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**Development of a Method to Enhance the Growth and to Recover the Diseased
Anthurium andraeanum L. Using Beneficial Microbial Communities (Biofilm
Biofertilizers)**

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Present study attempted to enhance the growth and disease recovery of *A. andraeanum* under both *in-vitro* and *ex-vitro* conditions using an environmental-friendly method. *In-vitro* grown healthy plants in 95 g of sterilized growth medium were experimented with three types of Biofilm Biofertilizer-BFBF (BV, BR and BT), chemical fertilizer (N:P:K;20:20:20) with 50% and 100% concentration and combination of three types of BFBF with 50% chemical fertilizer. Distilled water was used as the control. The initial growth parameters (total fresh weight, total shoot length, total number of leaves) were recorded. They were established using the nine treatments each consists of five glass jars having 5 plants in each jar (9x5x5). They were kept under continuous florescent light and 24 °C with 85% relative humidity. Ten milliliters of each treatment were applied with two-week intervals up to two months. The same procedure was carried out for *in-vitro* grown diseased plants as well. Total number of leaves and number of infected leaves were counted before the establishment and initial disease severity was calculated. Not only *in-vitro* grown plants, but also *ex-vitro* grown healthy and diseased plants were tested under the same procedure. Four months after establishment, the same growth parameters were recorded. Final disease severity index was calculated for diseased plants. Obtained data were statistically analyzed using one-way ANOVA and the experimental design of Completely Randomized Design (CRD). Mean separation was carried out using Tukey's HSD test. The statistical software was SAS 1998. Combination of BFBF type BT with 50% chemical fertilizer recorded the highest growth enhancement among other treatments for both *in-vitro* and *ex-vitro* grown *A. andraeanum*. Better disease recovering of *in-vitro* grown plants was accomplished using BFBF type BV alone. However, it was difficult to recover the disease in *ex-vitro* grown plants using any treatment.

Keywords: *Anthurium andraeanum*, biofilm Biofertilizer, fertilizer, diseases

Recovering Diseases and Growth Enhancement of African Violet (*Saintpaulia ionantha* Wendl.) Using Biofilm Biofertilizer

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African violet (*Saintpaulia ionantha*, family Gesneriaceae) is heavily damaged by pest and diseases. Thus, a study was conducted to recover diseases by using Biofilm Biofertilizer with enhancement of plant growth. Biofilm Biofertilizer (BFBF) is an environment friendly, 100% natural, chemical-free organic fertilizer that contains combination of microbial cells in association with biotic or abiotic surfaces, developed by National Institute of Fundamental Studies (NIFS). The experiment was conducted inside a plant house at the Royal Botanical Gardens, Peradeniya. Five month old whole plants, fresh leaf with petiole and rooted leaf with petiole were used for the experiment. Planting materials were established on sterilized media (Sand:Compost, 1:1) separately as a single plant per pot. Single polythene propagators were used to eliminate external effects. Nine different treatments were used to examine the effect of BFBF on plants. Three types of BFBF developed by the NIFS were used as BV, BR and BT alone, combination with recommended 50% chemical fertilizer (N:P:K,20:20:20), 100% recommended fertilizer alone and control with distilled water. Each treatment was consisted of five replicates. Experiment was carried on healthy plants. Number of leaves per plant, plant leaf area (cm) and Initial fresh weight (g) were recorded as initial data. Treatments were applied at the rate of 20 mL per plant from second week, for three times at two-week intervals. Treated plants exhibited different responses due to different treatments with the time. Plants treated with three types of BFBF alone were recorded more disease resistance ability and plant growth. Plants treated by BR alone and BT alone recorded both the best plant growth and high disease resistance ability. Plants treated with BR with 50% recommended chemical fertilizer produced the highest disease symptoms. The control and 50% recommended chemical fertilizer only and 100% recommended chemical fertilizer also showed disease symptoms. According to present observations, BT alone and BR alone can effectively be used to enhance the plant growth and disease resistance in African violet.

Keywords: African violet, Biofilm Biofertilizer, plant growth, disease resistance