Bioremediation of Cd polluted soil by two host plants treated with three different species of dark-septate root endophytic fungi originated from the subarctic-subtropical areas.

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Introduction
Cadmium (Cd) polluted soil and water are easily discovered in Japan including agricultural land.

To remove these pollutants, the phytoremediation is the most environmental-friendly and low cost method. However, the phytoremediation has not been accepted widely because plant growth is deficient under the stressed condition.

Objective
In this study, we examined the use of the DSE fungi to solve the problem of phytoremediation for Cd pollution.

1. Comparison of optimum growth temperature of selected DSE isolate

Materials and Methods

Results

2. Effects of inoculation of DSE isolates on the growth of two host plants seedlings

Materials and Methods

Results

Conclusion
The subtropics origin, V. simplex, merely could grow under high temperature condition, in the contrary the subarctic origin, P. fortinii, could grow under low temperature condition.

The isolates of V. simplex and P. fortinii significantly promoted the shoot growth of S. bicolor under 20 ppm Cd concentration in vitro. Especially, treatment of P. fortinii showed best growth promotion effect on S. bicolor. In terms of B. rapa, all tested DSE significantly promoted the biomass under both of 10 ppm and 20 ppm Cd concentration.