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LOW COST MICROPROPAGATION FOR ITS DOMESTICATION

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Micropropagation *in vitro* requires aseptic environment and sterilized cultures. Equipment such as autoclaves and laminar airflow cabinets are used for this purpose. These two pieces of equipment alone cost Rs. 300,000-500,000 plus their running cost. This unbearable cost hinders the use of micropropagation for planting material production.

A method of micropropagation was developed in the tissue culture laboratory of the Crop Science Department, Faculty of Agriculture to overcome the constraints of using these expensive pieces of equipment. In this method two chemical solutions, CSUPW and CSUPM, were used for sterilization of glassware and culture media, respectively. These solutions were tested on orchid seed germination, orchid seedling growth and anthurium multiplication under *in vitro* condition.

The jam jars used for orchid seed germination cultures were sterilized with 10% CSUPW solution and the medium with the CSUPM solution in concentrations of 0, 1, 2.5, 5 and 10%. Non sterilized, as well as autoclaved culture media were used as controls. Orchid (*Dendrobium* spp) seeds were established, in the media sterilized in the above manner, on a laboratory bench. The laminar flow environment was used for autoclaved culture media. Orchid seedlings in 1 and 2 cm sizes were cultured, in test tubes sterilized with CSUPW solution in 5,10,15 and 20% concentrations, and in the autoclaved medium as a control. Anthurium plants in 1, 2 and 3 cm sizes were cultured on an anthurium multiplication medium, which contained 1% CSUPM solution. The jam jars used for this were sterilized using 5,10, 15 and 20% CSUPW solutions. An autoclaved medium was used as a control. Storability of the both solutions were also examined.

All jars which sterilized with 10% CSUPW gave 100% contamination free cultures. The jars which contained 1% CSUPM solution and the autoclaved cultures gave 100% orchid seed germination and cultures with 2.5, 5 and 10% CSUPM solutions had 70, 40 and 30% germination, respectively. Orchid seedling media sterilized with 5% CSUPW gave 30% contaminated cultures. All other orchid seedling media were 100% contamination free. Anthurium cultures, when sterilized with 5% CSUPW solution, had 40% contaminated cultures. All other anthurium cultures were contamination free. However, 1cm anthurium plants in the jars sterilized with 20% CSUPW had toxic appearance. The solutions gave the same results after storing 3 months.

The solutions, 10-15% CSUPW and 1% CSUPM, developed in this study can be used to replace high cost equipment such as autoclaves and laminar air flow cabinets for micropropagation to obtain contamination free cultures.