THE GROWTH PATTERN OF PORANG (*Amorphophallus muelleri* Blume) AND THE EFFECT OF ENVIRONMENTAL FACTORS TO OXALATE AND GLUCOMANNA N CONTENT OF CORM

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**ABSTRACT**

The objective of the research was to obtain the environmental and the growth factors that affect the oxalate and glucomannan content and the density of calcium oxalate crystal idioblasts of porang corm. The research was divided in three parts: (1) the growth pattern of porang, (2) the relationship of environmental factors related to the oxalate and glucomannan content and the density of calcium oxalate crystal idioblasts of porang corm, and (3) the effect of N and lime to the oxalate and glucomannan content and the density of calcium oxalate crystal idioblasts of porang corm that was conducted ex situ. The measurement of oxalate content based on volumetric and spectrophotometric methods, glucomannan content based on gravimetric method, and the density of calcium oxalate crystal idioblasts were measured by counting the number of calcium oxalate crystal idioblasts per microscope field of vision (per mm²). Data were analyzed by Analysis of variance, correlation and regression on α=0.05. The results of the research were: (1) the growth pattern of porang from seed up to flowering was four years or four growth period, each growth period consist of 5-6 months of vegetative growth period and 5-6 months of dormant period; (2) there were four types of calcium oxalate crystal idioblasts in porang corm, the form were (i) druse, (ii) short raphides that compose like a cube, (iii) short raphides that compose like fiber bundles, and (iv) long raphides that compose long bundles; (3) chemical properties of soil which positively correlate with oxalate content of porang corm were N total and Ca; and (4) N treatment influenced the growth components, oxalate and glucomannan content and the density of calcium oxalate crystal idioblasts of porang corm, in contrast these content of porang corm were not influenced by lime treatment and the interaction between N and lime treatment.

Key words: *Amorphophallus muelleri*, corm, environmental, glucomannan, growth pattern, oxalate.