

## Mass Production of Adventitious Root of *Dioscorea nipponica* Makino using Bioreactor for the Production of Steroidal Saponins

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### Objectives

This study was carried out to establish *in vitro* system for the production of steroidal saponins, dioscin, prosapogenin A and prosapogenin C through bioreactor culture of adventitious root. Dioscin, a steroidal saponin is produced in the rhizome of wild yam, but not detected in cultivated species. We have established *in vitro* system for the production of steroidal saponins, dioscin from adventitious root cultures of *D. nipponica* Makino.

### Materials and Methods

1. Explants : Roots of seedlings, callus and adventitious root of *D. nipponica* Makino
2. Methods : MS and SH media with sucrose 3%, pH 5.7

Hormones : various conc. of auxins(NAA, IBA) and cytokinins(BA, kinetin, IPA)

Bioreactors: E-flask, 5L, 18L culture system

### Results and Discussion

We have screened sucrose concentrations, medium strengths, concentrations of BA, 2iP, IBA and nitrogen sources, and optimized best condition for adventitious root culture of *D. nipponica*, and determined various condition of *in vitro* production of dioscin in adventitious root and culture media.



5L bioreactor



18L bioreactor



Harvest after 6 weeks culture