16. Micropropagation of *Prunus sargentii* REHDER and *P. verecunda* (KOIDZ) Koehe.

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1. Introduction

Kabazaiku is a traditional Samurai handicraft from Akita Prefecture, dating back to the Edo period. Cherry tree bark is used to laminate trays, tea caddies, cigarette cases and other items. Today, kabazaiku souvenirs earn about one billion yen a year. Two wild species of cherry tree, *P. sargentii* and *P. verecunda*, are used for kabazaiku. Other species, such as cherry blossom or fruit cherry species, are not used. *P. sargentii* grows naturally in the mountains of Japan (except Kyusyu and Okinawa), the Korean peninsula, the southern valley of Usury, and southern Sakhalin (Okuda et al. 1993).
verecunda grows naturally in the mountains of Japan (except Kyusyu and Okinawa), the Korean peninsula and in China (Okuda et al. 1993). Generally, P. sargentii grows at higher altitudes than P. verucunda.

Recent increased demand has resulted in a shortage of the bark used for kabazaiku. Since 1973, 10,000 P. sargentii seedlings have been planted annually in the mountains in an attempt to protect supplies. However, the bark of these trees has proved to be of poor quality and therefore unsuitable for kabazaiku. One explanation for the poor quality of the bark is the genetic characteristics of the seedlings (Sasaki et al. 2000). Therefore, it was thought that genetic improvement of the kabazaiku cherry tree nursery was necessary (Sasaki et al. 2000). Generally, tree-breeding programs take over 10 years. However, if highly desirable trees with superior bark characteristics were to be cloned, it is expected that improvements in both tree production and bark quality could be accomplished more rapidly (Ritchie, 1984, Timmis, et al., 1987).

Presently, only P. sargentii seedlings can be purchased from nurseries in Hokkaido, which is a major production district for cherry blossoms in Japan. Production in Hokkaido in 1998 was 250,000 trees (Satoh & Nishikoori, 2000), but the bark quality of those seedlings was poor. The alternative P. verucunda seedlings cannot be purchased, because there is no nursery production of this species in Japan. Thus, it is necessary to develop a clone nursery production system for kabazaiku cherry trees. Producing clones by conventional methods is difficult because the quantities and quality of branches for use are insufficient. Competition with many other trees prevents the lateral branch development of cherry trees grown in mountain areas. Moreover, it is difficult to control production levels using conventional methods in P. verucunda, and it is impossible in P. sargentii.

Therefore, micropropagation is thought to be a necessary tool for kabazaiku nursery production. Micropropagation can produce plants from small amounts of material, allowing easy control of production quantities. The process of in vitro plant production consists of primary culture, shoot proliferation and elongation, rooting, plantlet hardening, and nursery growing. However, there is no practical system for this in vitro process in Japan, especially for plantlet hardening and nursery growing. To solve this problem, in vitro production of cherry trees as plug plantlets, and improvements in plug plantlet culture, were developed in P. sargentii and P. verucunda. In addition, lowering the cost of in vitro cherry tree production for commercialization was studied.

This chapter describes in vitro cloned cherry tree nursery production for two wild species of Japanese Prunus.