

Micropropagation and Polyphenol Production in Cornus Plants

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Abstract

Polyphenol contents in eight *Cornus* plants (*C. kousa* var. *chinensis*, *C. kousa* 'Milky Way', 'Gold Star', 'Satomi', 'Snowboy', *C. capitata* 'Mountain Moon', *C. drummodii* 'Eddie's White Wonder' and *C. officinalis*) were determined. *C. capitata* leaves *in vivo* contained large amount (1.46% as dry weight) of hydrolyzable-type tannin 1,2,3,4,6-penta-O-galloyl- β -D-glucose, which level was 2-10 times larger than those of the other *Cornus* species.

Shoot cultures of *C. capitata* 'Mountain Moon', *C. kousa* var. *chinensis* and *C. kousa* 'Milky Way' were established and the polyphenol production in the tissues was also investigated. The major polyphenol constituent was mono-galloylglucose (β -glucogallin) and the content of the other polyphenols was not so high.

Micropropagation of two *Cornus* species (*C. capitata* 'Mountain Moon' and *C. kousa* var. *chinensis*) was succeeded by the method of shoot culture using two different media i. e. BW solid medium with NAA-BA (*C. capitata* 'Mountain Moon') or BA (*C. kousa* var. *chinensis*) for shoot proliferation and 1/2 BW solid medium with NAA-IBA (*C. capitata* 'Mountain Moon') or IBA-NAA (*C. kousa* var. *chinensis*) combination and activated charcoal for root proliferation. The subculture periods of the two plants were totally 1281 days (*C. capitata* 'Mountain Moon') and about 4 years (*C. kousa* var. *chinensis*), respectively. The maximum number of the subculturing shoots reached to 2463 (*C. capitata* 'Mountain Moon') and 869 (*C. kousa* var. *chinensis*), respectively. Acclimatization of the shoots was succeeded at a high rate and the plantlets grew well in a greenhouse.

The high contents of galloylglucoses of *Cornus* plants will open new demand for these plants as a new resource for the production of useful natural polyphenols which would be applicable as anti-oxidative food ingredients .