

Eclectic Case Histories: Psoriasis Treatment with Oregon Grape Extracts

by Francis Brinker, ND



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Oregon grape (*Mahonia aquifolium*) is the state flower of Oregon. Its compound leaves made up of spiny leaflets resemble holly leaves, and thus its less common name, holly grape. This shrub is over three feet in height and bears yellow flower clusters in the spring. These flowers develop into waxy blue berries for which the name Oregon grape is given to the plant. Oregon grape grows throughout much of Oregon, especially in the Cascade Mountains and coastal mountain ranges. Thus, it also is designated mountain grape. Its natural range extends into the neighboring states of Washington and California. Its distribution in the mountains carries it as far east as the Rocky Mountains. A similar smaller species, *M. nervosa*, has leaves longer than its stem and is more widely distributed and abundant at lower altitudes.¹

Of the *Mahonia* spp. in the western United States, most have been used for the bitter tonic effect associated with their common yellow alkaloid, berberine.¹ In fact, all *Berberis* spp. and *Mahonia* spp. that have been analyzed contain berberine and associated alkaloids.^{2,3} However, it was *Mahonia aquifolium*, initially called *Berberis aquifolium*, that was preferred by the Eclectic physicians, officially recognized in the *United States Pharmacopeia*, and the most frequent subject of medical reports.¹ *M. aquifolium* also contains other alkaloids including berbamine, oxyacanthine, and jatrorrhizine.³

The Eclectic physician, Dr JH Bundy of Colusa, California, first introduced Oregon grape to medical practice as *Berberis aquifolium*. He used a tincture of the fresh root bark as a treatment for syphilis. It was initially supplied to the medical profession through Parke, Davis & Co. in 1877.^{1,4,5,6} Cure of an extreme case of psoriasis was reported in the Parke, Davis & Co. publication "New Preparations" around 1900.⁵

Case reports

A Michigan man tried many remedies after being troubled from head to foot with this condition. This patient had used many ineffective remedies for nearly seven years and eventually traveled to England where he underwent treatment at the Royal Hospital for Skin Diseases for three months. Fowler's solution (potassium arsenite) arrested his symptoms after six months. Unfortunately, a year later it returned worse than it was before. He eventually was led to Oregon grape root fluid extract. Using a teaspoonful four times daily, he began to feel a tingling sensation of the skin, and the exfoliation progressively lessened. After approximately six weeks the patches ceased to form and the red discoloration gradually disappeared, leaving only one small patch on the knee. Since the use of this remedy had been the only change made prior to this process, success was ascribed to the Oregon grape.⁵

Another psoriasis case of fourteen years was complicated by syphilis that had been evident for one year. After three weeks almost all external signs had been removed.⁷ When added to other forms of treatment in long-standing cases, its employment made a noticeable difference.^{8,9} The alternating use of *Corydalis ambigua* (corydalis), *Iris versicolor* (iris), *Phytolacca americana* (phytolacca) or Fowler's solution was more effective once Oregon grape was added.⁹ *M. aquifolium* was considered by Dr JP Harbert of Bellefontaine, Ohio, to be better than any other single agent for eruptions around the face at the time of puberty or later.¹⁰ It was observed that *M. aquifolium* worked well in conjunction with external treatment.⁸ Doctors emphasized the need to persist in using substantial doses of at least 5-20 drops of the hydroalcoholic extract, well diluted, every 3-4 hours for psoriasis or eczema.^{6,8}

In contemporary practice, Oregon grape root

preparations are used as an alterative and tonic.¹¹ Herbalists, naturopaths, and homeopaths have adopted the internal use of the tincture for treating psoriasis, eczema, acne, and herpes.^{11,12,13} To be beneficial for these dermatological conditions, its persistent use is necessary.¹¹ It is sometime combined with other alterative root preparations such as *Rumex crispus* (yellow dock) or *Arctium lappa* (burdock) tinctures to be used topically and internally.¹³

A teenage female patient seen at the at the National College of Naturopathic Medicine teaching clinic in the early 1980s presented with a recent case of severe psoriasis around the scalp and ears. She responded dramatically within a month to a botanical formula with Oregon grape fresh bark tincture as a major component. However, a similar formula used in the clinic at that time appeared to be of little or no obvious benefit in a young man whose long-standing lesions were primarily over his knees and elbows.

Antipsoriatic activities of *M. aquifolium* extract and its alkaloids

Psoriasis is characterized by chronic hyperproliferation of the epidermis with inflammation mediated by lipoxygenase-derived products of arachidonic acid. A dried *Mahonia aquifolium* bark extract containing 1.21% alkaloids inhibited keratinocyte growth by 50% at a concentration of 35 mcM *in vitro*. The same activity was obtained from the protoberberine alkaloid berberine at 31 mcM and the benzyloquinoline alkaloids oxyacanthine at 13 mM and berbamine at 11 mcM, compared to the drug anthralin at 0.7 mcM. The *Mahonia* alkaloids were superior to the other pharmaceuticals tested: hydrocortisone, fluorouracil, and triamcinolone.¹⁴

The same *M. aquifolium* bark extract at 50 mcM *in vitro* was active at inhibiting by 50% the 5-lipoxygenase in polymorphonuclear (PMN) leukocytes. The above-mentioned isolated alkaloids were less effective in the PMN lipoxygenase model, with berberine being the least active in both models. At 5 mcM the bark extract inhibited 50% of lipid peroxidation in brain phospholipid liposomes. This effect in the liposome model was achieved at 46 mcM for berbamine and 40 mcM for oxyacanthine.¹⁵ Lipoxygenase inhibition and lipid peroxidation was inhibited at higher concentrations

by the minor protoberberine alkaloids oxyberberine (100 mcM), jatrorrhizine (>100 mcM), and columbamine (>100mcM), all found in the roots *M. aquifolium*. Of these alkaloids only oxyberberine was similar in potency to the crude extract.¹⁶

Clinical studies

A recent randomized, placebo-controlled clinical trial evaluated the safety and efficacy of local application of *M. aquifolium* bark extract on 82 psoriasis patients. In the 43 men and 39 women the psoriasis varied in severity from light in 9.5% to severe in 54.1%. The age range was from 16 - 85 years with 48 the average age. Patients were selected for lesions that were bilaterally symmetrical. A placebo ointment was applied to one side of the body, while a 10% *Mahonia* ointment was applied to the other. Other systemic and local treatments were forbidden, but 13 patients admitted violating this protocol during the follow-up and another 12 did not respond to this inquiry. Two patients missed the final exam. The severity or concurrent use of other medications did not make a significant difference in the outcomes. By patient assessment, a total of 38.8% responded favorably to *Mahonia* ointment, while 23.8% improved with placebo. Assessment by physicians indicated that lesions in 36.3% improved or disappeared using mahonia, and 22.5% showed these positive results from the placebo. Systemic efficacy by percutaneous resorption was not ruled out. Four patients (5%) suffered local adverse effects from *Mahonia* ointment, ranging from allergic sensitivity in one to burning or itching in the others.¹⁷

A human study using *M. aquifolium* ointment topically three times each day in a randomized, half-side study was compared with the pharmaceutical treatment anthralin (dithranol) applied in rising concentrations once daily in 49 patients. Biopsies were taken in the test area of the skin lesions before therapy and after four weeks. Following therapy, monoclonal antibody and keratin markers were greatly reduced by the *M. aquifolium* ointment. Both agents were effective in reducing both hyperproliferation of keratinocytes and cellular cutaneous immune mechanisms. However, anthralin more effective in reducing some antibody markers.¹⁸

English-language randomized and/or double blind studies that were published between 1966-2002 on

What's in a Name: Mahonia or Berberis

by Aviva Romm [Ed]

There persists some confusion (in the herbal community) as to whether *Mahonia aquifolium* or *Berberis aquifolium* is the "correct" scientific name for



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Mahonia aquifolium (Oregon grape)

Oregon grape. This confusion stems from the ongoing reevaluation and reassigning of plants to different taxonomic groups, leading to periodic nomenclature revisions. A recent example of this was the reversion of *Cimicifuga racemosa* to *Actaea racemosa*; many herbalists and scientists continue to use the former. I posed the question of correct Latin binomial for Oregon grape to several herbal authorities and here's a synopsis of their responses.

Steven Dentali, PhD and Vice President of Scientific Affairs for the American Herbal Products Association (AHPA), and Michael McGuffin, President of AHPA and lead author of *Herbs of Commerce* (HOC2), the industry standard for botanical nomenclature, agree that Oregon grape is unquestionably the "accepted" common name for this herb. Dentali writes: "HOC2 establishes common names. It's authoritative for which common name goes with which botanical. (We call this the "standardized common name," adds McGuffin.) It's Oregon grape whether you call it *Mahonia aquifolium* or *Berberis aquifolium*. Either can be correct, though one is more 'accepted' at a particular point in time depending on if the latest taxonomic argument has been accepted. The USDA Germplasm Resources Information Network (GRIN) lists *Berberis* as a synonym of *Mahonia* and not the other way around. So HOC2 is in accord with GRIN." Oddly I'd argue that either Latin name is correct (as long as the authority is included) though one (apparently *Berberis* here) may be considered outdated (though not all taxonomists will always

agree). Botanical name changes, like other shifts in science, sometimes require the dying off of the opposing points of view before they become 'final'," says Dentali. The USDA Natural Resources Conservation Service's Plants Database also lists it as *Mahonia aquifolium* (Pursh) Nutt. with *Berberis aquifolium* among a list of synonyms.

McGuffin offers: "HOC2 represents itself as authoritative for common names but does not claim to be authoritative for Latin binomial names." I often add, "Latin binomial names should be consistent with the rules of the current edition of the International Code of Botanical Nomenclature. So with regard to this herb, the only position we take is that whichever Latin name you use you should call it Oregon grape. Steven and I appear to have different interpretations of what the term "accepted" means. Steven states that a Latin binomial that is not accepted could be "correct;" my understanding is that that is not the case. Part of what is confusing is that, as I understand it, the term "synonym" does not mean in taxonomy what it means in common usage; i.e. it does not mean 'a word that can be used instead of another word with the same meaning.' Instead it means something like "a name that was formerly used for the same species but which is no longer accepted as the correct name" (a term that is used is 'reduced to synonymy' to communicate that a plant was reclassified, and renamed, so that the old name is only a synonym and the new name is now accepted)."

Jim Duke, PhD, and former taxonomist for the USDA told me: "When AHPA and the USDA [<http://www.ars-grin.gov/cgi-bin/npgs/html/taxgenform.pl>] agree on the scientific name, I go with it. When they disagree, I cogitate. In the case of Mahonia, they both agree. So I'll vote for Mahonia for the Oregon grape."

In the meantime I've coined the name *Berberhonia*, along with my other standard, *Actifuga* (*Actaea racemosa* syn. *Cimicifuga racemosa*) figuring these names allow general identification of the plant whichever way the tides change next.

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conventional topical treatments for psoriasis were reviewed. It was found that adverse effects for monotherapy agents ranged widely, from 3.2%-23% for corticosteroids, to 4.8%-35% for vitamin D analogues, 13%-50% for tazarotene, and 40.5%-72% for anthralin. This led to withdrawals from the studies due to adverse effects at the following maximum percentages: tazarotene (18%), anthralin (5.4%), vitamin D analogues (4.6%), and corticosteroids (2.5%).¹⁹

Substitution with similar species?

Based upon their alkaloidal content, other *Berberis* spp. and *Mahonia* spp. would seem to share Oregon grape's usefulness in treating psoriasis. *Berberis asiatica* shares all six of the above-mentioned alkaloids, while *B. vulgaris* stem bark and *B. lamberti* roots lack only the minor oxyberberine.² *M. thunbergii* lacks only the minor columbamine,^{2,3} while *M. fortunei* and *M. griffithii* have not been shown to yield either oxyberberine or columbamine. Roots of *Mahonia repens* (Rocky Mountain grape), a western American species, often substituted for *M. aquifolium* in crude herb sales, lack the berbamine and oxyberberine.³ Complete alkaloidal analyses on most other western American *Mahonia* species are lacking. However, it has not been conclusively shown that the alkaloids are exclusively responsible for the efficacy against psoriasis.

Palatable liquid extracts

While traditional use of Oregon grape root or root bark was mostly accomplished with oral administration of liquid extracts, the two modern human studies used only local applications. Topical use had at least two advantages. First, it concentrates the active alkaloids in the affected tissues. Second, it avoids compliance difficulties due to the extremely bitter taste of these alkaloids. However, adequate penetration through thick, scaly skin is a limitation of using it topically only. One could reasonably expect that internal use together with local use would achieve even better results than either approach alone. Since solid extract preparations of Oregon grape root bark are not currently available, the taste of hydro-alcoholic liquid extracts should be made as tolerable as possible, especially for children and those who react strongly to the taste of bitters. This can be done by

mixing the tincture with equal parts tincture of *Eriodictyon californicum* (yerba santa) leaves. This formerly official pharmaceutical preparation is effective in neutralizing the bitterness of alkaloidal compounds such as berberine and is quite effective in achieving a palatable liquid medication for oral administration.

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