Standardization and Phytochemoical Screening of Syzygium polyanthum Wight Leaf and Myrmecodia pendans Simplicia

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Abstract: *Syzygium polyanthum* Wight (SP) leaf and *Myrmecodia pendans* (MP) have been widely reported to have beneficial pharmacological activites. To obtain consistent and reliable results from preparations derived from medicinal plants, preparation including standardization and extraction process is important. The present study aims to determine the yields of standardization and phytochemical screening of (SP) and MP (MP) simplisia. Standardization of SP and MP showed as follows: total water : 8.6±1.13% and 9.2± 1.13%, total water soluble simplicia 10.2± 0.57% and 35.4± 7.8%, total ethanol soluble simplicia 25.6± 1.15% and 12.3± 1.52% and total ash 0.98±1.01% and 15.2± 2.69% respectively. Both simplicia consisted of alkaloid, tannin, saponin, triterpene/steroid, flavonoid and glicosyde.

1 INTRODUCTION

Syzygium polyanthum Wight (SP) is one of medicinal plants that has been widely investigated to elucidate its benefit pharmacological activity such as antidiabetic and antioxidant (Widyawati et al, 2015; Widyawati et al, 2016). *Myrmecodia pendans* (MP), an epiphytic plant that belonging of *Hydophytinae* (*Rubiceae*) family (Sudiono et al, 2015), is originated of local society in Papua island (Gartika et al, 2018). Various diseases including cancer, tumors, gout, diarrhea and diabetes have been claimed can be cured by this plant (Supriatno, 2014). Standardization is a crucial step for the development of a consistent biological activity, chemical profile, or simply a quality assurance program for production and manufacturing of herbal drugs preparation of any herbal formulation (Bajpai et al, 2012). The present study aims to compare the standardization of SP and MP.

2 MATERIAL AND METHODS

2.1 Syzygium Polyanthum Leaves and Myrmecodia Pendans Collection and Preparation

Syzygium polyanthum Wight (SP) leaves were collected from Titi Kuning Medan, Indonesia. The fresh leaves were washed in running water and dried in temperature room. The dried leaves then were ground into powder. Dried of *Myrmecodia pendans* (MP) were supplied from Fakfak, West Papua. Similar procedure as SP was conducted to obtain MP simplicia

2.2 Standardization and Phytochemical Screening Procedures

Standardization of both simplicia including determination of total water, total water soluble ash, total ethanol soluble ash and total ash was conducted based on "Materia Medika Indonesia (MMI)" (Depkes RI, 1995). Qualitative phytochemical screening to trace alkaloida, glycoside, saponin was

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based on MMI as well, while procedure by Farnsworth (1996) was used to identify the presence of tannin, flavonoid, steroida/triterpenoida and glycoside.

3 RESULTS

Table 1 showed that the percentage of total water of both SP and MP was almost comparable ie 8.6±1.13% and 9.2±1.13% of each. Total water soluble ash of MP (35.4%) was higher than SP (10.2±0.57%). Total ash of MP (15.2±2.69%) was also higher than SP (0.98±1.01%). Total ethanol soluble ash of SP (25.6±1.15%) was higher than MP (12.3±1.52%).

Table 1: Standardization of *Syzygium polyanthum* (Wight)(SP) leaf and *Myrmecodia pendans* (MP) simplicia

	SP (%)	MP (%)
Total water	8.6 ± 1.13	9.2 ± 1.13
Total water soluble simplicia	10.2 ± 0.57	35.4 ± 7.8
Total ethanol soluble simplicia	25.6 ± 1.15	12.3 ± 1.52
Total ash	0.98 ± 1.01	15.2 ± 2.69

Phytochemical screening of SP and MP simpicia traced the presence of alkaloid, tannin, saponin, triterpene/steroid, flavonoid and glycoside (Table 2).

Table 1: Phytochemical screening of *Syzygium polyanthum* (Wight)(SP) leaf and *Myrmecodia pendans* (MP) simplicia

Chemical class	SP	MP
Alkaloid	(+)	(+)
Tannin	(+)	(+)
Saponin	(+)	(+)
Triterpene/Steroid	(+)	(+)
Flavonoid	(+)	(+)
Glycoside	(+)	(+)

Plants are valuable for modern medicine development (Hariharan and Subburaju, 2012). Standardization of medicinal plant under development plays a very important role in identifying its purity and quality (Ahmad et al, 2013). According to Shalija and Banji (2014) the macroscopic and microscopic description of a medicinal plant, the degree of purity of such materials should be carried out before any studies are undertaken.

The total water content determines the stability of the extract and the subsequent formulation. The percentage of total water of both SP (8.6±1.13%) and MP (9.2±1.13%) that below 10% were in the normal level. Water content in extract less than 10% aims to avoid the rapid growth of fungus in the samples.

Determination of water- and ethanol soluble extract is a classical approach to estimate the level of active compounds based on the polarity properties. Through the determination can be calculated the percentage of polar to non polar in the samples. The sum of water soluble extract and ethanol soluble extract should not be more than 100%. The presents study showed that the total water soluble simplicia of MP (35.4±7.8%) was higher than SP (10.2±0.57%). Thus, the total ethanol soluble ash of SP (25.6±1.15%) was higher than MP (12.3±1.52%). The present study assumed that simplicia of MP was more polar than SP.

The present study identified the presence of following chemical compounds ie alkaloid, tannin, saponin, triterpene/steroid, flavonoid and glycoside. This result supported the previous study that reported the similar compounds were found in both plants.

4 CONCLUSIONS

Standardization of SP and MP simplicia meets MMI criteria. Both simplicia of SP and MP contained of alkaloid, tannin, saponin, triterpene/steroid, flavonoid and glycoside acetate.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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