Common Vocal Remedies: What Are They and Do They Really Work?, Part 1

Kirsten Meenan, Michelle White, Jonathan Romak, and Robert T. Sataloff

INTRODUCTION

HERBAL MEDICINE, or BOTANICAL MEDICINE, has a rich and ancient history, featured prominently in the healing arts of numerous civilizations over thousands of years. Seeds, berries, flowers, leaves, roots, and bark have been used traditionally in the treatment of many common and uncommon health conditions, including asthma, allergy, migraine, irritable bowel syndrome, menstrual disorders, cancer, and the common cold, among others. In 2008, the World Health Organization reported that the annual market for herbal medicines is nearly $60 billion.\(^1\) As more and more is invested into development and marketing of these products, more and more people are trying them. Among these are professional and avocational singers.

The voice is a delicate instrument, sensitive to dryness and inflammation from the environment, allergens, irritants, reflux, and infection. A number of herbal products are marketed to singers to help prevent and reduce hoarseness, dryness, laryngitis, inflammation, and cough, while providing lubrication of the mucosa and improved voice quality. This article reviews the efficacy and safety of seven of the most popular herbal products marketed to singers (Throat Coat, Entertainer’s Secret Spray, Vocal Eze Throat Spray, Thayer’s Cherry Lozenges, Vocal Zone Pastilles, Vitavocal Throat and Voice Enhancer, and Sprout’s Voice Remedy) and two home voice remedies (singer’s tea recipe and singer’s gargle).

Before discussing these products, it is important to understand the anatomy and physiology of the voice. Sound is produced when a constant stream of air passes between the apposed vocal folds at the level of the larynx, initiating the glottic cycle and generating the source signal. This signal is then altered as it passes through the supraglottic larynx, pharynx, palate, oral cavity, nasal cavity, tongue, lips, and sinuses. Alterations in these structures, including dryness from cold air or dry heat, mild edema from upper respiratory tract infections, reflux or allergy, scarring, and muscle tension affect the quality of sound. All of the following singing remedies act in some way as demulcents—substances that lubricate and moisten at least part of the voice conduction system.

The effects of herbal remedies have not been researched adequately, and are thus poorly understood. The Food and Drug Administration (FDA), which is responsible for ensuring that all drugs brought to market are both
safe and effective, does not endorse or regulate the sale of herbal preparations. Many of the claimed effects of herbal remedies have not faced the same rigorous scrutiny that prescription medications have, including extensive preclinical and clinical trials prior to approval. Although many herbal products contain agents that provide health benefits and alleviate symptoms, they cannot be marketed as medicines. Therefore, all herbal preparations must be marketed as “dietary supplements,” and it is not acceptable to make specific health claims about these supplements.2

In Germany, different requirements and standards exist for the regulation and control of herbal supplements. The German government’s Commission E evaluated and approved hundreds of herbal products found to be reasonably safe and effective. Products that have been approved by Commission E provide information about potential treatment options for a wide array of illnesses. In the United States, the National Institute of Health is carrying out an increasing number of well controlled clinical trials evaluating herbal medications and supplements. Until a more substantial body of evidence develops focusing on herbal preparations, it is important to be cautious when interpreting claims that herbal remedy companies may make about their products.3

THROAT COAT

Throat Coat, marketed by the company Traditional Medicinals in Sebastopol, CA, is an herbal tea containing four main ingredients: licorice root (760mg), slippery elm bark (60mg), marshmallow root (60mg), and licorice root dry aqueous extract (60mg). It also contains a proprietary blend (1040mg) of wild cherry bark, bitter fennel fruit, Saigon cinnamon bark, and sweet orange peel. A proprietary blend is a mix of ingredients listed together in decreasing quantities. As such, consumers do not know the actual amount of each of these individual ingredients.4

Licorice root (Glycyrrhiza glabra) is a demulcent. In Germany, it is prescribed to relieve inflammation of the airway mucus membranes. It is used in China for treatment of bronchitis, pharyngitis, laryngitis, peptic ulcers, asthma, malaria, abdominal pain, insomnia, and infections.5 It has been shown to have estrogenic, aldosterone-like, cortisol-like (antiinflammatory), antiinflammatory, antiinflammatory, antiallergic, antibacterial, antiviral, antihepatotoxic, anticancer, expectorant, and antitussive properties.6 The FDA recognizes licorice and its derivatives, such as glycyrrhizin, to be safe for use in foods. Many different numbers have been quoted as the safest maximum dose based on small clinical trials. Caution should be advised to people who ingest more than 60–70 grams per day of licorice root or more than more than 2mg/kg per day (150mg for a 75kg person) of the extracted active compound, glycyrrhizinic acid.7 Because of the aldosterone-like effects, high doses for extended periods of time can cause elevated blood pressure and low potassium. Licorice should be avoided or used with caution in people with hypertension, kidney failure, digitalis use, diuretic use, or antihypertensive use. People on oral hypoglycemic drugs or insulin should monitor blood glucose levels carefully.8

Slippery elm bark (Ulmus rubra or Ulmus fulva) is another demulcent often used to relieve symptoms of pharyngitis.9 To the best of our knowledge, there have been no clinical trials evaluating the efficacy of slippery elm in the treatment of upper respiratory tract pathology. The most remarkable trials of slippery elm have been in patients with breast cancer. However, oncologists have recommended against using slippery elm bark, in the form of Essiac (Essiac Canada International, Fredericton, New Brunswick, Canada), because it lacks efficacy and may delay beneficial medical treatment if patients rely on it to the exclusion of proven allopathic treatments.10

Marshmallow root (Althaea officinalis) is another demulcent used often for dry cough and pharyngitis symptoms.11 The main antitussive and emollient effects are attributed to the root’s polysaccharide component, which forms a protective coating over the mucosa, decreasing irritation and the cough reflex.12 Commission E approved its use in cough and bronchitis. Average daily doses of 6 grams of root, 5 grams of leaf, and 10 grams of syrup are believed to be safe.13

To date, there has been one clinical trial comparing Throat Coat to a placebo tea for symptomatic relief of pharyngitis. The trial included a total of 60 subjects. Thirty patients used Throat Coat 4–6 times per day, while the other 30 used placebo tea. Throat Coat use led to a statistically significant decrease in pain on swallowing and total pain compared to placebo. The pain relief was immediate and lasted at least 30 minutes. There
were no serious adverse effects from drinking 4–6 cups of Throat Coat each day. Overall, Throat Coat, taken as recommended on the label, is safe and effective in transiently alleviating symptoms of pharyngitis. This trial did not attempt to address whether Throat Coat shortens the duration of pharyngitis. Throat Coat is unlikely to shorten the duration of viral or bacterial pharyngitis, and if bacterial pharyngitis is confirmed, one should still be treated with an antibiotic to prevent sequelae of a Group A Streptococcal infection (e.g., rheumatic fever/heart disease and poststreptococcal glomerulonephritis), as well as other potential complications of bacterial infection.

**ENTERTAINER’S SECRET SPRAY**

Entertainer’s Secret Spray (Entertainer’s Secret, Carmel, Indiana) is a combination of carboxymethylcellulose, aloe vera gel, and glycerin in a mixture of dibasic sodium phosphate and potassium chloride. The first three of these ingredients act as lubricants to prevent sequelae of a reference solution. The latter two ingredients generate the hypertonicity of the spray, for which it is marketed. Hypertonicity refers to a solution that has a higher concentration of solutes than a reference solution. Water will flow from a region of low tonicity (hypotonicity) to a region of high tonicity (hypertonicity). Hypertonic spray is therefore presumed to be beneficial in moistening any area of the mouth, throat, or vocal folds that the spray contacts.

To the authors’ knowledge, there has been one clinical trial evaluating the effects of Entertainer’s Secret on the voice. The trial compared the effects of mannitol, sterile water, and Entertainer’s Secret on lowering the phonation threshold pressure (PTP) in 18 healthy women who were nonsingers. The PTP is the minimum pressure needed to initiate vocal fold oscillation, and it has been used in a number of studies to assess the respiratory effort needed to produce sound. At one point, it was assumed that a decrease in PTP correlates with decreased phonatory effort and more efficient phonation. It was also assumed that dryness of the larynx secondary to decreased water content increases the viscosity of mucus and resistance to airflow, thus increasing PTP. However, numerous studies in the past 10 years have shown varying effects of desiccation on the PTP. In this trial, subjects were given one of the three treatment options each week through a nebulizer, which allows the medication to be delivered to the respiratory system as a mist. The PTP was measured 15 minutes prior to treatment, immediately before treatment, and 5, 20, 35, and 50 minutes following treatment. The results of this study showed that only mannitol decreased the PTP at 5 minutes, but the PTP returned to baseline by 20 minutes. Water was shown to lower the PTP at 5 minutes, but this was not deemed statistically significant. Water also showed a rebound increase in PTP for the remainder of the study. Entertainer’s Secret showed an oscillating pattern of increasing and decreasing PTP at the recorded times, but the PTP was never significantly reduced from baseline. Mannitol, an osmotic agent, and the proposed mechanism of action is that it pulls water into the larynx for lubrication. Sterile water, through the nebulizer, may either have no effect on an already healthy voice, or it may be absorbed rapidly because it is hypo-osmolar (less concentrated) relative to the tissue, causing dryness. Entertainer’s Secret has both lubricating properties and potential osmotic properties. However, the actual measured osmolality of Entertainer’s Secret is not shared on their website, so it is unclear if it would be hyper- or hypo-osmotic relative to the tissue in the body.

Although this study showed that only mannitol transiently but significantly decreases the PTP, there are many weaknesses of the study. First, it did not assess the participant’s perceived phonatory effort, which may be more relevant than simply measuring the PTP. Furthermore, it was performed only in a handful of healthy young women. The results from this study may vary in a larger population including, men, varying ages, and people with pathology. Also, Entertainer’s Secret is taken normally as an oral spray, not as a nebulized treatment. The assumption of Roy et al. was that a nebulizer would be more effective in delivering medicine to the larynx than an oral spray; however, the product may still be beneficial to singers by lubricating the mouth and pharynx.

**VOCAL EZE THROAT SPRAY**

Vocal Eze Throat Spray (multiple manufacturers), like many other similar products, is endorsed by famous
vocalists and is a proprietary blend of many herbal products. As a proprietary blend, it is not required to document the amount of each active ingredient. It includes marshmallow root, osha root, licorice root, Echinacea purpurea root, propolis, Echinacea purpurea flower, ginger root, Echinacea augustifolia root, and Echinacea purpurea seed. It also contains aloe vera gel, vegetable glycerin, wildflower honey, natural flavors, and spring water. While there has been a substantial amount of research on Echinacea and licorice root, some of its other ingredients are discussed less thoroughly in the literature. There are no studies known to the authors evaluating the efficacy of Vocal Eze.

Native American populations commonly use osha root for the treatment of respiratory illnesses. It has been shown to have antimicrobial, antiviral, antiinflammatory, sedative, spasmyloytic, and vasodilatory properties. It is used as a remedy for cough, sore throat, indigestion, headache, sinusitis, wounds, arthritis, cancer, and angina. However, clinical evidence supporting its use is lacking.

Ginger root (multiple manufacturers) has been studied in numerous in vitro, animal and human studies. Ginger has been shown to have antiemetic, antiinflammatory, antiplatelet aggregation, antidiabetic, and analgesic effects. Interestingly, ginger root also has been found to have antiviral properties against human respiratory syncytial virus in human respiratory tract cells. However, human trials are lacking, and results have been inconsistent. While there is some evidence of these effects in humans, there is not enough evidence to fully support ginger as a treatment for any disease from the medical perspective. Commission E approved the use of ginger for loss of appetite, travel sickness, and dyspepsia. Chinese and Indian medicine use ginger to treat colds and pharyngitis. The lethal dose in mice is extremely high, which can be extrapolated to also be very high in humans. Thus, while ginger’s clinical efficacy is questionable, it is considered safe when taken at the recommended doses.

Echinacea (multiple manufacturers) is used widely for the treatment of the common cold. The preparations used in different trials varied and were therefore not comparable. Also, the methods for assessing outcomes varied greatly from trial to trial. With this in mind, the Cochrane review concluded that a variety of Echinacea products might be able to reduce healthy people’s risk of catching a cold. However, the overall evidence supporting Echinacea for the treatment of cold is clinically weak.

Propolis (multiple manufacturers) is a waxy mixture of substances from plants, buds, and exudates made by honeybees to seal their hives. Historically, it has been used to embalm cadavers, seal violin cracks, heal wounds, treat sore throat, and disinfect the mouth. Today, it is a remedy used for the treatment of upper respiratory tract infections, wounds, burns, acne, herpes simplex, and neurodermatitis. It also is utilized in dental hygiene to prevent caries and to treat gingivitis and stomatitis. It is composed of resins, waxes, oils, pollen, and organic compounds. Hundreds of different compounds are identified in different samples. It has been reported to have antioxidant, antibacterial, antiinflammatory, and immunomodulatory effects. While there are multiple clinical trials evaluating its effects on the treatment of dental pathologies, there is limited evidence supporting its use in the treatment of cold symptoms. To our knowledge there are no trials evaluating its use as a demulcent or its effects on the voice.

**THAYERS CHERRY SLIPPERY ELM LOZENGES**

Vocalists have used Thayers lozenges (Thayers Natural Remedies, Westport, Connecticut) for over 136 years to relieve symptoms of vocal irritation and hoarseness. Each lozenge contains 150mg of slippery elm bark, contributing to its demulcent effect. Thayers prides itself on having menthol-free products. This is especially important to singers when using remedies to treat a sore throat. Pain is a protective physiologic function. Analgesics like menthol dampen the pain, but do not fix the cause. Masking pain permits more stress to be added to an already damaged mucosal surface, which can lead to further and more serious damage. If pain and discomfort are great enough to require an analgesic, serious consideration should be given to cancelling the performance.

(Continued in the next issue)


8. Pizzorno and Murray, “Glycyrrhiza.”


17. Ibid.

18. Ibid.


21. Leon et al., “Phthalides.”


Kirsten Meenan received her Bachelor of Science from the University of Pittsburgh, where she studied biology, chemistry, and theater arts, and she is currently pursuing her medical degree at Drexel University College of Medicine.

Michelle White is a third year medical student at Drexel University. She attended Colgate University and graduated with a B.A. in Cellular Neuroscience and Creative Writing. In her spare time, she enjoys running, dancing, reading, and spending time with friends and family.

Dr. Romak graduated from the University of Connecticut School of Medicine, received his residency training in Otolaryngology—Head and Neck Surgery at Mayo Clinic in Minnesota, and completed a fellowship in Laryngology and Care of the Professional Voice at the American Institute for Voice and Ear Research. He practices laryngology and otolaryngology in Wilmington, Delaware.

Robert T. Sataloff, MD, DMA, FACS, is Professor and Chairman, Department of Otolaryngology—Head and Neck Surgery and Senior Associate Dean for Clinical Academic Specialties, Drexel University College of Medicine. He is also Adjunct Professor in the departments of Otolaryngology—Head and Neck Surgery at Thomas Jefferson University and the University of Pennsylvania, as well as Temple University and the Philadelphia College of Osteopathic Medicine; and on the faculty of the Academy of Vocal Arts. Dr. Sataloff is also a professional singer and singing teacher, and he served as Conductor of the Thomas Jefferson University Choir over a period of nearly four decades. He holds an undergraduate degree from Haverford College in Music Theory and Composition, graduated from Jefferson Medical College, Thomas Jefferson University, received a Doctor of Musical Arts in Voice Performance from Combs College of Music; and he completed his Residency in Otolaryngology—Head and Neck Surgery and a Fellowship in Otology, Neurotology and Skull Base Surgery at the University of Michigan. Dr. Sataloff is Chairman of the Boards of Directors of the Voice Foundation and of the American Institute for Voice and Ear Research. He has also served as Chairman of the Board of Governors of Graduate Hospital; President of the American Laryngological Association, the International Association of Phonosurgery, and the Pennsylvania Academy of Otolaryngology—Head and Neck Surgery; and in numerous other leadership positions. Dr. Sataloff is Editor-in-Chief of the Journal of Voice, Editor-in-Chief of Ear, Nose and Throat Journal, Editor-in-Chief of the Journal of Case Reports in Medicine, Associate Editor of the Journal of Singing, and on the editorial boards of numerous otolaryngology journals. He has written approximately 1,000 publications, including 59 books. His medical practice is limited to care of the professional voice and to otology/neurotology/skull base surgery.