**Table S1:** ANOVA for single-layer artificial seeds germination rate in the L9 (33) orthogonal experiment

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Source** | **SSD** | **dof** | **Mean square** | **F** | **Sig.** |
| **Corrected Model** | 1219.965a | 6 | 203.327 | 23.898 | 0.041 |
| **Intercept** | 42149.459 | 1 | 42149.459 | 4954.052 | 0.000 |
| **A(chitosan)** | 1124.499 | 2 | 562.249 | 66.084 | 0.015 |
| **B(carbendazim)** | 78.195 | 2 | 39.098 | 4.595 | 0.179 |
| **C(activated carbon)** | 17.271 | 2 | 8.635 | 1.015 | 0.496 |
| **Error** | 17.016 | 11 | 8.508 |  |  |
| **Total** | 43386.440 | 9 |  |  |  |
| **Corrected Total** | 1236.981 | 8 |  |  |  |

a-R Squared= 0.986( Adjusted R Squared= 0.945), SSD-sum of squares of deviations, dof: degree of freedom, F-a ratio of the mean of the squared deviations to the mean of the squared error.

**Table S2:** ANOVA for double-layer artificial seeds germination rate in the L9 (33) orthogonal experiment

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Source** | **SSD** | **dof** | **Mean square** | **F** | **Sig.** |
| **Corrected Model** | 1405.137a | 6 | 234.189 | 13.850 | 0.069 |
| **Intercept** | 17272.093 | 1 | 17272.093 | 1021.442 | 0.001 |
| **A(chitosan)** | 1094.131 | 2 | 547.066 | 32.353 | 0.030 |
| **B(carbendazim)** | 34.650 | 2 | 17.325 | 1.025 | 0.494 |
| **C(activated carbon)** | 276.356 | 2 | 138.178 | 8.172 | 0.109 |
| **Error** | 33.819 | 11 | 16.910 |  |  |
| **Total** | 18711.048 | 9 |  |  |  |
| **Corrected Total** | 1438.956 | 8 |  |  |  |

a-R Squared= 0.976( Adjusted R Squared= 0.906), SSD-sum of squares of deviations, dof: degree of freedom, F-a ratio of the mean of the squared deviations to the mean of the squared error.