

CHAPTER 1

INTRODUCTION

1.1 Background

Traditional medicine consists of 3 types, namely jamu, standardized herbs, and phytopharmaceuticals.¹The most widely chosen traditional medicine preparation is herbal medicine. The consumes of jamu in Indonesia more than 50% with the highest number of jamu consumers being the low economic community.²According to the Regulation of the Minister of Health of Republic of Indonesia No. 007 of 2012 concerning the Registration of Traditional Medicines, traditional medicines are prohibited from containing ingredients that are harmful to the human body. Herbal medicines that are often added with BKO include jamu pegal linu. jamu pegal linu are used as traditional medicine to relieve muscle and bone pain, improve blood circulation, and also strengthen the body's immune system.³

According to the results of BPOM supervision and inspection, Medicinal Chemical Content (BKO) found in jamu pegal linu include phenylbutazone, paracetamol, dexamethasone, sodium diclofenac, and piroxicam. Paracetamol is widely known as an analgesic that relieves pain and headaches, as well as an antipyretic that reduces fever. However, the use of paracetamol in uncontrolled doses can cause various health problems, including stomach bleeding, heart palpitations, and liver damage.⁴

The safety of a herbal product is very important by Government Regulation PERBPOM 11 YEAR 2020_JDIH, the BKO regulations in BPOM are stated in article 86 which states that products that cannot be registered are products containing drugs, chemical drugs, narcotics, or psychotropics.⁵BKO testing on

¹Permadi, "Identification of Dexamethasone Content in Herbal Medicine for Weight Gain on Brands." University Research Colloquium, (2018): 656-662.

²Andriati and RM Teguh Wahjudi, "Society's Acceptance Level of Herb as Alternative to Modern Medicine for Lower, Middle, and Upper Class Group," Society, Culture and Politics 29, no. 3 (2016): 133.

³Wahdania A. Tahir Masdiana, Mryam St., "Analysis of Chemical Ingredients of Sodium Diclofenac Drug in Herbal Medicine Preparations for Aches and Pains Circulating in Makassar," Health Journal 1, no. 4 (2018): 311– 317.

⁴Tjandra Yoga Aditama, Herbal Medicine and Health, 2014.

⁵Head of the Drug and Food Supervisory Agency, "Drug and Food Supervisory Agency of the Republic of Indonesia" (2020): 2–85.

herbal medicine can be done using various methods such as HPLC High-Performance Liquid Chromatography⁶, Thin Layer Chromatography (TLC),⁷ Gas Chromatography (GC), and UV spectrophotometry.⁸ One of the methods that will be used to identify the content of BKO compounds in herbal medicine is Thin Layer Chromatography and like HPLC High-Performance Liquid Chromatography, TLC has the advantage of requiring a fast and easy time to do it and using cheap and simple equipment.⁹

The following is a hadith about the prohibition of using something forbidden as medicine:

From Abu Darda, he said: The Messenger of Allah SAW said: "Indeed Allah has sent down the disease and the cure, and has made every disease have a cure. So seek treatment, but do not seek treatment with that which is forbidden." (Narrated by Abu Dawud, no. 3874; and declared authentic by Al-Albani in Shahih Al-Jami' no. 1733)

This hadith teaches the importance of seeking halal treatment and not using anything haram in the healing process.¹⁰

Based on the above research to find out whether there are chemical compounds of drugs using the paracetamol compound identification method, using the HPLC High-Performance Liquid Chromatography method to determine the BKO levels in the pegel linu herbal medicine samples so that they can be used as a reference for the public about the safety of using pegel linu herbal medicine and screening areas where illegal herbal medicine is found. This attracted the author's attention to research the safety of pegel linu herbal medicine circulating in Mantingan District, East Java.

⁶Muhamad MUF Budiarti A, "Analysis of Chemical Ingredients of Dexamethasone Drug in Herbal Medicine for Aches and Pains Using High Performance Liquid Chromatography," *Cendekia Eksakta Scientific Journal* 18 (2015): 1–6.

⁷Sholikha and Anggraini, "Analysis of Phenylbutazone in Herbal Medicine for Aches and Pains Circulating in the Cibubur Area, East Jakarta."

⁸Muhamad Handoyo Sahumena et al., "Identification of Herbal Medicine Circulating in Kendari City Using UV-Vis Spectrophotometry Method" 2, no. 2 (2020): 65–72.

⁹Muhammad Irfan Firdaus and Pri Iswati Utami, "Qualitative Analysis of Paracetamol in Herbal Medicine Powder Preparations for Aches and Pains Circulating in Purwokerto," *Pharmacy* 06, no. 02 (2009): 1–5.

¹⁰(HR. Abu Dawud, no. 3874; and declared authentic by Al-Albani in Sahih Al-Jami' no. 1733)

1.2 Formulation of the problem

1. Does the herbal medicine for aches and pains circulating in Mantingan District, East Java contain Chemical Drug Substances (BKO)?
2. What is the level of Chemical Drug Substances (BKO) in the herbal medicine samples for aches and pains circulating in Mantingan District, East Java?

1.3 Research purposes

1. To find out whether or not there are chemical drug compounds (BKO) in non-BPOM herbal medicine for aches and pains circulating in Mantingan District, East Java.
2. To determine the levels of chemical drug content (BKO) in non-BPOM herbal medicine samples for aches and pains circulating in Mantingan District, East Java.

1.4 Benefits of research

1. Theoretical Benefits

The results of this study are expected to be used for the development of scientific knowledge in the fields of medicine, pharmacy and public health as well as reference material for further research.

2. Practical Benefits

The results of this study are expected to provide knowledge about the safe use of traditional medicine and increase the treasury of scientific knowledge and broaden the insight of readers, especially those in the community who predominantly use herbal medicine as a treatment.

1.5 Originality of Research

Table 1 Originality of Research

Research Title	Research methods	Variable	Results	Research Differences
<i>Identification of Chemical Drug Substances (BKO) in Traditional Medicine Preparations Sold in Aceh Markets Using Thin thin-layer chromatography.¹¹</i>	Research using the Thin Layer Chromatography (TLC) method	<ul style="list-style-type: none"> •Dependent Variables of Identification of Drug Chemicals •Free Variables of Traditional Medicines Sold in Aceh Market 	The results of the study showed that the herbal medicine samples for aches and pains A, B, C, D and E did not contain mefenamic acid. The herbal medicine samples for gout F and G did not contain allopurinol while the herbal medicine sample H contained allopurinol. The herbal medicine for menstrual pain I, J and K did not contain paracetamol.	Independent variable: Non-BPOM herbal medicine for aches and pains circulating in the Mantingan market, East Java.
<i>Paracetamol and Mefenamic Acid in Herbal Medicine for Aches and Pains and Gout Circulating in the Special Region of Yogyakarta.¹²</i>	Research using the HPLC method	<ul style="list-style-type: none"> •Dependent variables Identification of paracetamol and mefenamic acid •Free variables for herbal medicine for aches and pains and gout circulating in the Special Region of Yogyakarta 	The results of the study showed 3 herbal medicine samples containing paracetamol and none containing mefenamic acid from 14 herbal medicine samples used. The three herbal medicine samples contained paracetamol 0.04%, 0.30%, and 0.13%.	Independent variable: Non-BPOM herbal medicine for aches and pains circulating in the Mantingan market, East Java.

¹¹Maisura, Fauziah, and Rinaldi, "Identification of Medicinal Chemicals in Packaging of Herbal Medicine Sold in the Aceh Market by Thin-Layer Chromatography."

¹²Harimurti et al., "Identification of Paracetamol and Mefenamic Acid in Herbal Medicines for Aches and Pains and Gout Circulating in the Special Region of Yogyakarta."