A TECHNIQUE TO RESCUE INTER-SPECIFIC HYBRIDS OF *Camellia sinensis* * *Camellia sasanqua*

K.M.R.D. Abhayapala[1], M.T.K. Gunasekare[2], K.K. Ranaweera[2], M.A.B. Ranathunga[2] and P. A. Weerasinghe[1]

[1]*Department of Plant Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura, Sri Lanka.*
[2]*Plant Breeding Division, Tea Research Institute of Sri Lanka, Talawakele, Sri Lanka.*

Camellia sasanqua, an allied species of tea, shows high degree of resistance to Blister blight, which a major disease in tea (*Camellia sinensis*) caused by a fungus, *Exobasidium vexanse*. Introgression of this trait into cultivated tea through inter-specific hybridization is difficult owing to incompatibility.

To overcome pre-fertilization barriers, treatments such as: 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; 3) Deposition of 200 ppm Boric acid, 10% sucrose incorporated with 2 g/l agar 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 treatments with agar showed 8% fruit set followed by 7% fruit set in standard controlled hybridization method. However, there was no significant difference ($P > 0.05$) among the above treatments, 3 months after pollination. In contrast, no fruit retention was observed in cut style method.

To prevent the post-fertilization barriers and to enhance the retention of immature fruits, growth regulator combinations such as: 1) 10 mg/l NAA + 10 mg/l Kinetin; 2) 10 mg/l IAA + 10 mg/l Kinetin; were injected into the pedicel and ovary of pollinated flowers at 3 days interval 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.

Key words: *Camellia sinensis*, *C. sasanqua*, Inter-specific hybridization, Incompatibility barriers