

SUMMARY

Comfrey (*Symphytum officinale* L.), a member of Boraginaceae family, herbaceous plant used as traditional medicine. The advantage of comfrey is as anti-inflammatory and antipyretic. The chemical components of comfrey are pyrrolizidine alkaloids (PAs), silicic acid, rosmarinic acid, tannins, allantoin, caffeic acid; as well as some vitamins such as vitamin A (retinoid), vitamin B12 (cobalamin), vitamin C (ascorbic acid), and vitamin E (tocopherol and tocotrienol). Alkaloid is the most abundant components in comfrey plant and might be increase by modifying each growing media by means increasing biomass. The addition of humic acid is believed to be able increase the growth and alkaloid content of comfrey. The aims of this research were to know the influence of humic acid application to the growth and alkaloid content of comfrey, also to know the best concentration of humic acid that influence to the growth and alkaloid content of comfrey.

Research was designed experimentally by applying a Completely Randomize Design with 4 treatments of humic acid at concentrations 0 g/kg; 4g/kg; 8g/kg and 12 g/kg. Each treatment was performed in triplicated to get total of 12 experimental units. Parameters observed in the research were the total number of leaves, fresh weight, dry weight, chlorophyll content, and alkaloid content. Chlorophyll content was determined by spectrophotometre. Meanwhile, alkaloid content determined by maceration process using ethanol 96% and partitioned process using HCl 2N, chloroform, aquadest, ethyl acetate, NaOH 1N. Data were analysed using analysis of variance (ANOVA) with 5% and 1% significance level, if the result shown the significance effect, it was then continued by LSD test.

The result of this research showed the application of humic acid in concentration of 8g/kg highly gave a significant effect to growth of plants and alkaloid content, and there is a tendency the application of humic acid increase the chlorophyll content of comfrey. Observation of regression equation the application of humic acid in concentration 6.74 g/kg show the optimum total number of leaves 36.87, in concentration 5.93 g/kg show the optimum fresh weight 116.94 g, in concentration 6.63 g/kg show the optimum dry weight 16.26 g, and in concentration 5.52 g/kg show the optimum total number of leaves 1.24 % of comfrey.

Keywords : *Symphytum officinale* L., Humic acid, alkaloid