

PHYTOCHEMICAL ANALYSIS OF MANGGONG BAMBOO LEAF EXTRACT

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Abstract

The plant of bamboo manggong (*Gigantochloa Manggong*) included into gramineae family. Utilization of the bamboo manggong leaves in the field of pharmacy had not been widely reported in the literatures and the content of secondary metabolites contained had not been studied. This study aims to know secondary metabolite compounds of extract leave the *Gigantochloa manggong*. The study was conducted on July – November 2013. The leaf of manggongbamboo was freshly harvested from MeruBtiri (East Java, Indonesia). Data analysis techniques used was a qualitative descriptives to observe color change on a bamboo leaf extract when given a reagent. The analysis of phytochemical showed, secondary metabolites compounds consisted of alkaloid, saponin and triterpenoid.

Keyword : Phytochemical, Bamboo manggong.

INTRODUCTION

There are more than 1,250 species of bamboo scattered around the world (Wang et al., 2012). There were about 60 species of bamboo in Indonesia (Dransfield, 1995 dalam Saharia, 2012). Some species of bamboo can be found in Indonesia, including *Gigantochloa atroviolacea* (Bambu Hitam), *Gigantochloa atter* (Bambu Ater), *Gigantochloa manggong* (Bambu Manggong) dan *Gigantochloa apus* (Bambu Apus). Bamboo research has been done around the world to explore the potency of the plant. Nevertheless, every area has its own endemic species or genus. Manggongbamboo (*Gigantochloa manggong*) is one of endemic bamboo in Indonesia. Bamboo plays important roles for Indonesian people but its use is still limited in the wood. The wood is used as building and furniture. According to the best knowledge of authors, bamboo leaves and their potential health benefits have been widely studied but secondary metabolite compounds of extract leave the *Gigantochloa manggong* leaf has not been scientifically studied yet. Therefore, this research was aimed to evaluate secondary metabolite compounds of extract leave the *Gigantochloa manggong*.

RESEARCH METHOD

Study design and Sampling

The study was conducted on July – November 2013. The leaf of manggongbamboo was taken from MeruBtiri (East Java, Indonesia) and the phytochemical was analyzed in FMIPA Laboratory, UNJ. A descriptive method was used in this study by a purposive sampling technique.

Phytochemical Screening

The leaf of manggongbamboo was freshly harvested from MeruBtiri (East Java, Indonesia). The leaves then dried in no sunlight area during more than 24 hours then it grinded into pieces that we called simplisia. The simplisia was extracted by using maceration method in

70% ethanol. After extraction, the solvents were removed using rotary evaporator, to get gel-like extracts called paste. The methods of Harbone were used to identify the following phytochemicals in the extracts: alkaloids, saponins, tannins, flavonoids, triterpenoids/steroids, and fenolic.

The materials used in the study include sample manggong bamboo, ethanol 70 %, HCl, aquadest, Mayer reagent, Dragendorff reagent, Wagner reagent, Magnesium, chloroform, acetic acid anhydride, H₂SO₄, NaOH 10 %, FeCl₃ 1 %.

Data analysis

Data analysis techniques used was a qualitative descriptives to observe color change on a bamboo leaf extract when given a reagent.

RESULT AND DISCUSSION



Figure 1. Preparation step of manggong bamboo leaves (a) The leaves dried in no sunlight area during more than 24 hours (b) the leaves cut into pieces (c) simplisia formed

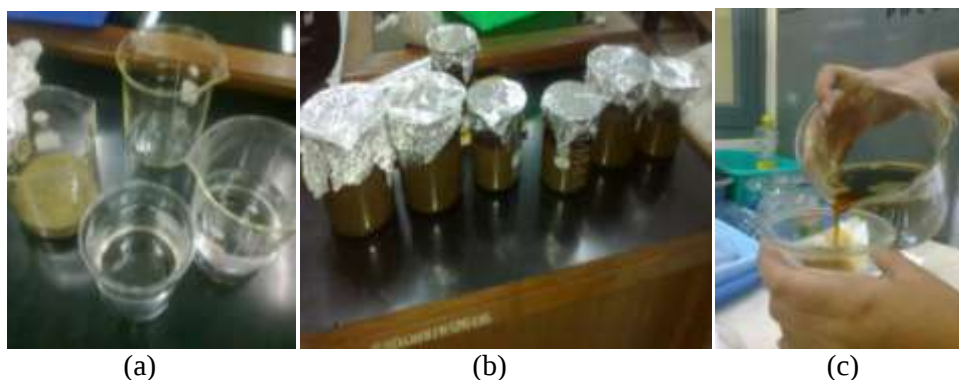


Figure 2. Extraction Step (a) preparation for maseration (b) sample after 2 days maseration (c) maseration filtrat result



Figure 3. Paste produced process (a) Liquid extract was condensed by using rotary evaporator
(b)gel-like extracts called paste

Table 1. Phytochemical analysis

Secondary metabolites compounds	Result	
	Positive	Negative
Alkaloid	√	
Triterpenoid	√	
Saponin	√	
Tannin		√
Flavonoid		√
Fenolic		√

The analysis of phytochemical showed, secondary metabolites compounds of manggong bamboo consisted of alkaloid, saponin and triterpenoids as indicators of antioxidant property in plant. It can be concluded that manggong bamboo leaves extract has antioxidant activity.

Phytochemicals are bioactive compounds found in plants that work with nutrients and dietary fiber to protect against diseases. They are nonnutritive compounds (secondary metabolites) that contribute to flavor and color (Johns in Agbafor and Nwachukwu, 2011).

The medicinal values of the plant leaves may be related to their constituent phytochemicals (Varadarajan et al. in Agbafor and Nwachukwu, 2011). The secondary metabolites (phytochemicals) and other chemical constituents of medicinal plants account for their medicinal value. For example, saponins are glycosides of both triterpene and steroids having hypotensive and cardiodepressant properties.

Alkaloids are toxic to microbes that effectively kill bacteria and viruses, as antiprotozoa and antidiarrheal, is detoxification which can neutralize toxins. Alkaloids are known to increase endurance. This substance will be taken into blood flow to the body's cells. As a result, the cells become more active, healthier and structural improvements occur and function.

CONCLUSION AND SUGGESTION

Gigantochloa manggong leaves extract has secondary metabolite compounds of alkaloid, saponin and triterpenoid as indicators of antioxidant property in plant. It can be concluded that manggong bamboo leaves extract has antioxidant activity.

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