

Title Effect of 2,4-D and BAP on growth and chemical characteristics of bean sprouts (*Vigna mungo* L.)

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Abstract

Beans sprouts or tauge is a popular vegetable among the Malaysians. Sprouts are rich in nutrients, easily digested, but are perishable and have a short life cycle. Relatively, standard sprouts have long, thin hypocotyls and long roots. Plant growth regulators, such as 2,4-dichlorophenoxyacetic acid (2,4-D) and benzylaminopurine (BAP) have been used by some farmers to increase the thickness of sprout's hypocotyls and inhibit growth. Calcium makes the sprouts crispy, healthy and fresh. Thus, the objective of this study was to determine the efficiency of 2,4-D and BAP in influencing the growth of bean sprouts. *Vigna mungo* (black gram) seeds were used in this study. The bean seeds were treated with 2,4-D and BAP at 5, 10, 15 and 20 mg/L, and each with the addition of 100 mg/L calcium. The beans sprouts were analyzed for soluble solids concentration (SSC), pH, titratable acidity and vitamin C. Physical characteristics such as hypocotyls length, diameter and weight and roots length was determined. The experimental design was a randomized complete block design with a factorial arrangement of treatments. The results showed that seeds treated with 2,4-D and BAP produced significantly shorter sprout hypocotyls and roots length, bigger hypocotyls diameter and higher hypocotyls weight than sprouts from control (water treatment). Also, treated seeds produced sprouts with higher pH, vitamin C, SSC and titratable acidity compared to control. In conclusion, 2,4-D and BAP, produced desirable commercial characteristics of the bean sprouts. However, they are synthetic chemicals which are hazardous to human health. Therefore, it would still be better to have free chemical beans sprouts although they are unattractive but safe for consumption.