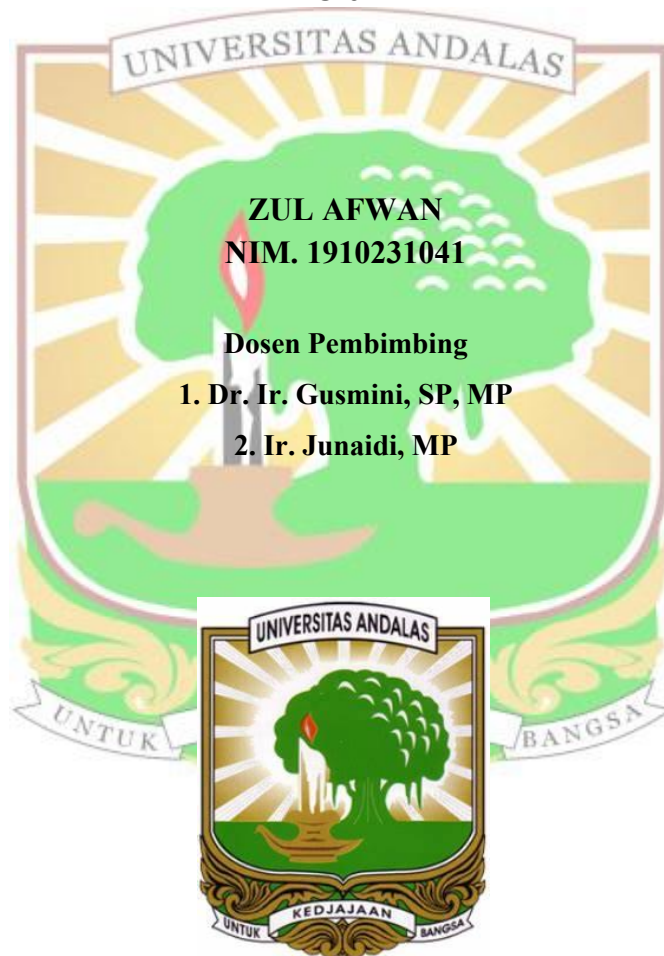


**PENGARUH PERBEDAAN FORMULASI HIDRO-BIOKANAT  
TERHADAP PERTUMBUHAN DAN HASIL TANAMAN  
PAKCOY (*Brassica rapa* L.) MENGGUNAKAN SISTEM  
HIDROPONIK**

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# PENGARUH PERBEDAAN FORMULASI HIDRO-BIOKANAT TERHADAP PERTUMBUHAN DAN HASIL TANAMAN PAKCOY (*Brassica rapa* L.) MENGGUNAKAN SISTEM HIDROPONIK

## ABSTRAK

Hidroton merupakan media tanam hidroponik yang bahan baku dasarnya tanah liat yang berbentuk kelereng. Salah satu inovasi baru yang dapat berperan sebagai bahan pengganti hidroton berupa biokanat sebagai media tanam hidroponik yang dinamakan hidro-biokanat untuk pertanian berbasis hidroponik. Tujuan penelitian untuk mengkaji kandungan formulasi hidro-biokanat dan larutan hidroponik serta pengaruh formulasi hidro-biokanat terhadap pertumbuhan dan produksi tanaman pakcoy (*Brassica rapa* L.) secara hidroponik dengan sistem *wick*. Penelitian ini menggunakan Rancangan Acak Lengkap (RAL), A. Hidroton (Liat 100%) + AB *mix* 100%, B. Hidro-biokanat 25% + AB *mix* 75%, C. Hidro-biokanat 50%+ AB *mix* 50%, D. Hidroton (Liat 100%) + AB *mix* 0%, E. Hidro-biokanat 25%+ AB *mix* 0%, F. Hidro-biokanat 50% + AB *mix* 0% dengan tiga kali ulangan sehingga diperoleh 18 percobaan. Formulasi komposisi yang terbaik sebagai media tanam hidroponik dan konsentrasi larutan nutrisi yang digunakan adalah hidro-biokanat 50% dan AB *mix* 50%, dengan perolehan parameter yang terbaik dengan nilai *Bulk Density* : 0,75 g/cm<sup>3</sup>, Daya serap air : 74,18%, Kekerasan : 6,68 N/cm<sup>2</sup>, pH H<sub>2</sub>O : 6,87 unit, N-total : 0,38%, P-total : 1,00%, K-total : 0,43%, C-total : 6,10%, Ca-total : 0,70%, Mg-total : 0,088% , Na-total : 0,0595%, KTK : 29,22 cmol/kg, pH larutan : 7,26 unit, N-total larutan : 0,75%, P-tersedia : 4,41 ppm, K-dd :4,01 cmol/kg. Pertumbuhan dan hasil tanaman pakcoy pada perlakuan formulasi komposisi hidro-biokanat 50% dan AB *mix* 50% mampu menunjukkan perlakuan terbaik dan efektif dengan tinggi tanaman 18,17 cm, jumlah daun sebanyak 14 lembar, bobot segar 41,14 g. Serapan hara yang lebih tinggi dengan kadar N-tanaman 5,94%, P-tanaman 1,52%, K-tanaman 5,15%.

Kata Kunci: Formulasi, Hidro-biokanat, Hidroton, Hidroponik, Pakcoy

# EFFECT OF DIFFERENT HYDRO-BIOKANAT FORMULATIONS ON THE GROWTH AND YIELD OF PAKCOY (*Brassica rapa* L.) PLANT USING A HYDROPONIC SYSTEMS

## ABSTRACT

Hydroton is a hydroponic growing medium on which the raw material is clay look like a marbles. One of the new innovation that can substitute hydroton is biokanat as which is called hydro-biokanat used for hydroponic-based agriculture. The aim of the research was to study the contents of the hydro-biokanat formulation as well as hydroponic solution and the effect on the growth and production of pakcoy (*Brassica rapa* L.) plants hydroponically with the wick system. This experiment consisted of 6 treatments which were combination between hydro-biokanat and AB mix. Treatment A = Hydroton (Clay 100%) + AB mix 100%, B = Hydro-biokanat 25% + AB mix 75%, C = Hydro-biokanat 50% + AB mix 50%, D = Hydroton (Clay 100%) + AB mix 0%, E = Hydro-biokanat 25% + AB mix 0%, F = Hydro-biokanat 50% + AB mix 0% with 3 replicates. The experimental unit were allocated based on Completely Randomized Design (CRD) in glasshouse. The parameters analyzed were bulk density, water absorption, hardness, pH H<sub>2</sub>O, total-N, total-P, total-K, total-C, total-Ca, total-Mg, total-Na, cation exchange capacity of the hydro-biokanat and then the solution was analyzed for the pH, total-N, P-available, K-exchangeable. The result showed that the best formulation composition as a hydroponic growing medium and the concentration of nutrient solution used were Hydro-biokanat 50%+AB mix 50%. It was indicated by the bulk density was 0.75 g/cm<sup>3</sup>, water absorption was 74.18 %, hardness was 6.68 N/cm<sup>2</sup>, pH H<sub>2</sub>O was 6.87 units, total-N was 0.38%, total-P was 1.00%, total-K was 0.43%, total-C was 6.10%, total-Ca was 0.70% , total-Mg was 0.088% , total-Na was 0.0595%, cation exchange capacity was 29.22 cmol/kg for the hydro-biokanat and then for the solution it was indicated by pH was 7.26 units, total-N was 0.75%, P-Available was 4.41 ppm, K-exchangeable was 4.01 cmol/kg. This treatment also gave the best plant production as shown by plant height (18,17 cm), total leaves (14), and fresh weight (41,14 g). The crops under this formulation could absorb the highest plant nutrition such as N-uptake (5,94%), P-uptake (1,52%), K-uptake (5,15%).

Keywords: Formulation, Hydro-biokanat, Hydroton, Hydroponics, Pakcoy