ABSTRACT

PRIMADIYANTI ARSELA. In Vitro Regeneration of Terubuk (Saccharum edule). Under supervision of BAMBANG S PURWOKO as chairman; AGUS PURWITO and ANAS DSUSILA as members of the advisory committee.

Terubuk is one of the potential vegetable known as cauliflower sugarcane. It is characterized by unusual, swollen and aborted inflorescences, which is sweet and edible. The inflorescences are used as a source of food in Fiji, New Guinea, Indonesia and Malaysia by the indigenous people. The inflorescences are abnormal in the sense that they remain enclosed within the leaf-sheaths, forming a compact mass about the size of a banana fruit. Terubuk is produced and consumed locally and traded in local market only. In Indonesian’s traditional market, it is sold in bunches of 10. Terubuk is closely related to Saccharum officinarum, S. spontaneum, and S. robustum. It is exclusively propagated by cuttings or by division of clumps. To provide more inflorescences, it needs higher plants production. Its production needs cutting materials or propagules. Conventional propagation requires a lot of planting material. Tissue culture is an alternative propagation technique to solve the inavailability of plant material. The objective of this research was to obtain the best method to propagate terubuk using in vitro micropropagation through direct and indirect organogenesis. Flower stalks were used as explants. The explant’s sterilization was done by spraying the inflorescences with alcohol 96 %, then the flower was burnt. The indirect organogenesis using calli induction showed that the best medium was MS + 3.0 mg l\(^{-1}\) 2,4-D + 1.0 mg l\(^{-1}\) kinetin. This media did not produce shoots from calli proliferation stage. It was only able to produce roots. The other method was by direct organogenesis. It was shown that the best medium was MS + 0.25 mg l\(^{-1}\) thidiazuron + 0.1 mg l\(^{-1}\) NAA + 0.25 mg l\(^{-1}\) GA\(_{3}\) to produce shoots in 2 weeks without putting the explants in calli induction medium. Shoots obtained through the media varied in size. Only shoot with 1-3 cm in size were rooted. Root formation required full strength of MS salt. The percentage of success in rooting ranged from 50-80%. Acclimatization has been done, however, after 2 weeks the planlet did not survive.

Keywords: flower stalks, organogenesis, Saccharum edule, sugarcane.