

**PHYTOCHEMICAL CONTENT TEST OF WILD TALAS BENENG LEAF  
(*Xanthosoma undipes* K.KOCH) AT GUNUNG KARANG, BANTEN**

**UJI KANDUNGAN FITOKIMIA DAUN TALAS BENENG (*Xanthosoma undipes*  
K.Koch) LIAR DI SEKITAR KAWASAN GUNUNG KARANG, BANTEN**

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**INTISARI**

Talas beneng (*Xanthosoma undipes* K. koch) merupakan tumbuhan lokal khas dari Gunung Karang, Provinsi Banten, yang tergolong dalam famili Araceae dan bersifat perennial herbaceous. Saat ini telah banyak dilakukan pengembangan produk berbahan talas beneng menjadi sumber pangan lokal. Namun, terdapat bagian lain dari tanaman talas beneng yang belum dimanfaatkan, yaitu daun talas beneng. Penelitian ini bertujuan untuk mengetahui kandungan kimia daun talas beneng sebagai bahan baku pestisida nabati menuju pertanian ramah lingkungan. Penelitian dilaksanakan mulai bulan Juni hingga September 2018. Pengambilan sampel daun talas beneng di sekitar Kawasan Gunung Karang, Kabupaten Pandeglang. Kemudian dilakukan uji laboratorium. Penelitian ini menggunakan pendekatan metode deskriptif kuantitatif. Parameter yang diamati meliputi analisis fitokimia berupa kandungan alkaloid, flavonoid, saponin, tannin, dan asam oksalat. Hasil penelitian menunjukkan bahwa hasil uji negatif terhadap flavonoid, alkaloid, dan saponin. Sedangkan hasil uji positif terdapat pada kandungan tannin dengan hasil 2337.90 mg/kg dan asam oksalat dengan hasil 7430.52 mg per kg

*Kata kunci : Daun, Talas beneng, Fitokimia*

**ABSTRACT**

Talas beneng (*Xanthosoma undipes* K. koch) is a local plant typical of Mount Karang, Banten Province, which belongs to the family Araceae and is perennial herbaceous. At present there has been a lot of development of products made from talas beneng into local food sources. However, there are other parts of the talas beneng plant that have not been utilized, namely the talas beneng leaves. This study aims to determine the chemical content of the talas beneng leaves as raw materials for vegetable pesticides towards environmentally friendly agriculture. The study was conducted from June to September 2018. Samples of talas beneng leaves were taken in the Gunung Karang area, Pandeglang Regency. Then do a laboratory test. This study uses a quantitative descriptive method approach. The parameters observed included phytochemical analysis in the form of alkaloids, flavonoids, saponins, tannins, and oxalic acid. The test results showed negative found in flavonoids, alkaloids, and saponins. While the test results showed positive found in tannin content with the results of 2337.90 mg / kg and oxalic acid with the results of 7430.52 mg per kg

**Key-words:** Leaves, Talas beneng, Phytochemicals

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## INTRODUCTION

Talas Beneng is one of the many local plants that grow wild around Gunung Karang area in Pandeglang Regency, Banten Province. Physiologically Talas Beneng has a large size and yellow color. Talas can be developed into various food products because it has high levels of protein and carbohydrates so that it can support the realization of food security. In addition, Talas Beneng is also known for its high oxalic acid content. Based on the results of a study by Kartina AM, et al., 2015, the levels of Talas Beneng's oxalic acid that cultivated were lower than those grown wildly.

Utilization of talas in general can be used through tubers to be various processed foods such as chips and brownies while for the leaves can be used as vegetables (Setyowati et al. 2007). Until now, the use of Talas Beneng has only focused on Talas Beneng tubers, so that much of the unused talas is even a waste. Leaves from Talas Beneng are one part that is not utilized. To increase the value of benefits from the remaining processing of Talas Beneng in this case leaves, it is necessary to find an effort to optimize the utilization of Talas Beneng plants.

Lately the request for agricultural products are increasing, including free from chemical pesticide residues. Therefore the strategy of managing plant pest organisms (OPT) from agricultural crops must be tried to harmonize with the demands of consumers. In addition, the use of chemical synthetic pesticides in agricultural ecosystems in the long term has a negative impact on the environment and also the costs are quite expensive.

Vegetable pesticides are pesticides originating from plants that can

be used to control the population of plant-disturbing organisms (OPT) that are environmentally friendly. Because it is natural and safe for the environment. In addition, vegetable pesticides are very easy to make and how they are applied. Several studies related to the use of vegetable commodities which are made as vegetable pesticides have been proven to protect plants from pests and diseases. According to Glio Tosin M, 2017 that gadung plants are beginning to be used as vegetable pesticides because they contain dioskorin, one of the alkaloids that is toxic to insects, caterpillars, worms (nematodes), and mice.

By looking at the advantages of vegetable pesticides that are very environmentally friendly, and the availability of Talas Beneng leaves that have not been utilized optimally and to add value to the benefits of talas beneng leaves. So, one way to optimize talas beneng leaves can be used as a raw material for vegetable pesticides. However, before further processing, it must first be tested for its chemical content. Based on this, the authors encouraged the research to conduct a "Test of Fitokima Content of Wild Talas Beneng Leaves (*Xanthosoma undipes* K.Koch) around Mount Karang Area of Banten Province" this is very necessary. Results of this research was expected to be used as one of the information about the chemical content of wild talas beneng leaves, so that it can be one of the vegetable pesticide products derived from the raw material of Talas Beneng leaves.

## METHODS

The research was conducted from June to September 2018. Data collection was carried out by means of exploratory surveys, namely interviews and direct

sampling in the field. Interviews were aimed at community leaders, and community users or those who are familiar with Talas Beneng plants. Sampling of wild Talas Beneng leaves came from Juhut Village, Karangtanjung District, Pandeglang Regency. The sample consisted of wildy grown talas beneng leaves. Phytochemical test results were carried out in the biopharmaceutical study center laboratory and in Saraswanti Bogor. The results that were obtained then analyzed using quantitative descriptive analysis of the parameters of observation. The parameters observed in talas beneng leaves were the content of flavonoids, alkaloids, saponins, tannins and oxalic acid.

## RESULT

Based on the results of the phytochemical test found in Table 1 showed a negative test results on flavonoids, alkaloids, and saponins for wildy grown talas beneng leaves. This is different from previous studies which showed the results of phytochemical tests for Bogor talas containing antinutrients including calcium oxalate, saponins, tannins, and flavonoids, the content of these compounds showed that talas leaves and stems had the potential to be larvicidal (Widhyastini Manik and Hutagaol Rchson P, 2013).

The positive talas beneng leaves contain tannin with a yield of 2337.90 mg / kg. Based on the results of these studies it is known that talas beneng leaves contain tannin, this has the potential for talas beneng leaves to be used as material to make vegetable pesticides. This research is in accordance with the results of research from Lumowa Sonja V.T and Syahril Bardin, 2017 that the active ingredient of tannin is an anti-feedant for insects. Tannin is a bitter active ingredient. Insects tend not to

eat leaves that taste bitter. Therefore, insects can become starved and will experience death. The mechanism associated with digestion of food is tannin can be bound to proteins, minerals and carbohydrates in the body of insects, so that digestion and absorption in the digestive process is disrupted.

Tannin compounds are produced by plants, functioning as protective substances in the network and outside the network. Tannins are generally resistant to overhaul or fermentation and other than that it is reducing the ability of animals to consume plants or also prevent leaf decay in trees (Yunita et al., 2009).

The results of this study also found oxalic acid content against wildy grown talas beneng leaves. Oxalate ( $C_2O_4^{2-}$ ) in talas is in the form of a water soluble (oxalic acid) and insoluble in water (usually in the form of calcium oxalate or oxalate salt). Calcium oxalate is a compound of salt between calcium ions and oxalate ions. This compound is in the form of non-volatile solid crystals, which are insoluble in water but soluble in strong acids (Schumm, 1978 in Hermita et al. 2017).

Oxalic acid can be found in free form or in the form of salt. The more common form is salt. Both forms of oxalic acid are found in both vegetable and animal ingredients. The amount of oxalic acid in plants is greater than the amount in animals (Noonan and Savage, 1999). In general there are five types of basic forms of calcium oxalate found in various plants, including in the form of raphide (needle), rectangular and pencil, druse (round), prism, and rhomboid (Horner and Wagner, 1995). Talas beneng is one of the plants that has high oxalic acid content. This is not only found in the tubers but in the fronds of the talas. Research Results of Hermita, et al.

2017 that the oxalic acid content of the talas leaf fronds with a height of 400 m asl has a higher oxalate content compared to an altitude of 800 m asl. This is inversely proportional to the talas beneng tuber that the higher the growth place the lower the content of oxalate in talas beneng tuber. Based on the results of the phytochemical test of oxalic acid compounds on wildy grown talas beneng leaves was 7430.52 mg / kg. The oxalic acid content found in talas beneng leaves can be used as one of the ingredients of vegetable pesticides because it has repellent or unpleasant taste. This is also in accordance with the results of Iswanto's research, et al. Said that oxalic acid compounds, tricin, schaftoside, isoschaftoside and apigenin-C-glycosides function as repellents (deterrence), antifeeding or toxicosis against brown planthopper. The content of these compounds is higher in resistant varieties than susceptible varieties. The role of oxalate in plants includes protection of insects and plant-eating animals through toxicity and / or unpleasant taste, and osmoregulation (Ma and Miyasaka, 1998).

## CONCLUSION

The results showed that the chemical content of tannin compounds in wildy grown talas beneng leaves was 2337.90 mg / kg and the chemical content of oxalic acid compounds was 7430.52 mg / kg. Further research needs to be done to

examine leaf extracts and their effectiveness in field conditions.

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Table 1. Phytochemical content of Wild Talas Beneng Leaves

Sample	Parameter	Results
Wild Talas Beneng Leaves	Flavonoid	Negative
	Alkaloid	Negative
	Saponin	Negative
	Tanin	2337.90 mg/kg
	Oxalat Acid	7430.52 mg/kg

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