PHYTOCHEMICAL ANALYSIS OF MANGGONG BAMBOO LEAF EXTRACT

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Abstract

The plant of bamboo manggong (Gigantochloa Manggong) included into graminae 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 metabolit 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 metabolits 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 atrovioleace (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. Manggong bamboo (Gigantochloa manggong) is one of endemic bamboo in Indonesia. Bamboo plays important roles for Indonesian people but it’s 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 metabolit compounds of extract leave the Gigantochloamanggong leaf has not been scientifically studied yet. Therefore, this research was aimed to evaluates secondary metabolit compounds of extract leave the Gigantochloamanggong.

RESEARCH METHOD

Study design and Sampling

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

Phytochemical Screening

The leaf of manggong bamboo 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 maseration 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 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

<table>
<thead>
<tr>
<th>Secondary metabolites compounds</th>
<th>Result</th>
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<tbody>
<tr>
<td></td>
<td>Positive</td>
</tr>
<tr>
<td>Alkaloid</td>
<td>√</td>
</tr>
<tr>
<td>Tritrpenoid</td>
<td>√</td>
</tr>
<tr>
<td>Saponin</td>
<td>√</td>
</tr>
<tr>
<td>Tannin</td>
<td></td>
</tr>
<tr>
<td>Flavonoid</td>
<td>√</td>
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<tr>
<td>Fenolic</td>
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</table>

The analysis of phytochemical showed, secondary metabolites compounds of manggong bamboo consisted of alkaloid, saponin and triterpenoidas 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 fibretoprotect against diseases. They are nonnutritive compounds (secondary metabolites) that contribute to flavourcolour (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 constitutents 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 kills bacteria and viruses, as antiprotozoa and antidiarrheal, is detoxification which can neutralize toxins. Alkaloids are known to increase endurance. This substance will be taken 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.
REFERENCES


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