



HerbClip™

Mariann Garner-Wizard
John Neustadt, ND
Cathleen Rapp, ND

Shari Henson
Heather S Oliff, PhD
Densie Webb, PhD

Brenda Milot, ELS
Marissa Oppel, MS

Executive Editor – Mark Blumenthal

Managing Editor – Lori Glenn

Consulting Editors – Dennis Awang, PhD, Steven Foster, Roberta Lee, MD

Funding/Administration – Wayne Silverman, PhD

Production – George Solis/Kathleen Coyne

**FILE: ■Ginkgo (*Ginkgo biloba*)
■Tinnitus
■Ringing in the Ear**

HC 090253-303

Date: April 28, 2006

RE: Can Ginkgo Help Ringing in the Ear?

Smith P, Zheng Y, Darlington C. *Ginkgo biloba* extracts for tinnitus: more hype than hope? *J Ethnopharm* 2005;100:95–99.

Tinnitus is a condition characterized by auditory hallucinations consisting of ringing, whistling, hissing, roaring, booming, or other noises. An estimated 5–15% of the population suffers from tinnitus, and is most prevalent in those older than 60 years. Tinnitus can be debilitating in some patients. Comorbidities include anxiety and depression, which are caused by the persistent and irritating noise sensations.

The pathophysiology of tinnitus is not clearly understood. Hypotheses created to explain tinnitus have included damage to cochlear hair cells (cells in the inner ear that vibrate in response to acoustic energy, generating nerve impulses interpreted as sound by the brain); spontaneous firing of auditory nerves; and "sensory epilepsy in which the brain generates an abnormal 'memory' of a sensation which is sustained long after the sensory receptors have been damaged." There are many potential causes of tinnitus, including loud noises, medications, thyroid disease, infections, and cerebrovascular insufficiency.

Drug treatments for tinnitus have had varying degrees of success, but are generally not highly effective; therefore, searches for good treatments continue. Some researchers and clinicians have claimed ginkgo (*Ginkgo biloba*) to be useful in treating cases of tinnitus. The goal of this article "is to critically evaluate the claims that *Ginkgo biloba* extracts have clinical efficacy in the treatment of tinnitus."

The authors reviewed seven clinical trials of various ginkgo extracts for tinnitus. Three of these trials administered the special ginkgo extract EGb 761 (Dr. Willmar Schwabe Pharmaceuticals, Karlsruhe, Germany), which contains 24% flavonol glycosides, 7% proanthocyanidins, and 6% terpene trilactones, to 423 volunteers. All three of these studies showed a reduction in tinnitus severity; however, according to the authors of this review, one of the papers "lacked a clear description of the methods used" and another one was criticized "for lack of random allocation of patients to the different treatment groups and lack of methodological detail in the published report, including whether the patients and experiments were blind to the treatment group." The third EGb 761 trial was not discounted for any methodological flaws. This study, involving 60 volunteers, injected 200 mg

EGB 761 daily for 10 days, and then randomized them to receive 80 mg oral EGB 761 or placebo twice daily for 3 months. The treatment group during the second phase experienced a significant reduction in tinnitus compared to placebo.

A larger randomized, placebo-controlled study gave 1,120 volunteers 50 mg ginkgo extract LI 1370 (Lichtwer Pharma, Berlin, Germany) or placebo three times daily for 12 weeks. The authors reported, "There was no significant differences in either measure [self-assessment of tinnitus loudness and how bothersome their symptoms were on a five-point scale] compared to placebo." Another trial that gave volunteers 120 mg ginkgo extract (Lambert's Health Care, Tunbridge Well, UK) for 12 weeks also found no difference between treatment and control groups. The authors did not report the outcome measures in this study, which were the volunteers' subjective assessment of their tinnitus. No objective outcome measures, such as audiological testing, were included in this trial.¹ Other trials using different ginkgo extracts and meta-analyses are mentioned, all of which concluded ginkgo was ineffective for tinnitus.

Hemorrhage following ginkgo administration is the only potential adverse event mentioned by the authors. This event is based on theory (ginkgo extracts have vasodilatory effects) and case reports; however, a clinical trial evaluating 120 mg EGB 761 twice a day for seven days on bleeding time, coagulation parameters, and platelet activity "found no significant difference in any of these measures and concluded there is no causal relationship between the use of *Ginkgo biloba* extracts alone and hemorrhagic events." This conclusion generalizes one extract to all ginkgo extracts, which may not be accurate. Additional studies should further assess this finding using EGB 761 and other extracts.

The authors conclude, "The misconception that *Ginkgo biloba* extracts can help alleviate tinnitus can potentially divert the attention of patients and clinicians away from these more promising avenues of treatment" – such as the prostaglandin E1 analogue, misoprostol, a vasodilator found effective in relieving tinnitus in about 33% of patients. The German Commission E, however, developed a different conclusion based on their review of the research. They approved ginkgo for use in vertigo and tinnitus of vascular origin. Future research should enroll patient with tinnitus of vascular origin, incorporate objective outcome measures into their study, and ensure the ginkgo dosage and study duration match previous clinical trials in which significantly positive results for ginkgo were found. A definitive statement that all ginkgo preparations are ineffective for all types of tinnitus seems premature.

—John Neustadt, ND

References

¹Drew S, Davies E. Effectiveness of Ginkgo biloba in treating tinnitus: double blind, placebo controlled trial. *BMJ*. Jan 13 2001;322(7278):73.

Enclosure: Referenced article reprinted with permission from Elsevier, Inc.

The American Botanical Council provides this review as an educational service. By providing this service, ABC does not warrant that the data is accurate and correct, nor does distribution of the article constitute any endorsement of the information contained or of the views of the authors.

ABC does not authorize the copying or use of the original articles. Reproduction of the reviews is allowed on a limited basis for students, colleagues, employees and/or members. Other uses and distribution require prior approval from ABC.