018 | 0.023 | 0.023 | 0.026 | 0.019 | 0.03 | 0.032 | 0.03 | 0.086 | 0.085 | 0.085 | 0.086 | 0.426 | 0.439 | 0.439 | 0.439 | 0.387 | 0.386 | 0.417 | 0.384 |
| L. montivaga\_Gen3 | 0.002 | 0.002 |  | 0.016 | 0.021 | 0.021 | 0.025 | 0.017 | 0.029 | 0.031 | 0.028 | 0.084 | 0.083 | 0.083 | 0.084 | 0.424 | 0.437 | 0.437 | 0.438 | 0.385 | 0.384 | 0.415 | 0.382 |
| L. sulcigena | 0.018 | 0.018 | 0.016 |  | 0.021 | 0.021 | 0.024 | 0.017 | 0.029 | 0.031 | 0.028 | 0.084 | 0.083 | 0.083 | 0.084 | 0.424 | 0.437 | 0.437 | 0.437 | 0.385 | 0.384 | 0.415 | 0.382 |
| Lophophacidium dooksii\_737873 | 0.023 | 0.023 | 0.021 | 0.021 |  | 0 | 0.003 | 0.004 | 0.016 | 0.018 | 0.016 | 0.071 | 0.071 | 0.071 | 0.071 | 0.411 | 0.424 | 0.424 | 0.425 | 0.373 | 0.372 | 0.403 | 0.369 |
| Lophophacidium dooksii\_B13N3 | 0.023 | 0.023 | 0.021 | 0.021 | 0 |  | 0.003 | 0.004 | 0.016 | 0.018 | 0.016 | 0.071 | 0.071 | 0.071 | 0.071 | 0.412 | 0.425 | 0.425 | 0.425 | 0.373 | 0.372 | 0.403 | 0.37 |
| Lophophacidium dooksii | 0.026 | 0.026 | 0.025 | 0.024 | 0.003 | 0.003 |  | 0.008 | 0.019 | 0.021 | 0.019 | 0.075 | 0.074 | 0.074 | 0.075 | 0.415 | 0.428 | 0.428 | 0.428 | 0.376 | 0.375 | 0.406 | 0.373 |
| Lophodermella sp. | 0.019 | 0.019 | 0.017 | 0.017 | 0.004 | 0.004 | 0.008 |  | 0.012 | 0.014 | 0.011 | 0.067 | 0.066 | 0.066 | 0.067 | 0.407 | 0.42 | 0.420 | 0.42 | 0.368 | 0.367 | 0.398 | 0.365 |
| L. arcuata\_RMNP\_LU16 | 0.030 | 0.03 | 0.029 | 0.029 | 0.016 | 0.016 | 0.019 | 0.012 |  | 0.002 | 0.001 | 0.079 | 0.078 | 0.078 | 0.079 | 0.419 | 0.432 | 0.432 | 0.432 | 0.38 | 0.379 | 0.41 | 0.377 |
| L. arcuata\_BPI842080 | 0.032 | 0.032 | 0.031 | 0.031 | 0.018 | 0.018 | 0.021 | 0.014 | 0.002 |  | 0.003 | 0.081 | 0.08 | 0.08 | 0.081 | 0.421 | 0.434 | 0.434 | 0.434 | 0.382 | 0.381 | 0.412 | 0.379 |
| L. arcuata\_RMNP\_LU1 | 0.030 | 0.03 | 0.028 | 0.028 | 0.016 | 0.016 | 0.019 | 0.011 | 0.001 | 0.003 |  | 0.078 | 0.078 | 0.078 | 0.078 | 0.418 | 0.431 | 0.431 | 0.432 | 0.38 | 0.379 | 0.41 | 0.376 |
| L. concolor\_Gen3 | 0.086 | 0.086 | 0.084 | 0.084 | 0.071 | 0.071 | 0.075 | 0.067 | 0.079 | 0.081 | 0.078 |  | 0.001 | 0.001 | 0.001 | 0.442 | 0.455 | 0.455 | 0.455 | 0.403 | 0.402 | 0.433 | 0.4 |
| L. concolor\_Gen4 | 0.085 | 0.085 | 0.083 | 0.083 | 0.071 | 0.071 | 0.074 | 0.066 | 0.078 | 0.08 | 0.078 | 0.001 |  | 0 | 0.001 | 0.441 | 0.454 | 0.454 | 0.455 | 0.403 | 0.402 | 0.433 | 0.399 |
| L. concolor\_Gen1 | 0.085 | 0.085 | 0.083 | 0.083 | 0.071 | 0.071 | 0.074 | 0.066 | 0.078 | 0.08 | 0.078 | 0.001 | 0 |  | 0.001 | 0.441 | 0.454 | 0.454 | 0.455 | 0.403 | 0.402 | 0.433 | 0.399 |
| L. concolor\_Gen2 | 0.086 | 0.086 | 0.084 | 0.084 | 0.071 | 0.071 | 0.075 | 0.067 | 0.079 | 0.081 | 0.078 | 0.001 | 0.001 | 0.001 |  | 0.442 | 0.455 | 0.455 | 0.455 | 0.403 | 0.402 | 0.433 | 0.4 |
| Elytroderma\_deformans | 0.426 | 0.426 | 0.424 | 0.424 | 0.411 | 0.412 | 0.415 | 0.407 | 0.419 | 0.421 | 0.418 | 0.442 | 0.441 | 0.441 | 0.442 |  | 0.44 | 0.440 | 0.441 | 0.388 | 0.387 | 0.418 | 0.385 |
| L. conjuncta\_PHP19\_0986 | 0.439 | 0.439 | 0.437 | 0.437 | 0.424 | 0.425 | 0.428 | 0.42 | 0.432 | 0.434 | 0.431 | 0.455 | 0.454 | 0.454 | 0.455 | 0.440 |  | 0 | 0.001 | 0.401 | 0.401 | 0.431 | 0.398 |
| L. conjuncta\_PH18\_0655 | 0.439 | 0.439 | 0.437 | 0.437 | 0.424 | 0.425 | 0.428 | 0.42 | 0.432 | 0.434 | 0.431 | 0.455 | 0.454 | 0.454 | 0.455 | 0.440 | 0 |  | 0 | 0.401 | 0.4 | 0.431 | 0.398 |
| L. conjuncta\_PHP19\_0987 | 0.439 | 0.439 | 0.438 | 0.437 | 0.425 | 0.425 | 0.428 | 0.42 | 0.432 | 0.434 | 0.432 | 0.455 | 0.455 | 0.455 | 0.455 | 0.441 | 0.001 | 0 |  | 0.402 | 0.401 | 0.432 | 0.399 |
| Lophodermium\_culmigenum | 0.387 | 0.387 | 0.385 | 0.385 | 0.373 | 0.373 | 0.376 | 0.368 | 0.38 | 0.382 | 0.38 | 0.403 | 0.403 | 0.403 | 0.403 | 0.388 | 0.401 | 0.401 | 0.402 |  | 0.005 | 0.38 | 0.347 |
| Lophodermium\_nitidum | 0.386 | 0.386 | 0.384 | 0.384 | 0.372 | 0.372 | 0.375 | 0.367 | 0.379 | 0.381 | 0.379 | 0.402 | 0.402 | 0.402 | 0.402 | 0.387 | 0.401 | 0.400 | 0.401 | 0.005 |  | 0.379 | 0.346 |
| Lophodermium\_molitoris | 0.417 | 0.417 | 0.415 | 0.415 | 0.403 | 0.403 | 0.406 | 0.398 | 0.41 | 0.412 | 0.41 | 0.433 | 0.433 | 0.433 | 0.433 | 0.418 | 0.431 | 0.431 | 0.432 | 0.38 | 0.379 |  | 0.056 |
| Lophodermium\_resinosum\_JBT-2017a | 0.384 | 0.384 | 0.382 | 0.382 | 0.369 | 0.37 | 0.373 | 0.365 | 0.377 | 0.379 | 0.376 | 0.4 | 0.399 | 0.399 | 0.4 | 0.385 | 0.398 | 0.398 | 0.399 | 0.347 | 0.346 | 0.056 |  |