Using Parasitic Fruit Sap to Produce Orchid Adhesion Glue

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The fruits of Dendrophthoe pentandra, a parasitic plant, produce sticky sap which can adhere to the trees and attach their seedlings for seed propagation. I noticed that my father had to spend a lot of time in removing the parasitic plants on the trees in his orchards which resulted in accumulating waste with the sticky glue-like material. In orchid farms, orchid seedlings are adhered to the bark of big trees with nail or bound to the trees with string. I,therefore, speculated that the glue-like material from fruits of Dendrophthoe pentandra can be used in the orchid farm. The objective of this project was to test whether the parasitic fruit sap can be used as orchid adhesive. The glue extracted from the parasitic fruit sap accounted for 63 % of the fruit weight and can be dissolved in non-polar solvents. The glue can hold weight up to 326.37kN/m2 once adhered to a suface. It can adhere to surface such as tree bark, veneer and cement plate. The glue extracted from parasitic fruit sap was used to adhere orchid seedlings on tree bark in comparison with starch paste, latex, rubber glue and super glue. We found that the extracted glue and super glue resulted in better adhesion of the orchid seedlings on tree bark than other adhesives. The orchid seedlings were undamaged and their growth rate were higher. Thus, production of the glue from parasitic fruit extraction provides a potential environmental friendly adhesive for replacement of synthetic glues and help reducing the parasitic plant population and the waste accumulated from their removal from host trees.

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Fourth Award of $500