

## Studies on the Constituents and Mass-propagation in Cultures of *Panax japonicus* for Cosmetic Materials

**Hiroshi Kohda**

*School of Medicine, Hiroshima University*

*Panax japonicus* C. A. Meyer is a perennial herb of the Araliaceae family, indigenous to Japan and China. *Panax japonici* Rhizoma (Chikusetsu-ninjin, in Japanese), the dried rhizome of this plant, has been utilized for hundreds of years in Japan as a drug for gastroenteric disorder, antiulcer, expectorants, and antipyretics. Several oleanane saponins, chikusetsusaponin-I<sub>b</sub>, -IV, -IV<sub>a</sub>, and -V, along with dammarane saponins, chikusetsusaponin-I<sub>a</sub> and -III were isolated from the rhizome of this plant. The composition of saponins in the rhizome of Satsumaninjin, which limited distribution in South Kyushu, was remarkably different from that of other *P. japonicus* specimens collected from other places in Japan.

Callus induced from various organs of an *in vitro* plantlet gave embryogenesis on the Murashige-Skoog's (MS) medium containing 1 ppm 2, 4-D at higher yield and in shorter incubation time than that of intact plant. When the mature embryo were cultured on the 1/2 MS medium supplemented with GA and BAP (each 1 ppm), shoot formation was induced. Subsequently the shoots were transferred to the 1/2 MS medium supplemented with 1 ppm GA and 10 ppm BAP to form multiple shoot complexes. When the shoots were subcultured in the medium containing 2 or 4 ppm IBA, rooting occurred to form plantlets.

From tissue callus of *P. japonicus* grown in South Kyushu, two dammarane saponins, ginsenosides Rg1 and Re, and an oleanane saponin (desglucosyl chikusetsusaponin-IV) together with chikusetsusaponin-IV were isolated. From the callus of Hiroshima origin, three new oleanane saponins along with chikusetsusaponin-IV and -IV<sub>a</sub> were isolated.