

Studies on Sprouting and Cold Hardiness of Mulberry (*Morus*) during Wintering and Thawing Periods

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Objectives

This study was carried out to investigate sprouting and cold hardiness during wintering and thawing periods in 7-year-old mulberry(*Morus*) three varieties of Kaeryangppong, Shinilppong and Yongcheonppong. The killing points of the mulberry twigs were investigated using DTA(Differential Thermal Analysis).

Materials and Methods

Materials - Mulberry varieties : Kaeryangppong, Shinilppong, Yongcheonppong.

Methods - Sprouting percentage

DTA(Differential Thermal Analysis) : Killing point, DT(Differential Thermal)

Results and Discussion

After breaking dormancy, the percentage of sprouting from mulberry cuttings was over 98% in all 3 mulberry varieties starting from March 15, the highest rate was in Yongcheonppong variety and the lowest was in Kaeryangppong.

The highest stage of the cold hardiness was in December and January. During the months, killing point of Kaeryangppong was -36°C, that of Shinilppong was -35°C and Yongcheonppong was -39°C.

Using DTA(Differential Thermal Analysis), the first exotherm resulting from freezing of the living bark occurred between -6°C and -13°C from October 17 to March 7, the second exotherm resulting from freezing of the xylem and pith occurred between -34°C and -37°C from December 12 to January 16.

From these results, it was concluded that the cold hardiness of mulberry was the highest in Yongcheonppong and the period of Yongcheonppong's was a month longer than the other varieties.

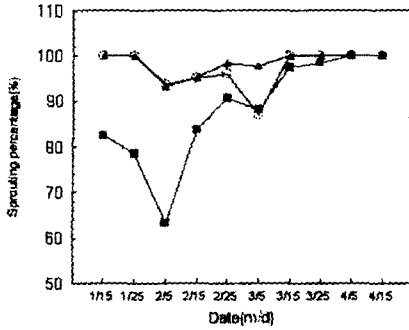


Fig. 1. Effect of cutting date on sprouting percentage of mulberry.

■ : Kaeryangppong,
 ○ : Shinilppong,
 ▲ : Yongcheonppong

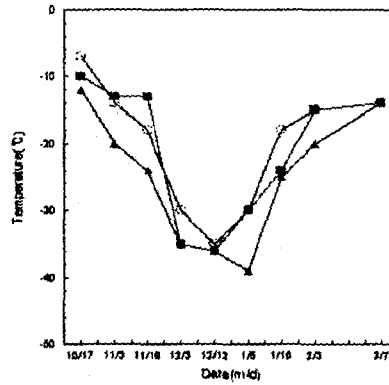


Fig. 2. Seasonal changes of the killing point in the mulberry. Symbols are the same as in Fig. 1.

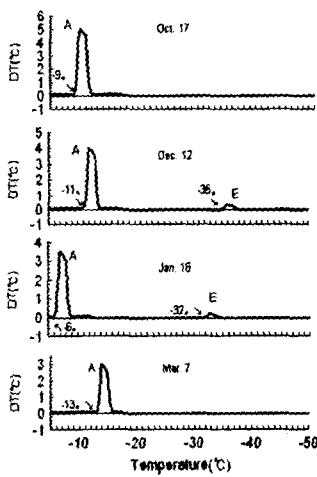


Fig. 3. DTA profiles of winter twig of the mulberry (Kaeryangppong) in different season. DT, Differential temperate; A, The first exotherm resulting from freezing of the living bark; E, The second exotherm resulting from freezing of the xylem and pith.

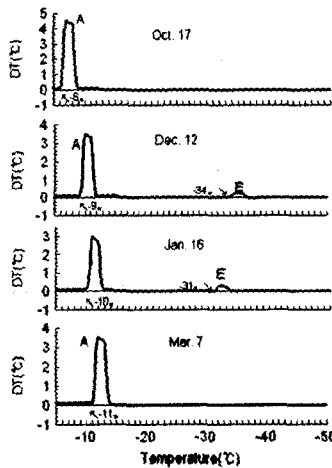


Fig. 4. DTA profiles of winter twig of the mulberry (Shinilppong). Abbreviations are the same as in Fig. 3.

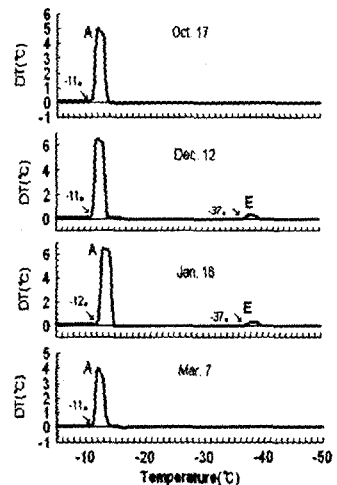


Fig. 5. DTA profiles of winter twig of the mulberry (Yongcheonppong). Abbreviations are the same as in Fig. 3.

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