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Varietal Difference in Growth Direction of Adventitious Roots in Tea Cuttings

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Abstract:

Although seeding tea plants grow roots deeply, clonal tea plants develop shallow root systems as a result of cutting. This change in the distribution of root systems, depending on reproductive methods, is an interesting phenomenon in tea cultivation. To study the mechanism, we investigated varietal differences in the growth direction and number of adventitious roots (≥ 1 mm in diameter) by using 9-month-old cuttings of Japanese, Assamese, and Chinese varieties in 1995 and 1996. Most Japanese varieties had a growth angle of adventitious roots ranging from 65 to 75° against the perpendicular direction and produced seven or more adventitious roots (≥ 1 mm in diameter). The Assamese and Chinese varieties, however, exhibited a growth angle significantly different from the Japanese varieties. Both of these varietal groups had mean growth angles about 15° smaller than the Japanese group did, but they were inferior to the Japanese varietal group in the number of adventitious roots. These results suggested the genetic diversity of the growth direction of adventitious roots and that Assamese and Chinese varietal groups may develop deeper root systems in comparison with Japanese varieties.

Keywords:

Adventitious roots, *Camellia sinensis* L., Cutting, Growth angle of roots, Tea plants

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