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In vitro Environmental Factors Controlling Root Morphological Traits of Pineapple (Ananas comosus L. Merr)

Authors : S. Mohajer , R. M. Taha, M. Adel

Abstract : Developing our knowledge of when pineapple roots grow can lead to improved water, fertilizer applications, and more precise culture management. This paper presents current understanding of morphological traits in pineapple roots, highlighting studies using incubation periods and various solid MS media treated with different sucrose concentrations and pH, which directly assess in vitro environmental factors. Rooting parameters had different optimal sucrose concentrations and incubation periods. All shoots failed to root in medium supplemented with sucrose at 5 g/L and no roots formed within the first 45 days in medium enriched with sucrose at 10 g/L. After 75 days, all shoots rooted in medium enriched with 10 and 20 g/L sucrose. Moreover, MS medium supplied with 20 g/L sucrose resulted in the longest and the highest number of roots with 27.3 mm and 4.7, respectively. Root function, such as capacity for P and N uptake, declined rapidly with root length. As a result, the longer the incubation period, the better the rooting responses would be.

Keywords : environmental factors, in vitro rooting, pineapple, tissue culture
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