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## Literature Study: Effectiveness of Scabies Treatment Using Natural Ingredients

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#### Abstract

The skin is the outermost organ that is often exposed to the external environment, which can cause skin diseases, one of which is scabies. Scabies is caused by the mite *Sarcoptes scabiei* var *hominis* and its products. often found in densely populated environments, such as Islamic boarding schools and communities with poor personal hygiene quality or tend to be poor, and low economic status. For management, administration of drugs is generally topical to kill the mites that cause this disease. However, it has limitations, such as the relatively expensive price, so that alternative medicine materials with relatively cheaper costs are needed, namely medicines made from plants. The purpose of this study was to evaluate publications on the effectiveness of scabies treatment using natural ingredients. Methods: This study uses a literature study method in obtaining information or data from journals and research documents. The results of the literature study indicate that the use of traditional medicine is effective in the healing process of scabies. The use of traditional medicine is effective in curing scabies but as a complement to the use of topical drugs.

**Keywords:** itching, Scabies, topical medicine, traditional medicine

#### Review Article

### Studi Literatur: Efektifitas Pengobatan Skabies Menggunakan Bahan Alam

#### Abstrak

Kulit adalah organ terluar yang sering terpapar dengan lingkungan luar, dapat menyebabkan penyakit kulit, salah satunya skabies. Skabies disebabkan oleh tungau *Sarcoptes scabiei* var *hominis* dan produknya. sering ditemukan di lingkungan yang padat penduduk, seperti pesantren dan komunitas dengan kualitas hygiene pribadi yang kurang baik atau cenderung jelek, dan status ekonomi rendah. Untuk tata laksana, pemberian obat umumnya dengan topikal untuk membunuh tungau penyebab penyakit ini. Namun

memiliki keterbatasan, seperti harganya yang relatif mahal, sehingga diperlukan bahan obat alternatif dengan biaya yang relatif lebih murah, yaitu obat berbahan tumbuhan. Tujuan studi ini adalah untuk melakukan evaluasi publikasi tentang efektivitas pengobatan skabies menggunakan bahan alam. Penelitian ini menggunakan metode studi literatur dalam mendapatkan informasi atau data dari jurnal dan dokumen penelitian. Dari hasil studi literatur menunjukkan bahwa penggunaan obat tradisional efektif dalam proses penyembuhan scabies. Penggunaan obat tradisional efektif dalam penyembuhan scabies tetapi sebagai komplementer dari penggunaan obat topikal.

**Kata Kunci:** gatal, obat topikal, , obat tradisional Skabies

## INTRODUCTION

The skin is the outermost organ of the body that is always exposed to the environment, so it is very risky to experience disease. One of the skin diseases that is closely related to environmental conditions that are not kept clean is scabies. Scabies is a skin disease caused by the mite *Sarcoptes scabiei* var *hominis* and its products. Scabies is often found in densely populated environmental conditions, such as Islamic boarding schools, nursing homes, and hospitals, low levels of education, poor personal hygiene quality or tends to be poor, and low economic status. (Thomas et al., 2015).

It is estimated that an average of 300 million cases of scabies per year occur worldwide. Scabies is a major health problem in many developing countries. In 2017 the World Health Organization (WHO) has stated that scabies is included in the Neglected Tropical Disease (NTD). (Anderson & Strowd, 2017). The prevalence of scabies in Brazil, South America reaches 18%, Benin West Africa 28.33%. In developed countries such as Germany, scabies can occur in a long endemic form or sporadically (Romani et al., 2015). In Indonesia, the prevalence of scabies in Indonesia in 2018 was 3.9-9%. Scabies in Indonesia ranks third out of the twelve most common skin diseases. Meanwhile, scabies is more common in men than women, namely 57.26% and 42.74%. (Kementerian Kesehatan RI, 2018).

One component of scabies management is the administration of topical drugs to kill the mites that cause this disease. The most commonly used topical medication is Permethrin which is applied to the entire body once. However, this drug has limitations, such as the relatively expensive price. This is certainly a problem considering that this

disease is more often found in areas with high residential density and in low socioeconomic communities (Ibadurrahmi et al., 2017). Therefore, it is necessary to use alternative medicinal materials with relatively low costs, for example, drugs made from plants.

Indonesia has abundant biological wealth and has great potential for biomedical. Several studies have shown the benefits of various plants to treat scabies, including basil (*Ocimum sanctum*) (Junita et al., 2020), anting-anting (*Acalypha indica*) (Astuti, 2019), and betel (*Piper betle*) (Aisyah, 2020). In addition to these three plants, there are many other plants that are also effective for use as a scabies drug and will be discussed further in this literature review.

## METHODS

This study uses a descriptive research design, with a literature study research method. Samples were taken from a minimum of 10 journals. Inclusion criteria are articles that discuss the comparison of the success of scabies treatment using topical and traditional medicines, articles published in the range of 2013-2020. Articles are published in the indexed journal [sinta.ristekbrin.go.id/journals](http://sinta.ristekbrin.go.id/journals) [www.scimagojr.com](http://www.scimagojr.com), and repositories of universities or institutes. Exclusion criteria are articles that are not published in English or Indonesian, articles that cannot be accessed in full. This study uses data taken in journal articles. Place and time of research at the Fakultas Kedokteran, Universitas Hang Tuah, Surabaya in March-September 2020. The data collection procedure can search for indexed international and national journal articles based on these criteria, then record and collect data and analyze data and draw conclusions.

## RESULTS

**Table 1.** Results of literature study

Number	Title and author(s)	Research Methods	Results or Conclusion	Journal or Categories
1	The Efficacy Of Permot ( <i>Passiflora foetida</i> Linn.) Leaves Crude Extract Ointment On The Healing Of Skin Of Rabbit With Scabies (Hastutiek & Eliyani, 2017)	Experimental, subject: rabbits	Therapy using 10% ointment produces a 60% success rate. Application of 15% ointment (P3) showed mild hypergranulation in the epidermis, mild follicular proliferation and inflammatory cell infiltration (PMN) in the dermis; and moderate inflammatory cell infiltration in the hypodermis. Therapy using	Science

Number	Title and author(s)	Research Methods	Results or Conclusion	Journal or Categories
			15% ointment produces a 90% success rate	
2	<i>Pengaruh Penggunaan Sabun Ekstrak Daun Mimba (Azadirachta Indica A.Juss) Terhadap Penyembuhan Lesi Penderita Skabies Grade II</i> (The affect of Mimba leaf extract to the wound healing of patient with scabies grade II) (Murniati & Rohmawati, 2018)	Experimental, subject: human	The use of neem leaf extract solid soap ( <i>Azadirachta indica A. juss</i> ) is able to provide resistance to mites, as effective as antibacterial soap	<i>Journal of Agromedicine and Medical Sciences</i>
3	<i>Ekstrak Daun Kemangi (Ocimum Sanctum) Sebagai Anti Skabies Terhadap Marmut (Cavia porcellus)</i> (Basil leaf extract as anti-scabies to <i>Cavia porcellus</i> (Junita et al., 2020)	Experimental, subject: guinea pig	The results showed that basil leaf extract had the ability as an anti-scabies in guinea pigs as effective as Sulphadex	Repository of UNILA
4	<i>Potensi Ekstrak Daun Anting-Anting (Acalypha Indica L) Sebagai Anti-Skabies Terhadap Sarcoptes scabiei Var. Cuniculi Secara In Vitro</i> (The potency of Anting-anting leaf extract as anti-scabies to <i>Sarcoptes scabiei</i> var. <i>cuniculi</i> in vitro study) (Tri Astuti et al., 2019)	In vitro study	Anting-anting leaf extract ( <i>Acalypha indica</i> L.) has a mortality rate against <i>S. scabiei</i> of 3.1 mites / hour, a lethal concentration of 12.5% and has the potential as anti-scabies in vitro, as effective as the drug Amitraz	Journal of Parasite Science
5	<i>Uji Efektivitas Skabisida Ekstrak Etanol Daun Sirih (Piper Betle L.) Secara In Vivo Terhadap Tungau Sarcoptes scabiei Pada Marmut (Cavia Porcellus)</i> (Test of efficacy of scabicide from Betel leaf ethanol extract in vivo study to the <i>Sarcoptes scabiei</i> in <i>Cavia</i> ) (Aisyah, 2020)	In vitro study	The administration of ethanol extract of betel leaf ( <i>Piper betle</i> L.) in vivo against <i>Sarcoptes scabiei</i> mites in guinea pigs ( <i>Cavia porcellus</i> ) has the highest effectiveness as a scabicide	Repository of UNILA
6	<i>Uji Ekstrak Daun Kemangi (Ocimum Sanctum L.) Dalam Bentuk Salep Dan Spray Sebagai Skabisida Tungau Sarcoptes scabiei</i> (Basil leaf extract in ointment and spray as scabicide to <i>Sarcoptes scabiei</i> (Fitri, 2020)	Experimental, subject: guinea pig	Basil leaf extract can be used as a scabicide and the ointment form is more effective than the spray form, as effective as the control drug used	Repository of UNILA
7	<i>Efek Ekstrak Daun Sirih (Piper Betle L.) Pada</i>	Experimental, subject: goat	Betel leaf extract 10, 20 and 30% gave good activity against	Jurnal Ilmiah Farmasi

Number	Title and author(s)	Research Methods	Results or Conclusion	Journal or Categories
	<i>Pengobatan Skabies Hewan Ternak Kambing Kacang (Capra Hircus)</i> (The effect of Betel leaf extract for treatment to goat with scabies) (Rezki et al., 2019)		scabies healing in Kacang goat, where the best effect was given by 30% betel leaf extract. The same effectiveness was also shown in the drug Sulphadex	
8	<i>Aktivitas Ekstrak Daun Sirsak (Annona Muricata L.) Secara In Vivo Terhadap Skabies Pada Kambing Kacang (Capra Hircus)</i> (Activity of Soursop leaf extract in vivo to goat with scabies) (Mursalim, 2018)	Experimental, subject: goat	Soursop leaf extract at concentration level of 10, 20 dan 30% show well done activity to heal goat with scabies as well as Sulphadex	As-Syifaa
9	<i>Efek Pemberian Ekstrak Awar Awar (Ficus Septica) Terhadap Gejala Klinis Scabies Pada Kelinci</i> (The effect of Awar awar extract to rabbit with clinical symptoms of scabies) (Susilo, 2019)	Experimental, subject: rabbit	Application of Awar awar extract to scabies is as well as Kopromec	Jurnal Pengembangan Penyuluhan Pertanian
10	<i>Uji Aktivitas Ekstrak Daun Gamal (Gliricidae Sepium) Secara In Vivo Terhadap Sarcoptes scabiei Pada Kelinci</i> (Activity of Gamal leaf in vivo to Sarcoptes scabiei in rabbit) (Kristina, 2019)	Experimental, subject: rabbit	Extract of Gamal leaf at the concentration level 30% has a potency as antiscabies in rabbit as well as Ivermectin	Repository of UNAIR
11	<i>Pengaruh Pemberian Kompres Air Rebusan Daun Sirih Terhadap Tingkat Skabies</i> (The effect of boiled Betel leaf water topically to the level of scabies) (Ramayanti et al., 2020)	Experimental, subject: human	There is an effect of boiled Betel leaf water topically to the level of scabies in the santriwati, the result of study is <i>Negative rank</i> it mean before and after application of the topical agent the level of scabies is decrease	<i>Nursing Sciences Journal</i>
12	<i>Development Of Extract Of Herbal Plants As Anti-Scabies In Pesantren</i> (Kumalasari, 2019)	Literature study	Seed and leaf of <i>Azadirachta indica A</i> , leaf of <i>Pluchea indica (L.)</i> , and the root of <i>Eleusina indica</i> are effective as anti-scabies	AICIS

**Table 2.** Comparison between traditional and topical treatment of Scabies

Article	Traditional treatment	Topical treatment
No-1	Extract of Permot leaf ( <i>Passiflora foetida</i> ) at 15% concentration level	Unmentioned
No-2	Extract of Mimba leaf ( <i>Azadirachta indica</i> )	Antibacterial soap (unmentioned the active agent)
No-3	Extract of Basil leaf ( <i>Ocimum sanctum</i> )	Sulfadex

Article	Traditional treatment	Topical treatment
No-4	Extract of Anting anting leaf ( <i>Acalypha indica</i> ) at 12,5% concentration level	Amitraz
No-5	Ethanol extract of Betel leaf ( <i>Piper betle</i> )	Unmentioned
No-6	Extract of Basil leaf ( <i>Ocimum sanctum</i> ); ointment	Unmentioned
No-7	Extract of Betel leaf ( <i>Piper betle</i> ) at 10, 20 and 30% concentration level	Sulfadex
No-8	Extract of Soursop leaf ( <i>Annona muricata</i> ) at 10, 20 and 30% concentration level	Sulfadex
No-9	Extract of Awar awar leaf ( <i>Ficus septica</i> )	Kopromec
No-10	Extract of Gamal leaf ( <i>Gliricidae sepium</i> ) at 30% concentration level	Ivermectin
No-11	Boiled water of Betel leaf ( <i>Piper betle</i> )	Unmentioned
No-12	Seed and leaf of <i>Azadirachta indica</i> A, leaf of <i>Pluchea indica</i> (L.), and the root of <i>Eleusina indica</i> is effective as anti-scabies	Unmentioned

**DISCUSSION**

The results of scoping articles show that there are 12 research reports that can be used to answer the formulation of the research problem. Of the 10 reports, obtained 7 research reports using experimental animal research subjects, 4 human research subjects and 1 subject in vitro. Research conducted by Hastutiek and Eliyani (2017) showed that Permot leaf extract (*Passiflora foetida*) with a concentration of 15% was effectively used to treat scabies. This study used rabbits as research subjects. Another study conducted by Murniati and Rohmawati (2018) showed that Neem (Mimba) leaf extract (*Azadirachta indica*) was effectively used to treat scabies in humans. The study also showed that the use of the extract was as effective as antibacterial soap.

Other traditional medicines were also used in a study conducted by Junita (2020) and Fitri (2020), showing that Basil leaf extract (*Ocimum sanctum*) was effectively used to treat scabies. The ointment preparation proved to be more effective than the spray preparation. The study used guinea pigs as the subject. his research. Another result shown in a study conducted by Tri Astuti (2019) showed that Anting anting leaf extract (*Acalypha indica*) with a concentration of 12.5% was effectively used to treat scabies. The research was conducted in vitro.

Other traditional medicines were also found in research conducted by Aisyah (2020), Rezki (2019), and Kumalasari (2019) which showed that Betel leaf extract (*Piper betle*) with concentrations of 10, 20, 30% was effectively used to treat scabies. The research was conducted in vitro, in vivo in goats, and literature studies. Another

ingredient that was also found to be useful was shown in a study conducted by Mursalim (2018) which showed that Soursop leaf extract (*Annona muricata*) was effectively used to treat scabies. The research was conducted in vivo on goats.

Other materials that were also found to be useful were shown in a study conducted by Susilo (2019). The study showed that Awar-awar (*Ficus septica*) leaf extract was effective to treat scabies. The study was conducted in vivo in rabbits. Another ingredient that was also found to be effective was shown in a study conducted by Kristina (2019) which showed that a 30% concentration of Gamal leaf extract (*Gliricidae sepium*) was effectively used to treat scabies. The study was conducted in vivo in rabbits.

A literature study conducted by Kumalasari (2019) showed that there are several plants that are effectively used to treat scabies, they are the seed and leaf of *Azadirachta indica*, *Pluchea indica* leaf, and *Eleusina indica* root. None of the studies used in this literature review used a drug commonly used for the treatment of scabies, namely Permethrin. Some of the drugs used as comparisons for traditional medicines by these studies are Sulphadex, Amitrax, Kopromec, Ivermectin, and skin care products.

This literature review has several limitations. First, this literature review does not analyze the various characteristics of the subjects used in the research being analyzed. This is not done because not all studies fully include the characteristics of the research subjects, so the authors consider that the analysis of the characteristics of the subjects is not appropriate when carried out. This literature review is very limited. Various studies have been published using

experimental animal research samples. For studies with human research samples, there is no control group in the form of standard drugs.

**CONCLUSION**

Natural medicine has the opportunity to replace synthetic chemical drugs with improvements of extracting methods and dosage form.

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