

Title Leaves extracts of *Jatropha Curcas*, *Psidium Guajava*, *Andrographis Paniculata* control microbial population in vase solution of cut orchid flowers (Mokara 'Red')

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Abstract

Contamination of microbes causes petals wilting and discoloration of cut flowers in the vase solution, thus reducing vase life. The orchid (Mokara 'Red') cut flowers were used to determine the effect of leaves extracts from *Jatropha curcas*, *Psidium guajava*, *Andrographis paniculata* on the microbial population in vase solution. Freshly cut orchid flowers were placed in vases containing solutions of leaves extracts from *J. curcas*, *P. guajava*, *A. paniculata* at 0, 5, 10, and 15 mg/liter with sucrose. Their combination effect was compared with a standard preservative solution (sucrose + citric acid + 8-hydroxyquinoline citric) which acted as a positive control, while tap water was used as a negative control. The experimental design used was a completely randomized design with five replications. The effect of the treatments on the vase life and quality of the cut orchid flowers was investigated. The results indicated that *Aspergillus niger*, *Fusarium oxysporum*, *Penicillium notatum*, *Aspergillus ochraceus*, *Amanita citrine* and *Alternaria* sp. black molds were found in the vase solution of the cut flowers. The tap water treatment contained fungus and molds. The standard vase solution contained bacterial suspension of 5×10^8 colony-forming units (CFU)/ml of gram positive and gram negative bacteria. Fungus and molds were not found in the vase solution containing 15% of sucrose + *J. Curcas* and *A. paniculata* combination treatments. The combined treatment of Sucrose + *J. curcas* + *P. guajava* vase solution showed no CFU/ml. Flower wilting occurred when the rate of water loss fell below $\gg 1.0$ g/day. Rate of water uptake increased the vase life of the cut flowers. The combination treatment of sucrose + *J. curcas* and *A. paniculata* had water uptake rate of 1.15 g/day in 10 days of treatment. Sucrose + *J. curcas* + *P. guajava* treated flowers showed better petal colour, as indicated by L* and C*, than tap water treated flowers. Thus, leaves extracts of *J. curcas*, *A. paniculata* and *P. guajava* has the potential as a cut flower preservative solution to minimize microbial populations and extend the vase life.