



## REVIEW ARTICLE

# PHYTOBALNEOTHERAPY: WHEN TRADITIONAL HERBAL MEDICINE MEETS SPA THERAPY

MICHELE ANTONELLI<sup>1</sup>, DAVIDE DONELLI<sup>2</sup>

<sup>1</sup>Department of Medicine and Surgery, University of Parma, Parma (Italy), Laboratorio di Statistica Medica ed Epidemiologia Clinica. Via Gramsci, 14, Parma 43126, Italy

<sup>2</sup>Alta Intensità Medica, Department of Internal Medicine, Arcispedale Santa Maria Nuova-IRCCS, Reggio, Italy

---

### ABSTRACT

Phytobalneotherapy (or hay baths) is a balneological treatment which combines the effects of thermal baths and the properties of fermenting herbs. Alpine hay, made of many different herbs harvested in mountain fields, is traditionally used for this treatment. Some studies have investigated the effects of hay baths on health, underscoring their potential benefits for rheumatic conditions. In conclusion, phytobalneotherapy seems an interesting way to harness therapeutic properties of medicinal herbs in a way which appears to be tolerable and sustainable. Further investigation is needed.

**Keywords:** Phytobalneotherapy, Herbal medicine, Balneotherapy, Hay bath, Medicinal herbs, Traditional medicine

---

### INTRODUCTION

Phytobalneotherapy, also called “hay baths”, usually refers to a particular balneological treatment which combines the effects of thermal baths and the properties of fermenting herbs [1]. Therefore, phytobalneotherapy has actually three components, namely fermenting plants (phytotherapy), thermal bathing (balneotherapy), and climate effects on health due to high altitude (climatotherapy).

In Italy, this traditional therapy has long been practiced in Trentino-Alto Adige, a mountainous region in the Northern part of the country, and still plays an important role in Alpine wellness [2]. We can therefore consider phytobalneotherapy as a sort of “Alpine ethnomedicine” with its own historical, geographical and botanical roots.

#### What does it consist of?

Alpine hay used for this therapy is traditionally harvested once every year in mountain fields over 1200 meters above mean sea level [1]. Many herbs are collected for this therapy, including *Arnica montana*, *Achillea millefolium*, *Alchemilla vulgaris*, *Plantago media*, *Thymus serpyllum*, *Taraxacum alpinum*, *Vaccinium myrtillus*, and *Gentiana lutea* [3].

After fermenting for 1-2 d, hay is ready to use for phytobalneotherapy. A complete treatment usually comprises up to 10 sessions, with 20-minute baths each followed by a 30-to-45-minute resting period [1]. Phytobalneotherapy can be administered alone or in combination with other treatments, such as massage or

exercises, as a part of a spa therapy program.

In the past phytobalneotherapy was available only in summertime, but nowadays it is possible to take hay baths even in other seasons [4]. Strict hygienic rules are followed to prevent microorganism proliferation in stored hay.

#### What evidence is there?

Although few researchers have investigated the effects of phytobalneotherapy, in a review of scientific articles published in PubMed and Scopus between 1870 and 2012, four relevant studies were retrieved and it was concluded that hay baths may be useful for patients with rheumatic conditions like chronic osteoarthritis, a degenerative disease characterized by joint pain and loss of function due to cartilage loss, and fibromyalgia, a disorder in which widespread pain and other symptoms are often reported [1]. Among retrieved trials, three of them involved patients with osteoarthritis [5-7], while the remaining one involved patients with fibromyalgia [8]. Phytobalneotherapy was mainly reported to be beneficial for pain relief and functional improvement [1]. Hay baths were also described as well tolerated, even by elderly individuals or patients with co-morbidities, although some side effects are documented and it is therefore important to be medically checked before undergoing phytobalneotherapy [9, 10].

Because of limited available studies, it is not fully understood how hay baths actually work. It is possible to speculate that many factors combined together can play a role in determining the overall effect. Among them, we

---

Received 18 March 2018; Accepted 08 May 2018

\*Corresponding Author

Michele Antonelli

Department of Medicine and Surgery, University of Parma, Parma (Italy), Laboratorio di Statistica Medica ed Epidemiologia Clinica. Via Gramsci, 14, Parma 43126, Italy

Email: michele.1989@hotmail.it

©This article is open access and licensed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>) which permits unrestricted, use, distribution and reproduction in any medium, or format for any purpose, even commercially provided the work is properly cited. Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made.

should mention high temperature of baths, their mechanical and physical effects on the body, and biochemical properties of fermenting herbs.

A study investigating the effects of phytobalneotherapy in patients with knee osteoarthritis concluded that hay baths can determine “a controlled repeated heat shock which increases extra-cellular and probably intra-cellular HSP70 [Author’s Note: Heat Shock Protein 70 kDa] at a joint level increasing cellular defenses and modulating local and general immunity responses” [11].

In the past, it was supposed that some therapeutic properties were due to transdermal absorption of coumarin originating from fermenting hay, but a small perspective study involving 12 participants reported no measurable concentration of this substance both immediately after the bath and after the following rest period [12]. Therefore, mechanisms of action of phytobalneotherapy still remain to be understood. However, it can be speculated that interactions with skin microbiome may be a possible hypothesis.

## CONCLUSION

In conclusion, phytobalneotherapy seems an interesting way to harness therapeutic properties of medicinal herbs in a way which appears to be tolerable and sustainable. Considering the importance of herbal medicine today [13], hay baths may also help to bring people closer to nature and literally enjoy “its contact”, thus contributing to raise consciousness about the importance of our precious traditions and environmental resources. Further investigation is needed to better define biochemical mechanisms of this traditional therapy and to determine the effects of different plant combinations on human health.

## REFERENCES

1. Tenti S, Manica P, Galeazzi M, Fioravanti A. Phytothermotherapy in fibromyalgia and osteoarthritis: between tradition and modern medicine. *European Journal of Integrative Medicine*. 2013;5, 248-253.
2. Pechlaner H, Fischer E. Alpine wellness: A resource-based view. *Tourism Recreation Research*. 2006;31, 67-77.
3. Talamucci P, Piemontese S, Coser P. Risultati preliminari sulle modalità di utilizzazione e di conservazione dell'erba dei pascoli del Monte Bondone a fini terapeutici (“bagni di fieno”). *Report Centro di Ecologia Alpina*. 1995;1:1-20.
4. Bagni di fieno e bagni d'acqua minerale in Alto Adige. Available from: <http://www.badlkultur.it/it.html>. [Last accessed on 2018 Feb 01].
5. Miori R, Contu C, Marzano A, Fedrizzi A, Bambara LM. Critical evaluation of phytothermotherapy (“hay baths”) in degenerative arthropathies. *Clinica Terapeutica*. 1994;144:31-42.
6. Miori R, Paolazzi G, Albertazzi R. Phytothermotherapy with fermenting alpine grass in knee osteoarthritis: mid-long term results. *Reumatismo*. 2008;60:282-9 (in Italian).
7. Fioravanti A, Bellisai B, Iacoponi F, Manica P, Galeazzi M. Phytothermotherapy in osteoarthritis: a randomized controlled clinical trial. *Journal of Alternative and Complementary Medicine*. 2011;17:407-12.
8. Fioravanti A, Bellisai B, Capitani S, Manica P, Paolazzi G, Galeazzi M. Phytothermotherapy: a possibile complementary therapy for fibromyalgia patients. *Clinical and Experimental Rheumatology*. 2009;27(5 (Suppl. 56)): S29-32.
9. Brinkhaus B, Kohnen R, Hahn EG. Phytobalneotherapy (hay bath) with Graminis flos vs. hydrotherapy: A prospective cross-over study. *European Journal of Integrative Medicine*. 2009;1, 173-174.
10. Brinkhaus B, Lindner M, Schwenk M, Nagel M, Kohnen R, Hahn EG, Hentschel C. Phytobalneotherapy with Flores graminis (hay bath)-an alternative with few side effects to “hot” bath. *Perfusion*. 2000;13, 476-485.
11. Verzelloni E, Russo F, Agostini G, Manica P, Conte A. Serum heat shock proteins in knee joint osteoarthritis patients treated with grass thermal therapy. *Pharmacology Online*. 2006;3, 839-844.
12. Hentschel C, Brinkhaus B, Lindner M, Schindler G, Nagel M, Schwenk M, Kohnen R, Ernst E, Hahn EG. Phytobalneotherapy using Flores Graminis (HAY)-prospective study of the transdermal absorption of coumarin. *Focus on Alternative and Complementary Therapies*. 1997;2, 189-190.
13. Firenzuoli F, Gori L. Herbal medicine today: clinical and research issues. *Evidence-Based Complementary and Alternative Medicine*. 2007;4(S1), 37-40.