**Additional File 2. Information of baseline conditions used for the in vitro seed germination analysis performed in the *L. ovallei* seeds.**

At the very beginning of this study, the following baseline conditions were tested: (1) two growth media (Murashige & Skoog [1], and Gamborg B5 [2], each with or without activated carbon [3]), (2) three pH levels (5.8, 7.0, 9.0), (3) two incubation temperatures (21° and 30°C), (4) light conditions (with and without), (5) two temperature of stratification (cold and 21°C ± 3°C), (6) two seed disinfection types with ethanol (70% for 3, 5 and 10 min) and NaClO (2% for 5, 10 and 15 min ), (7) chemical scarification with H2SO4 (at 3, 5 and 10 min) and imbibition in Gibberellic Acid (GA3, 24 and 48h of imbibition times), (8) two mechanical scarification (sandpaper (1 min) and cuts in seed coat (1 cut)), (9) thermic stratification with hot water (1 and 3 min) and (10) imbibition in tap water (24 and 48 h). This strategy resulted in 30 treatments, and more than 4000 seeds were tested (see Supplemental Table 1). Each treatment was tested on 10 seeds per plate and 10 plates as replicates. Percentage of germination was evaluated after 30 days in all treatments. In those treatments where germination was detected (always less to 5 %), those variables were used to reaches a consensus media. That was called a "BASE" culture media, and it was over this culture media that *L. ovallei* seeds were sowed for the final five pre-sowing treatments.

[1] Murashige T, Skoog F. A revised medium for rapid growth and bio assays with tobacco tissue cultures. Physiol Plant. 1962,15:473-497

[2] Gamborg OL, Miller RA, Ojima K. Nutrient requirement of suspensions cultures of soybean root cells. Exp. Cell Res. 1968,50:151

Both *in vitro* cultivation conditions and pre-sowing treatments were evaluated using approximately 4000 seeds in total. A resume of these pre-sowing treatments are shown here.

|  |  |  |  |
| --- | --- | --- | --- |
| Process | Condition | Treatment | Observation |
| *In vitro* seed cultivation | Growth media | Murashige & Skoog and Gamborg5 | With and without activated carbon |
| pH | 5.8, 7.0, and 9.0 |  |
| Temperature | 21°C and 30°C | - |
| Light | With and without | - |
| Pre-sowing treatments | Stratification | Cold (4°C) and room temp (21°C) | After three months |
| Disinfection | 70% Ethanol | 3, 5, and 10 min |
| 2% NaClO | 5, 10, and 15 min |
| Chemical scarification | H2SO4 | 3, 5, and 10 min |
| GA3 | 48 h and 72 h |
| Mechanical scarification | Sandpaper | 1 min |
| Cut in testa | 1 cut |
| Thermic scarification | Hot water (100°) | 1 and 3 min |
| Tap water | 24 h and 48 h |