

INTRODUCING A MICROPROPAGATION MEDIUM WITH LOCALLY AVAILABLE MATERIALS TO SUBSTITUTE MS MEDIUM

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Murashige and Skoog (MS) medium is widely used as a micropropagation medium in tissue culture. However, there are problems in this medium such as, requirement of higher number of stock solutions, limitations in disposal to the environment and high cost of chemicals. This study was conducted to substitute the MS medium with a new micropropagation medium using locally available, environmental friendly materials. Sugarcane, vermiwash, seawater, bee honey and osmocote fertilizer were used as ingredients. Sugarcane and bee honey were used as carbon and vitamin sources for all the treatments. All the above materials were included in T₁ treatment. T₂, T₃ and T₄ treatments were used to examine the effects of vermiwash, seawater and osmocote fertilizer in the newly introduced medium, respectively. T₅ was the ½ MS + ½ of T₁ medium whereas, MS media was used as a control (T₆). One square centimeter sized, healthy and 70-80% opened *Nicotiana tabacum* leaves were used to test the treatment combinations. Treatments were scored for the number of days required for shoot initiation, success percentage of explants (initiation of shoots) and the number of leaf primordia per explant. Shoot primordia were first initiated in T₁ and T₂. T₁ showed a significant difference with other treatments for success percentage of explants ($p < 0.05$). There was no significant difference among T₁, T₂ and T₆ treatments for number of leaf primordia per explant ($p < 0.05$). There was no result obtained in T₄. The results indicated that there is a good potential to use these locally available materials in a micropropagation medium as a replacement for the MS medium.

Keywords: Bee honey, Osmocote fertilizer, Seawater, Sugarcane, Vermiwash