

**THE EFFECT OF CONCENTRATION LEVEL AND DURATION OF
COLCHICINE TREATMENT ON GROWTH AND YIELD OF SOYBEAN
(*Glycine max L.*)**

By: Yuyun Sukmawati

Guided by: Endah Wahyurini and Ami Suryawati

ABSTRACT

*Soybean (*Glycine max L.*) is a food commodity that is widely used as a basic ingredient for various foods in Indonesia. One of the plant breeding programs to produce superior varieties of soybeans is polyploidization using colchicines. The purpose of this study was to determine the effect of colchicine concentration and soaking time on the growth and yield of soybeans. This research will be a field experiment using a Two-factor Completely Randomized Design (CRD) with one control and 3 replications. The first factor was the concentration of colchicine which consisted of 3 levels, that is 0%, 0.05%, 0.1%, and 0.15%. The second factor is the soaking time consisting of 3 levels, that is 12 hours, 18 hours, and 24 hours. The results show that there is interaction in variable weight of 100 seeds, density of stomata, leaf area index 30 DAP and 35 DAP. The combination between colchicines concentration 0,1% in 18,27 hours soaking time give the optimum response to the density of stomata. The combination between colchicines concentration 0,1% can increase the weight of 100 seeds and leaf area index 30 DAP as the increases soaking time. The combination of colchicines concentration give optimum response to leaf area index 35 DAP in 16 hours soaking times. Colchicines concentration 0,088% gives the best response to the number of pods per plants. Colchicines concentration 0,086% gives the best response to the weight of seed plants. 22,01 soaking hours gives the best response to the volume of roots. 24 hours soaking time give the best response to increasing the amount of leaves and the number of pods per plant.*

Keywords: *Colchicines, Concentration, Duration of Treatment, Soybean*