The Scientific Validity of Pennsylvania Dutch Herbal Remedies

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Abstract

This paper critically examines the validity of floral remedies, focusing on a selection of traditional medicinal plants, through the lens of modern scientific standards. The remedies in question include a diverse array of plants, such as *Datura stramonium*, *Asparagus officinalis*, *Myrica cerifera*, and others, each of which has been historically used for their purported health benefits. By reviewing recent peer-reviewed studies, particularly those involving human subjects, this paper aims to explore the pharmacological mechanisms, therapeutic potentials, and safety profiles of these plants. While some, like *Asparagus officinalis*, have well-documented health benefits supported by contemporary research, others, such as *Digitalis purpurea*, present significant risks due to their toxic properties, despite having some therapeutic potential. The analysis also includes a brief exploration of traditional Pennsylvania Dutch and Amish remedies, placing these practices within a modern scientific framework. This research highlights the importance of integrating traditional knowledge with rigorous scientific validation to ensure both efficacy and safety in the use of floral remedies. Ultimately, this paper aims to contribute to the ongoing dialogue between traditional medicine and modern science, advocating for a balanced approach to herbal therapeutics with implications for future research, policy-making, and clinical applications.

Key words

Herbal Remedies, Traditional Medicine, Medicinal Validation, Lancaster County PA,

Introduction

Evidence from archaeological investigations, written records, and oral histories suggest that the use of herbal remedies is universal. Plant derivatives have been used for centuries to treat everything from aches and pains to cancer, but these applications predate the scientific method and, although still widely applied, many remedies remain untested. Despite their well-established presence in folk medicine, the efficacy and safety of many floral remedies remain subjects of debate within the scientific and medical community. The aim of this paper will be to explore the scientific plausibility of a selection of herbal remedies that were identified in text from Lancaster County Pennsylvania titled *The Raub Family County Doctors and their Medical Flora Remedies in the 19th Century.* The book describes a variety of plants and proposes methods for preparing and using extracts to treat an array of ailments. My aim is to review 13 of these treatments and then evaluate the known biochemistry of each plant to determine if modern science can suggest a mechanism of action.

Known History of Herbal Remedies

Herbal remedies predate the advent of modern medicine, and their use is rooted in the traditional healing systems, including Ayurveda, Traditional Chinese Medicine, and Native American medicine. Ayurvedic medicine has a 3,000-year history in India and employs plant extracts to balance the three doshas: Vata, Pitta, and Kapa, which are believed to govern the body's physical and mental processes.[2, 23]

Traditional Chinese Medicine is at least 2,000 years old. A classic text known as the *Huangdi Neijing or The Yellow Emperors Classics of Medicine* describes how to use a patient's

unique symptoms and energy, to select the best herbal formula based on characteristics such as temperature and taste.[14, 43]

Native Americans have a deep tradition of using herbal remedies as well. In 1970, 170 of these remedies had been listed as official treatment in the US Pharmacopeia or National at some point.[62]

As modern medicine took shape, specific herbal derivatives were identified and recognized as pharmacologically active. These include opium, derived from the poppy plant *Papaver somnifer*,[18] alkaloids derived from the peyote cactus,[51] analgesics aspirin-related substance, salicine, from the bark of willow trees,[42] and cocaine derived from coca leaves.[17]

Herbal Medicine in Pennsylvania Dutch and Amish Culture

The Pennsylvania Dutch are an ethnic group descended from German-speaking settlers of the 17th, 18th, and 19th centuries. Traditional Pennsylvania Dutch remedies, rooted in European folk medicine and Native American practices, reflect a rich tapestry of healing traditions passed down through generations. Central to these remedies is powwow, a form of folk magic and healing rituals blending Christian prayers, rituals, and European folk magic. Powwow, documented extensively in sources like the exhibition booklet *"Powwowing in Pennsylvania,"* involves written or spoken charms, often in the form of hex signs, to address various ailments. Practitioners, known as powwowers or brauchers, are believed to possess innate healing abilities passed down or acquired through apprenticeship.[51, 11]

Pennsylvania Dutch remedies have been sustained by the network of communities, which extend beyond the state of Pennsylvania. While modern healthcare has replaced many traditional practices, the practice of powwow and herbal remedies endures as a testament to the

community's ingenuity in maintaining health and well-being through spiritual, herbal, and practical approaches.[11]

Among the Amish subset of the Pennsylvania Dutch, herbal remedies are based on sustaining general health maintenance with readily available plants. Leaves from the burdock plant, of the genus Arctium, are used to treat burns and wounds. For more information on this consult source # 55 titled *Honey-Based Salve and Burdock Leaf Dressings as an Alternative to Surgical Debridement of a Traumatic Wound Eschar.* Amish herbal medicine emphasizes simplicity and self-sufficiency.[21, 64, 55]

Both Pennsylvania Dutch and Amish remedies reflect a holistic approach to health, integrating herbal knowledge with spiritual and community practices. These traditions continue to influence alternative medicine today, highlighting the enduring relevance of folk medicine in modern healthcare.

The Raub Family County Doctors and their Medical Flora Remedies in the 19th Century

The Raub Family County Doctors and their Medical Flora Remedies in the 19th Century by Joanna Raub Ripple delves into the history of a family of doctors who practiced medicine in rural America during the 1800s. The book explores the medical practices and herbal remedies prescribed by the Raub family physicians, shedding light on their use of local flora in treating various ailments. Ripple provides detailed insights into the remedies employed and their botanical sources. This historical account offers a valuable perspective on the intersection of traditional herbal medicine, rural healthcare, and the evolving medical profession in America's past.

In this context, the following sections will examine the historical background and traditional uses of each remedy, review and analyze existing scientific literature, and discuss the findings in relation to modern medical standards. The illustrations are original scherenschnitte prints by Johanna Raub Ripple.

Methodology

Criteria for selecting relevant Literature and Studies that show a possible medical usage:

To assess the validity of each remedy, the following criteria were used:

- Relevance: Studies must focus on the medical properties, pharmacological aspects, clinical efficacy, or safety of the selected herbal remedies.
- Peer- reviewed Sources: only peer-reviewed journals and publications were used.
- Recency: Studies published within 10 years and phytochemistry information within 20 years were used.
- Study type: Both experimental and observational studies, as well as clinical trials, were included.

Databases and Sources used to find studies

- PubMed
- Penn State University libraries
- Google Scholar

Inclusion Criteria

- Studies examining the medical properties, efficacy, and safety of the selected herbal remedies.
- Articles published in English
- Full text availability
- Studies conducted on humans or in vitro
- Research articles, systematic reviews, and meta-analyses.

Exclusion Criteria

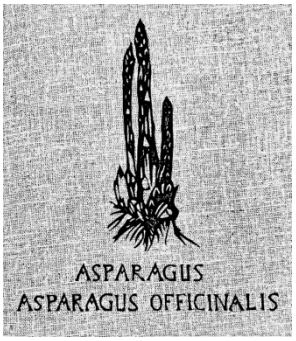
- Non-peer reviewed articles, such as opinion pieces, letters, etc…
- Studies without a clear result
- Articles not published in English or without available translation.
- Duplicate studies

Results

Note on Terminology

These remedies were typically prepared in several ways to create, tinctures, poultices, decoctions, teas, ointments, and a few others that are more self-explanatory. Tinctures are often a solution of a substance dissolved into ethanol. Poultices are flexible damp masses of material applied to the body and held in place by a cloth. Decoctions are liquid extracts made from boiling plant material in a solvent.

Asparagus (*Asparagus officinalis*)



Historical use: Used as a tea or decoction for the treatment of stones/gravel in kidneys or bladder, dropsy (edema), it was also used as a diaphoretic, aperient, and deobstruent.[33]

Current uses/studies: Effect of Asparagus Extract on Pancreatic Cancer Cells.[66] Asparagus officinalis combined with paclitaxel exhibited synergistic anti-tumor activity in paclitaxel-sensitive and -resistant ovarian cancer cells.[68]

Table 1. *Possible mechanisms of asparagus (Asparagus officinalis)*

Mechanism	Active compounds	Effects/pathways
Diuretic*	Asparagine, Flavonoids, Saponins	Increased urine production, excretion of salts and water
Antioxidant	Flavonoids (quercetin, rutin), Ascorbic acid, Glutathione	Neutralization of free radicals, reduction of oxidative stress
Anti-inflammatory	Saponins, Flavonoids	Inhibition of pro-inflammatory cytokines and enzymes
Antimicrobial	Saponins, Fructans	Disruption of microbial cell membranes
Prebiotic	Inulin, Oligosaccharides	Promotion of beneficial gut bacteria
Hepatoprotective	Saponins, Flavonoids	Enhancement of antioxidant defenses, reduction of liver damage
Cardiovascular	Flavonoids,	Improved endothelial function, reduced blood pressure
Neuroprotective	Saponins, Flavonoids, Glutathione	Protection against oxidative damage, reduced neuroinflammation
Anti-tumor	Saponins, Flavonoids,	Induction of apoptosis in cancer cells, inhibition of tumor growth, reduction of metastasis

Sources: 29,36. *Asterisks indicate a treatment recognized by the Raub text.*

Assessment: While only the treatment of Stones/Gravel in kidneys or bladder seems to match up with the modern scientific understanding of asparagus which does point to its validity as an herbal remedy, with the use of modern technologies, several possible uses were discovered.

Bayberry (*Myrica cerifera*)

Historical uses: Used as a poultice, tea, decoction, tincture, or infusion for the treatment of palsy, colic, hysterical complaints, scrofula (Mycobacterial cervical lymphadenitis), diarrhea, urinary troubles, jaundice, kidney troubles, sore throat, leucorrhea, congestion or catarrh, and minor cuts, scratches, and bruises.[33]

Current uses/studies: Anticancer Potential of Myricanone a Major Bioactive Component of *Myrica cerifera*: Novel Signaling Cascade for Accomplishing Apoptosis.[50] Assessment of the Antibacterial Activity and the Antidiarrheal Function of Flavonoids from Bayberry Fruit. [67] Protective effects of myricitrin against osteoporosis via reducing reactive oxygen species and bone-resorbing cytokines.[27]

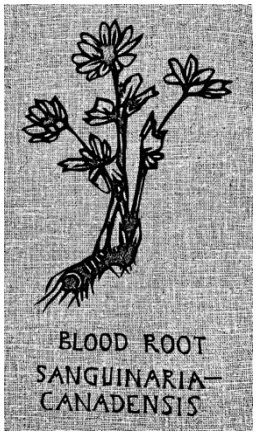
Table 2. *Possible mechanisms of Bayberry (Myrica cerifera)*

Mechanism	Active Compounds	Effects/Pathways
Anti-Inflammatory Effects	Myricetin, Gallic acid, Tannins	Inhibition of pro-inflammatory cytokines and enzymes
Antioxidant Activity	Flavonoids, Phenolic acids, Tannins	Scavenging of free radicals, reduction of oxidative stress
Antimicrobial Properties	Tannins, Flavonoids, essential oils	Disruption of microbial cell membranes, inhibition of growth
Anti-tumor Effects	Myricetin, Gallic acid, Tannins	Induction of apoptosis, inhibition of cell proliferation
*Hepatoprotective Effects	Myricetin, Gallic acid, Flavonoids	Enhancement of antioxidant defenses, reduction of liver damage
Cardiovascular Benefits	Flavonoids, Tannins	Improved endothelial function, reduced oxidative stress
*Astringent Properties	Tannins	Contraction and tightening of tissues, reduction of inflammation
Immunomodulatory Effects	Tannins, Flavonoids	Enhancement of immune cell activity, modulation of immune responses

Sources: 61,54,27. Asterisks indicate a treatment recognized by the Raub text.

Assessment: based on the active compounds it does seem possible that bayberry could aid in jaundice as well as the healing of minor cuts.

Blood Root (*Sanguinaria canadensis*)



Historical uses: Used as a tincture, tea, or powder for the treatment of lung and liver troubles, catarrh, croup, whooping cough, typhoid pneumonia, rheumatism, jaundice, dyspepsia, and sick headache.[33]

Current uses/studies: Dermatologic uses of bloodroot: a review and reappraisal.[22] Exploring Phytochemicals for Combating Antibiotic Resistance in Microbial Pathogens.[38]

Table 3. *Possible mechanisms of Blood Root (Sanguinaria canadensis)*

Mechanism	Active Compound	Effects/Pathways
*Antimicrobial Properties	Sanguinarine, Chelerythrine, Protopine	Disruption of microbial cell membranes, inhibition of growth
*Anti-Inflammatory Effects	Sanguinarine, Protopine	Inhibition of pro-inflammatory cytokines and enzymes
Antioxidant Activity	Alkaloids, Flavonoids	Neutralization of free radicals, reduction of oxidative stress
Anti-tumor Effects	Sanguinarine, Chelerythrine	Induction of apoptosis, inhibition of cell proliferation
Wound Healing Properties	Sanguinarine, Flavonoids	Enhancement of cell proliferation and migration, prevention of infection
Oral Health Benefits	Sanguinarine, Chelerythrine	Reduction of plaque, gingivitis, and periodontal disease
Immunomodulatory Effects	Alkaloids, Flavonoids	Enhancement of immune cell activity, modulation of immune responses
*Respiratory Benefits	Sanguinarine, Chelerythrine	Reduction of inflammation and mucus production in the airways

Sources: 8,13,46. Asterisks indicate a treatment recognized by the Raub text

Assessment: the respiratory benefits along with the antimicrobial properties and anti-inflammatory effects of some of the chemical's present could mean that it would be an effective treatment of typhoid pneumonia as well as whooping cough, croup, catarrh, and Rheumatism.

Chicory (*Cichorium intybus*)

Historical uses: Used as a compress by bruising, softening, and soaking the leaves. The compress was used to treat jaundice and other liver issues, skin lacerations, swellings, and inflammations.[33]

Current uses/studies: Phytochemical and Antibacterial Studies of Chicory (*Cichorium intybus L.*) - A Multipurpose Medicinal Plant.[59] The Effect of Chicory on Bilirubin Level in Newborns Suffering from Jaundice: A Systematic Review.[19]

Table 4. *Possible mechanisms of Chicory (Cichorium intybus)*

Mechanism	Compound	Effects/Pathways
Prebiotic effects	Inulin	Improved digestion, enhanced immune function, better mineral absorption, modulation of gut microbiota
Antioxidant properties	Caffeic Acid derivatives	Reduced inflammation, potential cancer prevention, inhibition of oxidative stress
*Antiviral and anti-inflammatory activities	Chicoric Acid	Protection against viral infections, reduction in inflammatory diseases, enhancement of immune response
Antioxidant effects	Chlorogenic Acid	Lowered blood sugar, potential anti-diabetic effects, modulation of glucose metabolism
*Anti-inflammatory and antimicrobial properties	Sesquiterpene Lactones	Reduction in inflammation, protection against microbial infections
Antioxidant, anti-inflammatory, Vaso protective activities	Flavonoids	Cardiovascular health improvement, reduced risk of chronic diseases
Anticoagulant effects, anti-inflammatory properties	Coumarins	Improved blood flow, reduced risk of thrombosis and inflammation

Sources: 41, 7, 30. Asterisks indicate a treatment recognized by the Raub text

Assessment: due to the anti-inflammatory and antimicrobial benefits of various chemicals found in chicory it is possible it would have treated swellings and inflammations and prevented infections of skin lacerations.

Cleavers (*Galium aparine*)

Historical uses: Used as a poultice or a tea for the treatment of suppression of urine, kidney trouble, gravel, tumors, freckles, erysipelas, scarlet fever, and measles.[33]

Current uses/studies: Effects of *Galium aparine* extract on the cell viability, cell cycle and cell death in breast cancer cell lines.[3] Immunomodulatory Activity and Phytochemical Profile of Infusions from Cleavers Herb.[28]

Table 5. *Possible mechanisms of Cleavers (Galium aparine)*

Mechanism	Active compound	Effects/Pathways
*Inhibition of pro-inflammatory cytokines and enzymes	Iridoid Glycosides	Reduction in inflammation, potential relief from inflammatory diseases
Antioxidant properties, inhibition of oxidative stress	Flavonoids	Protection against cell damage, reduced risk of chronic diseases
*Disruption of microbial cell membranes	Tannins	Antimicrobial effects, protection against bacterial and fungal infections

*Disruption of microbial cell membranes, increased urine production	Saponins	Antimicrobial effects, diuretic properties, detoxification
Scavenging of free radicals, inhibition of oxidative stress	Phenolic Compounds	Antioxidant benefits, reduced oxidative damage
Stimulation of lymphatic drainage and circulation	Glycosides	Enhanced lymphatic system function, detoxification
*Stimulation of kidney function, increased urine production	Potassium	Diuretic effects, detoxification, improved kidney health
*Induction of apoptosis in cancer cells, inhibition of cell proliferation	Flavonoids and Phenolics	Potential anticancer effects, inhibition of tumor growth

Sources: 40,53,16. Asterisks indicate a treatment recognized by the Raub text

Assessment: Based on the active compounds present in the plant, cleavers historical usage for Suppression of Urine, Kidney trouble, Gravel, Tumors and possibly even for Erysipelas, Scarlet fever, and Measles.

Elecampane (*Inula-helenium*)

Historical uses: Used as a decoction in the treatment of dyspepsia, chronic bronchitis, catarrh of the bladder (UTI), suppressed menstruation, skin eruptions, lung disease, sciatica, gout, gravel, and facial neuralgia. (33)

Current uses/studies: *In vitro* activity of *Inula helenium* against clinical *Staphylococcus* aureus strains including MRSA.[49] Anti-staphylococcal activity of Inula helenium L. root essential oil: *Eudesmane sesquiterpene* lactones induce cell membrane damage.[60]

Table 6. *Possible mechanisms of Elecampane (Inula-helenium)*

Mechanism	Active compounds	Effects/Pathways
*Anti-inflammatory	Alantolactone, Isoalantolactone	Inhibits key inflammatory pathways and cytokines, potentially reducing inflammation in various conditions.
*Antimicrobial	Alantolactone	Demonstrates activity against various bacteria, possibly through membrane disruption and inhibition of bacterial growth.
Antitumor	Sesquiterpene lactones	Enhances the effect of immune checkpoint inhibitors in colorectal cancer by modulating immune responses and reducing tumor growth.
*Antioxidant	Phenolic compounds	Exhibits antioxidant properties that can protect cells from oxidative damage and stress.
Antiadipogenic	Alantolactone, Isoalantolactone	Inhibits adipogenesis by targeting AMPKα and Nur77, potentially useful in treating obesity and metabolic dysfunction.

Sources:35,9. Asterisks indicate a treatment recognized by the Raub text

Assessment: Chemicals found in elecampane exhibit anti-inflammatory as well as antimicrobial and antioxidant properties. This means it could potentially treat catarrh of the bladder, gout, facial neuralgia, sciatica, and chronic bronchitis and other lung conditions.

Foxglove (*Digitalis purpurea*)

Historical uses: Used as a tincture and powdered leaves as a narcotic poison, diuretic, beta blocker, sedative and as a treatment for hydrothorax, dropsy (edema) of the chest, heart disease, kidney disease, palpitations, severe inflammation, fevers, mania, epilepsy, spasmodic asthma.[33]

Current uses/studies: currently used in the heart failure medication Digoxin.[15] Severe Left Ventricular Systolic Dysfunction is Independently Associated with High On-Clopidogrel Platelet Reactivity.[45]

Table 7. *Possible mechanisms of Foxglove (Digitalis purpurea)*

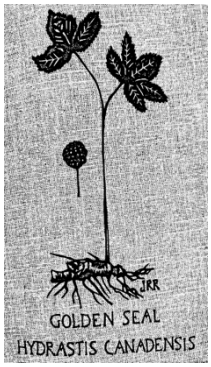
Mechanisms	Active compound	Effects/Pathways
*Cardiotonic effect	Digitoxin	Inhibits Na+/K+ ATPase, increasing intracellular calcium and enhancing myocardial contractility
*Antiarrhythmic, cardio sedative	Digoxin	Inhibits Na+/K+ ATPase, leading to increased vagal tone, slowing AV conduction, and reducing heart rate
*Cardiotonic	Lanatoside C	Similar mechanism to digoxin and digitoxin, inhibiting Na+/K+ ATPase
*Cardiotonic effect	Acetyldigoxin	Inhibits Na+/K+ ATPase, similar to digoxin, enhancing cardiac output and improving symptoms of heart failure
*Cardiotonic effect	Gitoxin	Inhibits Na+/K+ ATPase, increases intracellular calcium, enhances myocardial contractility

*Precursor to active glycosides	Digitoxigenin	Contributes to overall cardiotonic properties through similar inhibition of Na+/K+ ATPase

Sources: 44,65,45. Asterisks indicate a treatment recognized by the Raub text

Assessment: based on the chemicals present, foxglove seems to only be effective for cardiovascular related issues and only used as a last resort medication in some areas of western medicine because of the volatile nature of the substance, however in people with no known heart issues this would only cause harm.

Golden Seal (*Hydrastis canadensis*)



Historical uses: Used as a tonic, infusion, and injection for the treatment of aphthous and other kinds of sore mouth, ulcerations of the stomach and bowels, chronic dyspepsia, when mixed with blackberry root or geranium it could be used for chronic diarrhea and dysentery. It could also be used to treat chronic sore eyes, cuts, sores. Chronic leucorrhea or whites, gleet and gonorrhea, in women. Bilious intermittent, and typhoid fevers, torpidity of the liver, and dyspepsia.[33]

Current uses/studies: Effects of *Hydrastis canadensis*, *Commiphora habessinica*, *Phytolacca americana*, and *Echinacea purpurea* on Bacterial Growth.[10] In Silico Analysis of the Effect of *Hydrastis canadensis* on Controlling Breast Cancer.[63]

Table 8. *Possible mechanisms of Golden seal (Hydrastis canadensis)*

Mechanisms	Active compound	Effects/Pathways
*Gastrointestinal Health, Anticancer	Berberine	Promotes gut health by modulating gut microbiota and reducing symptoms of gastrointestinal disorders. Induces apoptosis and inhibits proliferation in cancer cell lines, including breast and prostate cancers.
*Immune modulation, Antioxidant, Antimicrobial	Hydrastine, Berberine	Inhibits bacterial growth, particularly against Gram-positive bacteria like Staphylococcus aureus and Streptococcus spp. Scavenges free radicals and protects against oxidative stress in vitro. Enhances macrophage activity and modulates immune response.
Anti-inflammatory	Canadine, Berberine	Reduces pro-inflammatory cytokines (e.g., IL-1β, TNF-α) in cell culture studies.

Sources:12,24. Asterisks indicate a treatment recognized by the Raub text

Assessment: based on the active compounds found in golden seal it is possible that it could be an effective treatment for chronic diarrhea and dysentery, possibly gonorrhea even though it's a gram-negative bacterium, bilious, leucorrhea, and cuts.

Hellebore (*Helleborus niger*)

Historical uses: Used for the treatment of scarlet fever, yellow fever, skin problems, epilepsy, mania, depression, and used as a rubefacient, irritant, emmenagogue, emetic, diuretic, cathartic, and to stimulate the heart.[33]

Current uses/studies: Differential cytotoxic properties of *Helleborus Niger* L. on tumor and immunocompetent cells.[56] Preclinical evaluation of safety and potential of black hellebore extracts for cancer treatment.[20]

Table 9. *Possible mechanisms of Hellebore (Helleborus niger)*

Mechanism	Active compound	Effect/Pathways
*Antimicrobial	Saponins, Protoanemonin	Effective against a range of bacteria, including Gram-positive and Gram-negative strains.
*Anti-inflammatory	Saponins, Helleboside	Reduces inflammatory markers and cytokines in vitro.
Antioxidant	Saponins, Flavonoids	Exhibits strong antioxidant activity by scavenging free radicals.
Anti-cancer	Saponins, Protoanemonin	Induces apoptosis and inhibits proliferation in various cancer cell lines, including breast and colon cancer.
*Cardiovascular Health	Steroidal Saponins	Potential to improve cardiovascular function and reduce cholesterol levels.
Immunomodulatory	Saponins, Helleboside	Modulates immune response by enhancing macrophage activity and reducing pro-inflammatory cytokines.

Sources:12,20,56. Asterisks indicate a treatment recognized by the Raub text

Assessment: Based on the antimicrobial, anti-inflammatory, and potential cardiovascular effects of the chemicals in hellebore it may be an effective treatment for scarlet and yellow fevers.

Lobelia (*Inflata- lobelia*)

Historical uses: Used as a tincture and powdered seeds for use as an emetic, relaxant, expectorant, antispasmodic, and sedative.[33]

Current uses/studies: The Use of Lobelia in the Treatment of Asthma and Respiratory Illness.[32] Enhancement of the anti-addictive lobeline and related alkaloid production of in vitro micro propagated *Lobelia inflata L.*[3]

Table 10. *Possible mechanisms of Lobelia (Inflata- lobelia)*

Mechanisms	Active compounds	Effects/pathways
*Respiratory Support Anti-addictive Effects Anti-cancer Neuroprotective	Lobeline	Acts as a bronchodilator and respiratory stimulant Potential in treating addiction by modulating neurotransmitter systems. Induces apoptosis in cancer cells and may overcome multidrug resistance in tumor cells. Protects neural cells from oxidative stress and has potential in treating neurodegenerative disorders.
anti-inflammatory	Lobeline, Flavonoids	Reduces pro-inflammatory cytokines and provides relief from symptoms of inflammatory conditions.
Antioxidant	Flavonoids, Alkaloids	Exhibits strong antioxidant activity, scavenging free radicals and protecting against oxidative stress.

Sources: 6,41,32. Asterisks indicate a treatment recognized by the Raub text

Assessment: the active compounds present in *Inflata-lobelia* point to it being an effective Expectorant.

Plantain (*Plantago major*)

Historical uses: Used as a juice and as a paste made of fresh leaves in the treatment of bleeding, ivy poisoning, burns, scalds, bruises, erysipelas, toothache, insect as well as spider and snake bites.[33]

Current uses/studies: Efficacy of *Plantago major* seed in management of ulcerative colitis symptoms: A randomized, placebo controlled, clinical trial.[5] The Efficacy of *Plantago major* Seed on Liver Enzymes in Nonalcoholic Fatty Liver Disease: A Randomized Double-Blind Clinical Trial.[31]

Table 11. *Possible mechanisms of Plantain (Plantago major)*

Mechanisms	Active compound	Effects/Pathways
*Anti-inflammatory, antioxidant	Aucubin	Reduces inflammation and oxidative stress, supporting wound healing and potentially reducing liver toxicity.
*Antioxidant, anti-inflammatory	Plantamajoside	Protects cells from oxidative damage and modulates immune response.
Anti-cancer, antimicrobial	Baicalein	Induces apoptosis in cancer cells, inhibits microbial growth, and acts against various pathogens.
*Antioxidant, anti-inflammatory	Flavonoids	Scavenges free radicals, reduces inflammation, and supports cardiovascular health.
Immunomodulatory, antimicrobial	Polysaccharides	Enhances immune response, inhibits microbial infections, and promotes tissue repair.
Antimicrobial, hepatoprotective	Iridoids	Provides protection against liver damage and inhibits the growth of certain bacteria and fungi.
Astringent, antimicrobial	Tannins	Promotes wound healing by contracting tissues and has antimicrobial properties.
*Antioxidant, anti-inflammatory	Saponins	Enhances cellular defense mechanisms and reduces inflammation.

*Antioxidant, anti-inflammatory	Phenolic Acids	Protects against oxidative stress, modulates immune responses, and may lower the risk of chronic diseases.

Sources:1,31. Asterisks indicate a treatment recognized by the Raub text

Assessment: several active compounds in plantain act as an anti-inflammatory and antioxidant which could treat Toothache as well as Insect as well as Spider and Snake bites and ivy poisoning.

Saffron (*Crocus sativus*)

Historical uses: Used as a tea, infusion, and tincture for the treatment of hysteria in women, chlorosis, dysmenorrhea, measles, smallpox, and as a diaphoretic and emmenagogue.[33]

Current uses/studies: Therapeutic Potential of Saffron (*Crocus sativus L.*) in Ischemia Stroke.[4] New horizons for the study of saffron (*Crocus sativus L.*) and its active ingredients in the management of neurological and psychiatric disorders: A systematic review of clinical evidence and mechanisms.[26]

Table 12

Possible mechanisms of Saffron (Crocus sativus)

Mechanisms	Active compounds	Effects/Pathways
Anti-tumor effects, neuroprotective, anti-inflammatory, antidepressant	Crocin	antioxidant properties, inhibition of cell proliferation, apoptosis induction
Anti-tumor, cardiovascular protection, neuroprotection	Crocetin	Modulation of oxidative stress, anti-inflammatory, anti-proliferative effects
Antidepressant, neuroprotective, anti-convulsant, anti-tumor	Safranal	Antioxidant, modulates neurotransmitter release, inhibits lipid peroxidation
Anti-inflammatory, anti-cancer, cardiovascular protection	Kaempferol	Antioxidant activity, modulation of signal transduction pathways
Possible anti-inflammatory and anticancer effects	Picrocrocin	Modulation of immune response, potential antioxidant activity

Sources: 26,38,57

Assessment: Based on the active compounds saffron does not seem to aid in the treatment of any of the ailments it was historically used for, however current studies do point to it being an effective treatment for several disorders and syndromes.

Stramonium (*Datura stramonium*)

Historical uses: Used as an ointment and an internal dose of powdered leaves for the treatment of epilepsy, insanity, asthma, chorea, sciatica, ulcers, tumors, cancers, scalds, burns, piles (hemorrhoids), and painful monthlies.[33]

Current uses/studies: Preclinical anticancer studies on the ethyl acetate leaf extracts of Datura stramonium and Datura inoxia.[47] Datura stramonium Leaf Extract Exhibits Anti-inflammatory Activity in CCL4-Induced Hepatic Injury Model by Modulating Oxidative Stress Markers and iNOS/Nrf2 Expression.[48]

Table 13

Possible mechanisms of Stramonium (Datura stramonium)

Mechanisms	Active compounds	Effects/ Pathways
*Anticholinergic, bronchodilator	Atropine	Inhibits acetylcholine at muscarinic receptors, leading to reduced parasympathetic nervous system activity
*Antiemetic, antispasmodic	Scopolamine	Blocks muscarinic receptors, particularly in the central nervous system, which can help prevent motion sickness and reduce muscle spasms
*Antispasmodic, anticholinergic	Hyoscyamine	Similar to atropine and scopolamine, inhibits acetylcholine effects, leading to decreased muscle spasms and secretions
Antimalarial, antipyretic	Quinine	Inhibits parasite's ability to digest hemoglobin, and can also lower fever
Antioxidant, anti-inflammatory	Catechin	Scavenges free radicals, modulates oxidative stress pathways, and reduces inflammation

Antioxidant, neuroprotective	Chlorogenic acid	Inhibits glucose absorption in the intestine, modulates blood sugar levels, and protects neurons from oxidative stress

Sources: 25,34,58. Asterisks indicate a treatment recognized by the Raub text

Assessment: Due to its containment of chemicals that have antispasmodic, and bronchodilation properties stramonium could be a treatment option for Asthma, Chorea and Painful monthlies.

Discussion

The exploration of herbal remedies from Lancaster County, particularly through the lens of the Raub Family's 19th-century practices, provides a unique connection of traditional knowledge and modern scientific study. By examining these remedies in the context of both historical and modern scientific frameworks, we gain insights into the broader cultural and universal aspects of herbal medicine.

The historical use of herbal remedies is not restricted to any single culture or region but is a global phenomenon. As supported by ancient systems like Ayurveda, Traditional Chinese Medicine, and Native American practices, the reliance on plant derivatives for health and wellness is deeply rooted in human history. These traditions emphasize a universal human effort to understand and harness the natural world for therapeutic purposes. The presence of active compounds in plants such as Opium, Aspirin, and Cocaine in modern medicine highlights the scientific validation of certain herbal practices, although many remedies still lack scientific evaluation.

The specific remedies discussed in this paper, particularly those from the Pennsylvania Dutch and Amish traditions, reflect a broader cultural pattern of integrating herbal knowledge

with spiritual and practical elements. Powwow practices among the Pennsylvania Dutch and the use of burdock among the Amish show how communities adapt and maintain their traditional healing practices within the context of their unique cultural and environmental settings. These practices not only provide a historical perspective but also inform contemporary discussions on alternative medicine and holistic health.

The exploration of herbal remedies is part of a larger pursuit to fully understand nature. The ongoing interest in and validation of certain herbal remedies reflects a growing recognition of the value of traditional knowledge in modern healthcare.

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Declaration of interest

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