SUMMARY

Comparison of three bioreactor systems, partial immersion systems and semi-solid medium for commercial micropropagation of pineapple (*Ananas comosus* (L.) Merr .) Var. Md-2

Conventional pineapple (*Ananas comosus* (L.) Merr.) micropropagation in semi-solid medium is a technology with highly operating costs that limit the semi-automation of the process. The use of temporary immersion systems represent a viable alternative to reduce production costs, increasing biological performance, because of the semi-automation of micropropagation. The aim of this study was to compare the efficiency of three systems of micropropagation for pineapple variety Md-2: semisolid medium (MS supplemented with 2.1 mgL^{-1} benciladenina (BAP) + 0.3 mgL^{-1} 1-naftalenacetic acid (ANA) + 1 mgL^{-1} giberelic acid (GA_3) + 3% sucrose and 3 gL^{-1} de phytagel®; partial immersion and temporary immersion comparing three different models of bioreactors, SETISTM, temporary immersion bioreactor (BIT) and immersion bioreactor by gravity (BIG), using MS supplemented with 2.1 mgL^{-1} benciladenine (BAP) + 0.3 mgL^{-1} 1-naftalenacétic acid (ANA) + 1 mgL^{-1} paclobutlazol (PBZ) + 3% sucrose. After 42 days under culture, the number of shoots per explant was determined, they were transferred to growth media and shoot length was determined after 15 days. A stadistic random design was used and data analysis was performed by comparing averages according to Tukey ($p \leq 0.05$). The results showed, significant differences among the three different systems evauated, in the number of shoots produced, temporary immersion increased by 77 % the multiplication rate; and in length of shoots produced per explant, the highest value was observed in partial immersion. The greater regeneration efficiency was presented in the temporary immersion system with an average of 41-95 produced shoots per explant, followed by partial immersion and semi-solid medium, with an average of 22 and 11 shoots produced per explant, respectively. In conclusión, the temporary immersion bioreactor (BIT®),gravity immersion bioreactor (BIG) and SETIS TM are a viable alternative to improve the efficiency of commercial micropropagation of pineapple, SETIS being the one with the lowest cost.

Key words: micropropagation, temporary immersion, SETIS TM