

研究论文

粉蓝烟草(Nicotiana glauca)花柱S-糖蛋白的发达及对花粉管生长的影响

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摘要 本文报道了粉蓝烟草花柱S-糖蛋白的发达特性及对花粉萌发和花粉管生长的影响。开花后1-20d内, 花柱S-糖蛋白在柱头下1-1.5cm处大量表达, 与活体上花粉管停止生长的时间和部位相吻合。在培养基中加入S-糖蛋白时, 不同来源的花粉均能顺利萌发, 但是同源花粉管生长却被特异性地抑制, 而非同源花粉则能继续正常生长。在优化离体培养条件下, 花粉管生长速率仍低于在活体上的生长速率。与对照相比, 加入S-糖蛋白后, 花粉管生长长度变异性增加。

关键词 [粉蓝烟草\(Nicotiana glauca\)](#) [自交不亲和性](#) [花柱S-糖蛋白](#) [花粉管生长](#)

分类号

Expression of Stylar S-Glycoprotein in Nicotiana glauca and Its Effect on Pollen Tube Growth

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Abstract Self-incompatibility in flowering plants is controlled by the S-gene, encoding stylar S-glycoproteins. The isolation of the stylar glycoprotein which is the likely product of the S-gene in *Nicotiana glauca* has been described previously. In this paper we reported the expression of stylar S-glycoprotein in *Nicotiana glauca* and the results of experiments on the growth of self and non-self pollen of the species in an improved incubation medium contained the stylar S-glycoprotein isolated by cation exchange chromatography. The S-glycoprotein obviously accumulated in the certain part of style in 1-2 days post-anthesis, which was only the place and time of the inhibition of the self-pollen tube growth. Pollen germination was not affected by the presence of the S-glycoprotein, but self-pollen tube growth was inhibited specifically. However, heat treatment of the S-protein before addition to the medium destroyed the inhibition effect. Although the pollen was grown in an optimized culture system, the growth rate of pollen tube in vitro was often slower than that in vivo. The variability of pollen tube lengths was increased largely in the presence of the S-protein, which suggested that some self-pollen escaped inhibition. The mechanism is under further investigation.

Key words [Nicotiana glauca](#) [Self-incompatibility](#) [Stylar S-glycoprotein](#) [pollen tube growth](#)

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