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P.O. Box 144345 Austin, TX 78714-4345 ■ 512.926.4900 ■ Fax: 512.926.2345 ■ www.herbalgram.org

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File: ■ *Pelargonium sidoides*
■ Bronchitis
■ Sinusitis

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RE: *Pelargonium sidoides* May Reduce the Severity of Acute Bronchitis and Sinusitis

Timmer A, Günther J, Motschall E, Rücker G, Antes G, Kern WV. *Pelargonium sidoides* extract for treating acute respiratory tract infections. *Cochrane Database Syst Rev.* 2013;10:CD006323. doi: 10.1002/14651858.CD006323.pub3.

Acute respiratory infections can be divided into upper respiratory infections that include sinusitis, common cold, otitis media, and pharyngitis and lower respiratory infections such as acute bronchitis. Symptoms usually last from one to three weeks and are often treated with medications to alleviate symptoms or, in more severe cases, with antibiotics. *Pelargonium sidoides* extracts are available as alcohol preparations, tablets, or syrups that are all currently approved in Germany for treating acute bronchitis. In vitro, *P. sidoides* has been shown to have a weak antibacterial effect and to increase cilia function making it a potential expectorant. The purpose of this study was to review studies of the effect of *P. sidoides* on acute respiratory infections.

The following databases were searched up to April 23, 2013: "MEDLINE, Journals@Ovid, The Cochrane Library, Biosis Previews, Web of Science, CINAHL, CCMed, XToxline, Global Health, AMED, Derwent Drug File and Backfile, IPA, ISTPB + ISTP/ISSHP, EMBASE, Cambase, LILACS, PubMed component 'Supplied by Publisher,' TRIPdatabase, the publisher databases: Deutsches Ärzteblatt, Thieme, Springer, ScienceDirect from Elsevier," along with "ClinicalTrials.gov, Deutsches Register klinischer Studien DRKS (German Clinical Trials Register), International Clinical Trials Registry Platform (ICTRP) - WHO ICTRP, Current Controlled Trials and EU Clinical Trials Register."

Only studies that were randomized, controlled, and double-blinded were included in the analyses. Cochrane risk of bias analyses were conducted, and studies with high bias were excluded. Studies were also excluded if the patients had underlying chronic illnesses, such as chronic obstructive pulmonary disease or asthma. The primary outcome sought was time until complete resolution of symptoms. Since no studies included this outcome, the severity of symptoms at day seven was analyzed. With sinusitis, a longer time frame (21 days) was found to be relevant. Adverse side effects from each study were noted. Treatment effects were calculated with risk ratios (RRs),

with an RR of less than one corresponding to a decreased risk of not being free from symptoms at seven days. Heterogeneity among studies was compared with the I^2 index. Studies were separated into those with children and adults, and the type of extract (liquid or tablet) was compared.

Of the 874 studies found, only eight met all of the criteria and were included for further analysis. All of these studies were initiated by the manufacturer (Dr. Willmar Schwabe Pharmaceuticals GmbH; Karlsruhe, Germany) of the *P. sidoides* extracts and were conducted in Russia and Ukraine. In two of three studies of acute bronchitis in adults ($n = 746$), liquid preparations ($n = 341$) of *P. sidoides* had a positive effect on resolving sputum (RR = 0.70), but heterogeneity among the studies was too high to pool the data on cough or resolution of all symptoms. Of the three studies measuring acute bronchitis in children ($n = 819$), the liquid preparation ($n = 420$) used in two studies was found to have a positive effect on resolving all symptoms and cough (RR = 0.82 for both). One study of acute sinusitis in adults ($n = 104$) showed a positive effect of *P. sidoides* extract on resolution of all symptoms (RR = 0.43), as well as nasal discharge (RR = 0.21) and headaches (RR = 0.23). Lastly, in one study of common cold in adults ($n = 103$), an effect of treatment was found after 10 days (RR = 0.41), but not after 5 days (RR = 0.96). Adverse effects of treatment in all studies were mild and consisted of gastrointestinal discomfort and allergic skin reactions. *P. sidoides* has been classified as having moderate side effects.

From these analyses, there is evidence that alcohol extracts of *P. sidoides* reduce the severity of acute bronchitis and sinusitis in adults and acute bronchitis in children. Positive effects of the treatment were only seen in the smaller studies which all used the alcohol extract. The authors were concerned about small sample sizes, the initiation of the studies by the manufacturer, the small geographic region in which the studies were conducted, the potential subjectivity of the symptom scores, and potential publication bias. Other common treatments of acute respiratory infection have mixed effects on reducing the severity of infection. For instance, mucolytic and antitussive agents do not appear to reduce the severity of infection, while antibiotics may reduce the duration of symptoms by one day. Echinacea (*Echinacea purpurea*) preparations seem to reduce the duration and severity of common cold symptoms. There is concern that *P. sidoides* has been associated with hepatotoxicity, even though no evidence was found in these studies. More well-designed, independent, and geographically diverse studies are needed to confirm the potential positive effects of *P. sidoides* on acute respiratory infections, according to the authors.

—Cheryl McCutchan, PhD

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