

Effects of culture medium, container and shading on the growth of *Spiranthes sinensis* (Pers.) Ames¹

Chi-Cheng Chen² Hsiao-Chien Chao³

Abstract

This study explored culture medium, containers, growing seasons and different shading treatments on the growth of *Spiranthes sinensis* (Pers.) Ames. The results showed that medium porosity was 85.4% and container water capacity was 54.34% in peat moss, artificial soil, perlite and vermiculite mixed medium (PAPV, PM:A:P:V=3:1:2:2). The ventilation and water retention of PAPV was good ; therefore, *Spiranthes sinensis* (Pers.) Ames in PAPV grew better than in sand, soil and rice hull mixed medium (SSR, S:S:R=2:2:1). The plantlets grew faster in 7.2 L porous container than in 2.7 L non-porous container. The production was increased 23.5% in 7.2 L porous container. Transplanting plantlets of *Spiranthes sinensis* (Pers.) Ames grew slowly in summer. In spring or autumn, they conduced to the adaptability and grew well in the natural environment. Using 20% shading green net or 50% shading black net helped to reduce the impact of direct sunlight and high temperature in spring and summer. The leaf length and the yield of plants under shading net treatments were 1.17-2.31 cm and 6.1-21.6% higher than control, respectively. To sum up, the plantlets of *Spiranthes sinensis* (Pers.) Ames are growth well when they are transplanted in porous container with PAPV in spring or autumn, and depending on the seasons to use both shade net and the shelter when planting.

Keywords: tissue culture plantlets, medium, container form, growing season, shading

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2. Researcher, Hualien DARES.

3. Contract-based assistant, Lan-Yang Branch Station, Hualien DARES.