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## Development of System for Medium Pouring & Vessel Sealing in Plant Tissue Culture

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### Objectives

This study was conducted to develop the system for medium pouring and vessel sealing in plant tissue culture.

### Materials and Methods

1. Materials: System of medium pouring and vessel sealing in plant tissue culture
2. Method: Survey of current status ; Development and performance evaluation of system

### Results and Discussion

According to the survey results, amounts of medium pouring was 50 to 225 mL per vessel depended on the culturing conditions, temperature & viscosity when pouring mediums were 3.7-11.8 CP and their temperatures were 36.8-88°C. Sealing material was

aluminum foil for flask and screw cap for bottle. We have developed medium pouring device and vessel sealing system of two kinds. Medium pouring device is composed of vane pump, solenoid valve, nozzle and control unit that dispenses exact medium amount to the vessel. Vessel sealing system is for sealing the flask with aluminum foil or the bottle with screw cap. Aluminum foil sealing device can provide aluminum foil using a bar moving by air suction and press the foil with proper pressure for making complete flask sealing. Screw capping is another sealing method that also could supply caps in proper posture and screw cap using two driving rollers and one idle roller.

The working performance of system was 0.5 hr/500 vessels for mediums pouring, 2 hrs/500 vessels for medium pouring plus flask sealing with aluminum foil, and 0.9 hr/500 vessels for medium pouring plus bottle sealing with cap when mediums viscosity was 10.1 CP and pouring amount was 160 mL per vessel. These performances could shorten labor hour of mediums dispensing operation by 77%, medium dispensing plus flask sealing with foil by 57%, and mediums dispensing plus bottle sealing with cap by 72%.

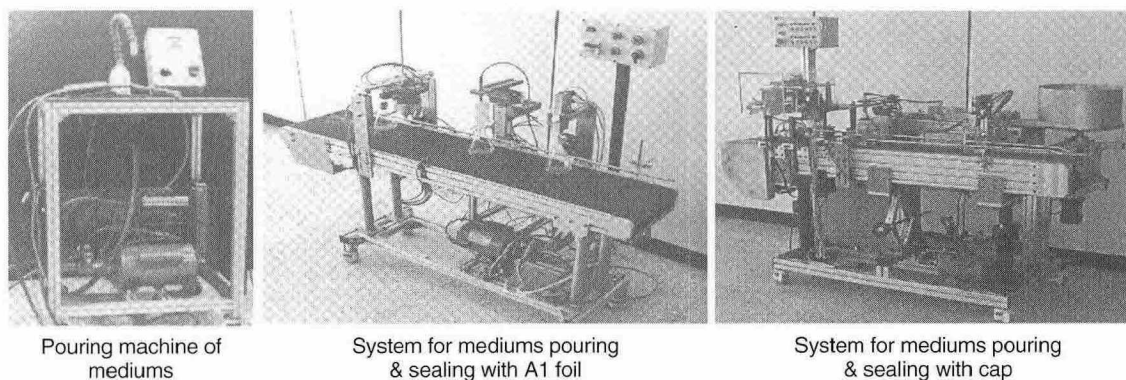


Figure 1. Photo of pouring machine and pouring & sealing systems