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A technique to rescue inter-specific hybrids of *Camellia sinensis x Camellia sasanqua*

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Camellia sasanqua, an allied species of tea, shows a high degree of resistance to blister blight, a major disease of tea (*Camellia sinensis*) caused by a fungus, especially *Exobacidium vexance.* Introgression of this trait into cultivated tea through inter-specific hybridization is difficult owing to incompatibility barriers.

To overcome pre-fertilization barriers the following treatments were used. 1) Cut style method (removing half of the style) prior to depositing pollen, 2) Deposition of 200 ppm Boric acid + 10 % sucrose solution on stigma after pollination and 3) Deposition of 200 ppm Boric acid, 10 % sucrose incorporated with 2 g/l agar. The treatments were tested during controlled hybridization in comparison with standard controlled hybridization. Results revealed that three months after pollination the percentage of fruit set was 10 % when pollen was treated with Boric acid and sucrose solution without incorporating agar. The treatment with agar showed 8 % fruit set followed by 7 % fruit set in standard controlled hybridization method. However, there was no significant difference ($P > 0.05$) between the above treatments, 3 months after pollination. In contrast, no fruit retention was observed in the cut style method.

To prevent the post-fertilization barriers and to enhance retention of immature fruits, the following growth regulator combinations were used: 1) 10 mg/l NAA + 10 mg/l Kinetin; and 2) 10 mg/l IAA + 10 mg/l Kinetin. These were injected into the pedicel and ovary of pollinated flowers at 3 day intervals for a one month period. Results showed that treatment with NAA + Kinetin was effective in retaining fruits (20 %) as compared to treatment of IAA + Kinetin as well as standard controlled hybridization, both of which recorded zero fruit retention 3 months after pollination.

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