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Data Article

Callus cell, shoot and stem proliferation data from pineapple crown and banana inflorescence in vitro: Biochemical and antioxidant properties

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ABSTRACT

The data article contains the experimental data and images on the callus cell, shoot and stem proliferation from pineapple crown slice and banana inflorescence in vitro. Investigated data are related to the research article "Effects of benzylaminopurine and naphthalene acetic acid on proliferation and shoot growth of pineapple (*Ananas comosus* L. Merr) in vitro" Alsaif et al. (2011) [1] and "Plantlet Production through Development of Competent Multiple Meristem Cultures from Male Inflorescence of Banana, *Musa acuminta* cv. 'Pisang Mas'(AA)" Wirakarnain et al. (2008) [2]. In the experimental data 1, physiological, (shoot weight, number length and stem proliferation) biochemical (total sugar and chlorophyll) and nutritional ((K^+ and NO_3^-) data using BAP, MS medium and NAA growth regulators in pineapple have been explored. In the experimental data 2, physiological, (callus weight, shoot number and length) biochemical (total sugar, chlorophyll, total phenol, DPPH) and nutritional (K^+ and NO_3^-) data employing BAP +IAA, MS medium and NAA growth regulators in banana have been exhibited. Overall quantitative measurement was observed by Spectrophotometer. In the experimental data, BAP was shown the best effective hormone for the both pineapple and banana explants regeneration.

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Specialization Table

Subject area: Biology.
More specific subject area: Plant cell and Tissue culture Biotechnology.
Type of data: Related to our previously published work but unpublished current data.
How data was acquired: Culture in Growth chamber, antioxidant activity, DPPH free radical measured by spectrophotometer, Biochemical and mineral content determination.
Data format: Raw, analyzed.
Experimental Factors: Single factor different plant hormone concentrations (BAP, IAA, NAA).
Experimental features: 5 replicates were used as CRD design.
Data source location: University of Malaya, Kuala Lumpur, Malaysia and Hail University, Hail city, Saudi Arabia.
Data accessibility: Data are presented in this article.

Value of the Data

- Data show the increased callus and shoot proliferation at the concentration of BAP in pineapple and BAP+IAA in Banana in vitro culture that would be an innovative data compared to other researchers.
- Data signify the studies of physiological, nutritional, biochemical and antioxidant activity in pineapple and banana explants in vitro culture.
- Investigated data are useful to the researchers working in the area of Biological Chemistry, Plant Biotechnology and Biochemistry.

1. Data

In the data, the effects of NAA and BAP on the shoot weight and stem length have been shown from pineapple explants (Table 1) [1]. In Table 2, total sugar, chlorophyll a, b and nutrient content determination have been exhibited from pineapple explants. Moreover, callus weight, shoot number and length have been shown from banana explants influenced by NAA and BAP+IAA hormones (Table 3) [2]. Table 4 has explored the total sugar, chlorophyll a, b, total phenol, DPPH activity and nutrient content from banana explants. In addition, Fig. 1 has represented the photograph of the culture from pineapple crown and subculture from explants. Fig. 2 shows the growth of shoot from male inflorescence of banana *(Musa acuminta).*

2. Experimental design, materials and methods

2.1. Experiment 1

2.1.1. Medium preparation

MS medium [3] was prepared (1 L) from stock solutions and supplemented with sucrose at 30 g/l. The medium was adjusted to pH 5.7 before adding agar at 7.0 g L^{-1}. The beaker containing the medium was placed over magnetic stirrer hot plate and heated to boiling to dissolve the agar and then dispensed equally (20 mL jar^{-1}) into 24 glass jars (5 × 15 cm) with screw rim and plastic lid which were autoclavable. The medium was then autoclaved at 121 °C and 1.5 kg cm^{-2} for 25 min. After that the autoclave was stopped and waited until it cooled down. The medium divided into 30 beakers (25 mL each). Hormone was not added (control) to the first 10 beakers and BAP at 2.0 mg/l was added to the 11–20 beakers and NAA 0.2 mg/l was added to the rest 21–30 beakers, respectively.

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