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CHEMICAL ANALYSIS OF *Loranthaceae daendropthoe sp.* BY THIN LAYER CHROMATOGRAPHY

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ABSTRACT

Loranthaceae daendropthoe sp. *had proofen to inhibit myeloma cell proliferation in vitro and in vivo in rat. This evidence will make expectation to use this plant as anticancer. To make* Loranthaceae daendropthoe sp. *as a modern drug, we must to know about organic compounds of this plant. The organic compounds will used to investigate their activity and mechanism of action. This research is examine this compound of extract methanol* Loranthaceae daendropthoe sp. *with thin layer chromatography method. The result of thin layer chromatography showed that the extract methanol* Loranthaceae daendropthoe sp. *content were alkaloid, flavonoid, polyphenol, terpenoid, and steroid.*

Keywords**:** *extract methanol,* Loranthaceae daendropthoe sp*., thin layer chromatography, organic compounds.*

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INTRODUCTION

Identification of chemical compounds from medicinal plants important role because it was used as a basis to determine the nature, efficacy, mechanism of action and side effects of these plants. This is in accordance with the strategy of the World Health Organization (WHO) and the Government of the Republic of Indonesia, which encourages efforts towards the development of traditional medicine phytopharmaca. (Sumaryono, 2005). To make the *Loranthaceae deandropthoe sp.* become phytopharmaca then must be known before its chemical compounds and is used as a basis for further research. Thin layer chromatography is one method that can be used to identify a compound. Therefore, in research carried out an analysis of *Loranthaceae deandropthoe sp.* extracts in methanol thin layer chromatography method to determine the profile class of chemical compounds *Loranthaceae deandropthoe sp.*

MATERIALS AND METHODS

Research conducted in September 2007 until February 2008. The study conducted at the Natural Material Sciences Laboratory, Faculty of Pharmacy Airlangga University.

This research is exploratory. Materials and methods of research are as follows:

Plant of *Loranthaceae deandropthoe sp.*

Loranthaceae deandropthoe sp. of one year of age. all parts of the handicapped is not due to insect bites or other confounding elements. The plant growing area of South Sumatra are free of plant pests. Plant parts used are leaves of a number of provisions of the samples were then done drying and mashed. Furthermore, extracts made with solvents of Methanol.

Alkaloid class of compounds, terpenoids / steroids, flavonoids, anthraquinone, polyphenols

Is a chemical compound that can be identified using thin layer chromatography method. Standards and procedures in accordance with the standards of the Natural Material Sciences Laboratory, Faculty of Pharmacy Airlangga University.

The results in the form of spots on a thin plate and given a dye in accordance with existing procedures. Positive if visible stains in accordance with the standard color.

RESULTS

This research was conducted during three months in the Department of Pharmacology and Therapeutics, Faculty of Medicine, Airlangga University and Department of Natural Material Sciences, Faculty of Pharmacy, Airlangga University. Obtained the following results:

Alkaloid compounds examination

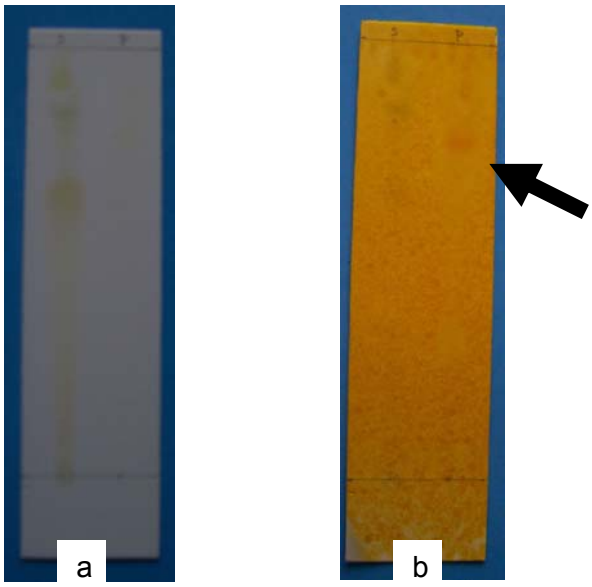

Figure 1. The result of TLC of leaf extracts for compounds alkaloids lanseum parasites. (A) Prior to staining (b) After staining with Dragendrof Reagent

Flavonoid compounds examination

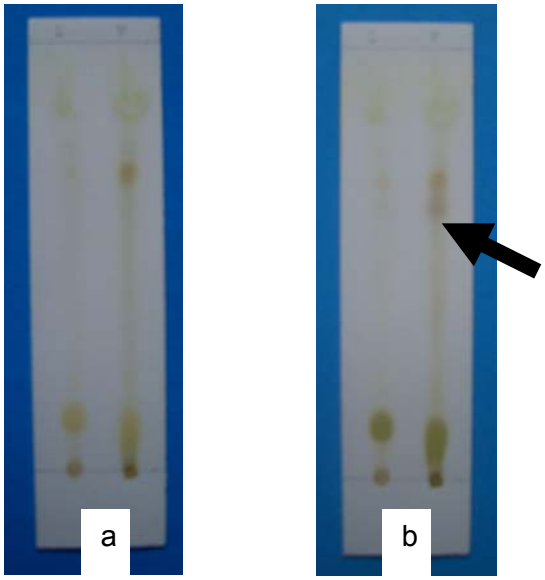

Figure 2. The result of TLC of leaf extracts for flavonoids lanseum parasite. (A) Prior to staining (b) After staining with ammonia vapor

Polyphenols compounds examination

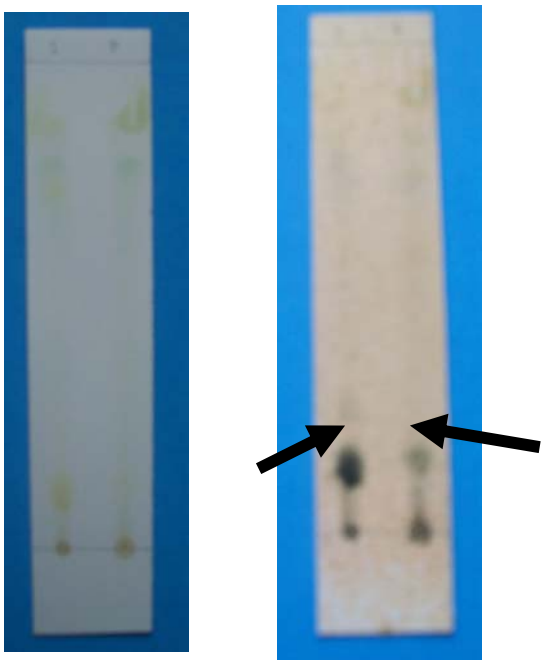

Figure 3. The result of TLC of leaf extracts for compounds Polyphenols lanseum parasites. (A) Prior to staining (b) After staining with FeCl3

Terpenoid/steroids compounds examination

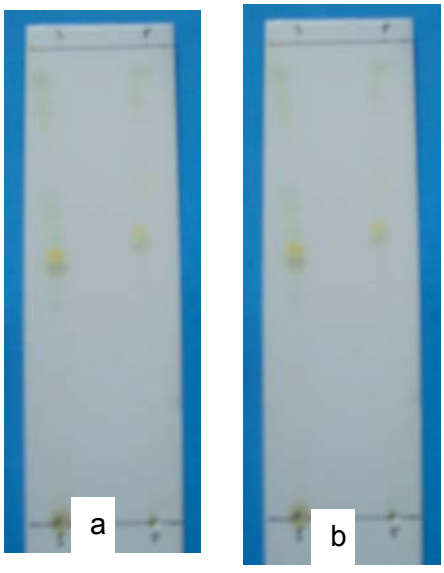

Figure 4. TLC results for the leaf extract of *Loranthaceae deandropthoe sp.* terpenoid compounds / Steroid encyclopedia. (A) Prior to staining (b) After staining with sulfuric acid anisaldehida.

Anthraquinone compounds examination

Figure 5. The result of TLC of leaf extracts of *Loranthaceae deandropthoe sp.* for Anthraquinone compounds (a) Prior to staining (b) After staining with 10% KOH in methanol.

DISCUSSION

Based on the results of thin layer chromatography of methanol extracts of leaves of *Loranthaceae deandropthoe sp.* for alkaloid class of compounds after staining with a reagent Dragendorf orange stain seemed to indicate that the methanol extracts of leaves contain compounds from the *Loranthaceae deandropthoe sp.* alkaloid class.

Alkaloids are a class of organic compounds were mostly found in nature. Almost all of alkaloid derived from various plants. All the alkaloids contained at least one nitrogen atom which is usually alkaline and in most of the nitrogen atom is part of a heterocyclic ring. Most of the alkaloid compounds found in nature have a certain biological activeness, there is a very poisonous but some are used as drugs like Quinine, morphine, and vincristine stiknin. Most alkaloids have a basic framework, including polycyclic heterocyclic rings with nitrogen and containing substituents that are not too varied. Alkaloid nitrogen atom is almost always in the form of clusters amin (-NR2) or amide groups (-CO-NR2) and never in the form of nitro groups (NO2) or diazo groups. Medium oxygen substituents are usually found as phenol group (-OH), metoksil (-OCH3) or clusters metilendoksi (-O-CH2-O). Various oxygen substituents and N-methyl group is characteristic of most of the alkaloid. In aromatic alkaloids there is a certain pattern of oxygenation. In this compound the oxygen functional groups found in the position or the para and meta positions of the aromatic ring (Lenny, 2006).

In this research can not be known classification, chemical structure and properties of the alkaloid alkaloid contained in the leaves of *Loranthaceae deandropthoe sp*., while screening for flavonoid compounds appear yellow spots, indicating that these plants contain compounds of flavonoid. Similarly, the examination for polyphenol compounds appear as a black stain marker of polyphenol compounds in the extract.

All the flavonoids, according to the parent structure is derived compounds flavone. Included in the group of phenol compounds. The term covers a variety of phenolic compounds derived from plant compounds, which have the same characteristics of the aromatic ring containing one or two hydroxyl penyulih. Phenolic compounds tend to be easily soluble in water because most often bind to sugars as glycosides. Several thousands of natural phenolic compounds have been known structure. Flavonoids are the largest group (Harborne, 1987). Some researchers have succeeded in isolating and identification of flavonoid compounds from various plants. From the plant Crotalaria anagyroides successfully isolated four flavonoid glycosides by using the spectrophotometer and high performance liquid chromatography (Munim, 2005). Polyphenol compounds are also included in the group of phenol in the form of polymers such as lignin, melanin and tannin. 3.4-dihydroxyphenyl and p-hydroxyphenyl two compounds are polyphenols from olive oil are successfully isolated and efficacious as an antioxidant (Manna C, 1995). To determine the structure and activities of flavonoids and polyphenols in the leaves of *Loranthaceae deandropthoe sp.* still needs further study.

On examination for terpenoid compounds / purple stain steroids seem to indicate that the methanol extracts of leaves contain compounds from the *Loranthaceae deandropthoe sp.* terpenoid classes / steroid free. Phylanthus niruri is one group of plants that contain compounds and efficacious as an antibacterial terpenoids. This class of compounds also found in nutritious plants pleaded Eunicea sebgai anticancer and anti-microbial (Yan Ping, 2002). Anticancer properties terpenoid class of compounds also been identified in plants Soncheifolia Emilia (Shylish, 2005). In this study both the structure and properties of terpenoid class of

compounds / steroid contained in the *Loranthaceae deandropthoe sp.* still needs further research.

CONCLUSIONS

Methanol extract of leaves of *Loranthaceae deandropthoe sp.* from the class of compounds containing various alkaloids, flavonoids, polyphenols, and terpenoid/steroid encyclopedia. While the compounds of the anthraquinone group study was not detected by thin layer chromatography method.

Isolation of individual compounds needs to be tested further proliferation of the inhibition against various cancer cells. Besides, various isolates of compounds needs to be identified by using densitometry, high performance liquid chromatography, gas chromatography, mass chromatography.

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