

INPLASY PROTOCOL

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**Review Stage at time of this
submission:** Formal screening of
search results.

Conflicts of interest:
None declared.

INTRODUCTION

Review question / Objective: To evaluate the effectiveness of topical and systemic herbal medicine in patients with psoriasis

Rationale: Psoriasis is a chronic, immune-mediated skin disease with a strong genetic predisposition, although environmental factors can exacerbate the

Herbal medicine for Psoriasis – a systematic review and meta-analysis

Anheyer, M¹; Cramer, H²; Ostermann, T³; Anheyer, D⁴.

Review question / Objective: To evaluate the effectiveness of topical and systemic herbal medicine in patients with psoriasis.

Condition being studied: The study will focus on psoriasis.

Eligibility criteria: **Inclusion:** - All age - (clinically) diagnosed psoriasis- topical or systemic herbal medicine **Exclusion:**- traditional Chinese medicine- traditional Indian medicine- traditional Korean medicine- traditional Kampo medicine- highly diluted / homeopathic preparations.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 15 May 2023 and was last updated on 15 May 2023 (registration number INPLASY202350057).

disease (1, 2). The worldwide prevalence is about 2 % but varies across geographic regions. It is more common in high-income countries and in regions with older populations. Thus, psoriasis occurs more frequently in adults than in children (3). The clinical appearance differs depending on the psoriasis variant. Plaque psoriasis is the most common form (80-90%) and manifests with sharply demarcated, erythematous, scaly patches or plaques (2). However, Psoriasis is not limited to the skin. It can also affect the joints in about

one-third of patients and is associated with other comorbidities such as mental disorders and cardiovascular disease. (4). Psoriasis is a chronic relapsing disease that often requires long-term therapy. Therapeutic options include topical and systemic treatments, depending on severity. For mild to moderate forms, topical agents such as glucocorticoids or vitamin D analogues are the mainstay of treatment. Moderate to severe psoriasis often requires systemic treatment with small molecule or biologic drugs (1, 2, 5). Due to low efficacy and side effects of conventional therapies, many patients with psoriasis use complementary and integrative medicine (CIM) (6, 7, 8, 9). Prevalence estimates for CIM use in psoriasis vary from 42-69% with herbal medicine appearing to be the most common (9). The aim of this review is therefore to provide an overview of the current state of evidence in the field of herbal medicine.

Condition being studied: The study will focus on psoriasis.

METHODS

Search strategy: For literature search, search terms were created and modified upon requirements of other databases. As an example, the search term for PubMed is presented:

("Plants, Medicinal"[Mesh] OR "Herb*" [Title/Abstract] OR Arnica[Mesh] OR Arnica [Title/Abstract] OR Retterspitz [Supplementary Concept] OR Comfrey [Mesh] OR Comfrey [Title/Abstract] OR symphytum [Title/Abstract] OR Traumaplant [Supplementary Concept] OR Traumaplant [Title/Abstract] OR Betula [Mesh] OR Betula [Title/Abstract] OR Quercus [Mesh] OR Quercus [Title/Abstract] OR "Oak bark" [Title/Abstract] OR Hypericum [Mesh] OR Hypericum [Title/Abstract] OR "St. John's Wort" [Title/Abstract] OR Hyperici [Title/Abstract] OR Matricaria [Mesh] OR Matricaria [Title/Abstract] OR Chamomile [Title/Abstract] OR Kamillosan [Supplementary Concept] OR Kamillosan [Title/Abstract] OR Kamillosan Liquidum [Supplementary

Concept] OR Kamillosan Liquidum [Title/Abstract] OR Lavandula [Mesh] OR Lavandula [Title/Abstract] OR Lavender [Title/Abstract] OR Thuja [Mesh] OR Thuja [Title/Abstract] OR "Oenothera biennis" [Mesh] OR "Oenothera biennis" [Title/Abstract] OR "evening primrose" [Title/Abstract] OR "evening primrose oil" [Supplementary Concept] OR Efamol [Supplementary Concept] OR Efamol [Title/Abstract] OR Malva [Mesh] OR Malva [Title/Abstract] OR Melissa [Mesh] OR Melissa [Title/Abstract] OR myrrh [Title/Abstract] OR Myrtus [Mesh] OR Myrtus [Title/Abstract] OR Agrimonia [Mesh] OR Agrimonia [Title/Abstract] OR "Mentha piperita" [Mesh] OR "Mentha piperita" [Title/Abstract] OR peppermint [Title/Abstract] OR "Balsanum Peruvianum" [Title/Abstract] OR "Balsam of Peru" [Title/Abstract] OR Calendula [Mesh] OR Calendula [Title/Abstract] OR "Salvia officinalis" [Mesh] OR "Salvia officinalis" [Title/Abstract] OR Salvia [Title/Abstract] OR Sage [Title/Abstract] OR Achillea [Mesh] OR Achillea [Title/Abstract] OR Yarrow [Title/Abstract] OR Equisetum [Mesh] OR Equisetum [Title/Abstract] OR horsetail [Title/Abstract] OR "Chelidonium" [Mesh] OR Chelidonium [Title/Abstract] OR celandine [Title/Abstract] OR "chelidonii herba" [Supplementary Concept] OR Echinacea [Mesh] OR Echinacea [Title/Abstract] OR echinacin [Supplementary Concept] OR echinacin [Title/Abstract] OR "Plantago lanceolata" [Title/Abstract] OR Ribwort [Title/Abstract] OR "Viola tricolor" [Title/Abstract] OR Viola [MESH] OR Heartsease [Title/Abstract] OR Centaurium [Mesh] OR Centaurium [Title/Abstract] OR centaury [Title/Abstract] OR Melaleuca [Mesh] OR Melaleuca [Title/Abstract] OR "Balsanum toltanum" [Title/Abstract] OR "Tolu balsam" [Title/Abstract] OR Potentilla [Mesh] OR Potentilla [Title/Abstract] OR Hamamelis [Mesh] OR Hamamelis [Title/Abstract] OR "Witch hazel" [Title/Abstract] OR Garlic [Mesh] OR Garlic* [Title/Abstract] OR "Allium sativum" [Title/Abstract] OR "Agrimonia extract" [Supplementary Concept] OR agrimonia [MESH] OR agrimonia [Title/Abstract] OR agrimony [Title/Abstract] OR "plantaginis lanceolatae folium"

[Supplementary Concept] OR ribwort[Title/Abstract] OR Plantaginis[Title/Abstract] OR Plantago[MESH] OR Plantago[Title/Abstract] OR “terebinthina laricina”[Mesh] OR “terebinthina laricina”[Title/Abstract] OR “turpentine”[MESH] OR “larch turpentine”[Title/Abstract] OR “clove flower extract”[Supplementary Concept] OR Caryophylli[Title/Abstract] OR “clove oil”[MESH] OR clove[Title/Abstract] OR Syzygium[MESH] OR Sycygium[Title/Abstract] OR Theae[Title/Abstract] OR juglandaceae[MESH] OR juglandaceae[Title/Abstract] OR juglandis[Title/Abstract] OR “balloon vine”[Title/Abstract] OR Cardiospermum[Title/Abstract] OR Dulcamara [Title/Abstract] OR borago[MESH] OR borago[Title/Abstract] OR “borage oil”[Supplementary Concept] OR „Urtica dioica”[MESH] OR Urticae[Title/Abstract] OR nettle[Title/Abstract] OR “Avena stramentum”[Title/Abstract] OR “Oat straw”[Title/Abstract] OR “shepherd's purse”[Title/Abstract] OR “Bursae pastoris”[Title/Abstract] OR Taraxacum[MESH] OR Taraxacum[Title/Abstract] OR dandelion[Title/Abstract] OR mahonia[MESH] OR mahonia[Title/Abstract] OR propolis[MESH] OR propolis[Title/Abstract] OR deadnettle[Title/Abstract] OR “Lamii albi”[Title/Abstract] OR “tea tree oil”[MESH] OR “Tea tree oil”[Title/Abstract] OR melaleuca[MESH] OR melaleuca[Title/Abstract] OR hippophae[MESH] OR hippophae[Title/Abstract] OR “sea buckthorn”[Title/Abstract] OR aesculus[MESH] OR aesculus[Title/Abstract] OR chestnut[Title/Abstract] OR sanguinaria[MESH] OR sanguinaria[Title/Abstract] OR bloodroot[Title/Abstract] OR aloe[MESH] OR aloe[Title/Abstract] OR “Aloe vera gel”[Supplementary Concept] OR onions[MESH] OR onion[Title/Abstract] OR “Allium cepa”[Title/Abstract] OR “bellis perennis”[Title/Abstract] OR daisies[Title/Abstract] OR juglans[MESH] OR juglans[Title/Abstract] OR walnut[Title/Abstract] OR Azadirachta[MESH] OR Azadirachta[Title/Abstract] OR “neem tree”[Title/Abstract] OR “neem oil”[Supplementary Concept] OR bran[Title/Abstract]
AND

(“Administration, cutaneous”[MESH] OR “skin diseases”[MESH] OR dermatology[MESH] OR “Dermatitis, atopic”[MESH] OR Derm*[Title/Abstract] OR cutan*[Title/Abstract] OR “atopic dermatitis”[Title/Abstract] OR neurodermatitis[Title/Abstract] OR “diaper dermatitis”[Title/Abstract] OR psorias*[Title/Abstract] OR ulcer[Title/Abstract] OR ulcer*[Title/Abstract] OR wound[Title/Abstract] OR herper[Title/Abstract] OR acne[Title/Abstract] OR eczem*[Title/Abstract] OR pruritus[Title/Abstract] OR urticaria[Title/Abstract]).

Participant or population: Participants with clinically diagnosed psoriasis all age. No restriction regarding gender and ethnicity are made.

Intervention: Only articles studying herbal medicine treatment will be included in this review. Traditional Chinese, Korean, Indian or Kampo medicine will be excluded due to their often-unclear compositions and possible heavy metal contamination. In addition, studies on highly diluted herbal preparations will be also excluded.

Comparator: 1. placebo 2. active control options (e.g. other herbs; treatment as usual).

Study designs to be included: Only randomized controlled trials will be included.

Eligibility criteria: Inclusion:- All age - (clinically) diagnosed psoriasis- topical or systemic herbal medicine Exclusion:- traditional Chinese medicine- traditional Indian medicine- traditional Korean medicine- traditional Kampo medicine- highly diluted / homeopathic preparations.

Information sources: Electronic databases (cochrane, scopus, pubmed), contact with authors, trial registers.

Main outcome(s): The primary outcomes are severity of psoriasis and itching.

Additional outcome(s): Safety.

Data management: Citavi will be used as software tool to manage literature and to record decision making. First titles, then abstracts, and further full texts will be screened for eligibility independently by two authors.

If disagreements appear, a third author will be consulted. Further disagreements will be discussed until consent is reached.

Data extraction will be done in Excel, statistical analyses will be done in R and R Studio.

Quality assessment / Risk of bias analysis:

Risk of bias analysis will be measured by the Cochrane risk of bias tool 2.0. Two authors will independently assess all included studies for their risk of bias. If disagreements appear, a third author will be consulted. Further disagreements will be discussed until consent is reached.

Strategy of data synthesis: In the event that there are at least two studies available for a particular outcome, combined analyses will be carried out. In order to calculate standardized mean differences (SMD) for continuous outcomes, 95% confidence intervals (CI) will be used, and Hedges's correction will be applied for small study samples (11, 12). If there is a lack of standard deviations, they will be determined using standard errors, confidence intervals or t-values. For dichotomous outcomes, odds ratios (OR) with 95% CI will be calculated (11, 12). If data is missing, every effort will be made to obtain it from the authors of the trial. Inverse variance method will be used to calculate random effects models for continuous outcomes and the Mantel-Haenszel method for dichotomous outcomes (13). To enhance comparability in cases where there is no significant heterogeneity, fixed effects model estimates will be added to the forest plots, and the Hartung-Knapp small-sample correction will be applied (14). I^2 and τ^2 statistics will be employed to investigate statistical heterogeneity between studies. If statistical heterogeneity is present, subgroup analyses and meta-regression will be conducted to investigate possible reasons for heterogeneity, provided that a

minimum of 10 studies can be included in the respective analyses (11, 12, 13).

Subgroup analysis: Subgroup analyses will be performed for adults, children and mixed samples if appropriate data are available.

Sensitivity analysis: Sensitivity analyses will be conducted for studies with high risk of bias versus low risk of bias in respective domains.

Language restriction: Studies in the languages English and German, are included in the review.

Country(ies) involved: Germany.

Keywords: - Herbal medicine- herbs- Psoriasis- Complementary medicine- dermatology.

Dissemination plans: - The review will be published in a peer reviewed scientific journal.

Contributions of each author:

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