Expert Herbal Reality Resource
Ginkgo

Names

Botanical Name *Ginkgo biloba* L

Family: Ginkgoaceae

Common names: Maidenhair tree (Eng), Ginkgoblätter (Ger), arbre aux quarante écus (Fr)

Description

Ginkgo biloba is the only member of its family, a gymnosperm that has survived unchanged from the Triassic period. It can grow to a height of over 100m, and some trees have been shown to be over 1000 years. Ginkgo is dioecious (possessing male and female flowers on separate trees) and its leaves have a characteristic fan-like appearance with two lobes (biloba). The seed (or nut) is oily and edible but the seed coat and embryo are bitter.

Because of widespread adulteration of commercial ginkgo extracts with rutin (so as to generate the required high flavonoid levels), a specific quality control method for standardised ginkgo extracts is now a requirement of the United States Pharmacopoeia National Formulary as well as for product registration with the Australian Therapeutic Goods Administration.

Constituents

The European Pharmacopoeia definitive monograph on dried ginkgo leaf requires a minimum 0.5% flavonoids, calculated as flavone glycosides.

By contrast EGb761 is standardized to 24% ginkgo-flavone glycosides and 6% terpenoids (e.g. bilobalide, ginkgolidesA, B, C, andJ).

Ginkgo leaf also contains ginkgolic acid. This is a strong allergen and levels are specified to be less than 5 parts per million in assured extracts.

Other constituents include procyanidins.

Evidence

Almost all the clinical research evidence relates to the patented 50:1 extract EGb761-containing 24% flavone glycosides and 6% terpenoids) at a daily dose typically corresponding to 4 to 16 g of leaf. There is a considerable body of this evidence, with over 400 clinical trials published in the scientific literature.

Much of this work has focused on the potential effects of ginkgo extracts on cognitive decline and dementia,[1] and on various measures of cognitive performance in healthy subjects,[2,3] such as memory.[4]

Other benefits of the extract have been demonstrated, including reduced stress responses.[5]

There is very little published evidence for any effects of other ginkgo leaf preparations. One exception is in the case of a 3-5:1fresh-leaf extract (at 90 mg/day equating to 300-400mg of fresh leaf) in a German-language publication.[6]

Safety

There is very little record of problems associated with the use of ginkgo extracts. There is a theoretical risk of a bleeding event or interaction with blood thinning drugs because of its PAF activity but this is neither supported by controlled clinical trials nor by mandatory adverse reporting schemes in Germany and other parts of Europe. Given the very widespread prescription of ginkgo in medical practice there this is a significant assurance of safety.

Because of potential allergic reactions to ginkgolicacids (specified to be less than 5 parts per million in assured extracts), the use of normal tinctures or fluid extracts is not recommended. There is evidence that the majority of commercial ginkgo products other than EGb761 have contained levels of ginkgolic acids grossly exceeding WHO recommendations.[7]

Dosage

The daily dose of the 50:1 standardised extract (EGb761) is 120 to 240mg. This corresponds to 4 to 16g of leaf, depending on the quality of original leaf.

References

1 Yang G, Wang Y, Sun J, et al. (2016). Ginkgo Biloba for Mild Cognitive Impairment and Alzheimer's Disease: A Systematic Review and Meta-Analysis of Randomized Controlled Trials.Curr Top Med Chem. 16(5):520-528.

2 Kennedy DO, Scholey AB, Wesnes KA. (2000). The dose-dependent cognitive effects of acute administration of Ginkgo biloba to healthy young volunteers.Psychopharmacology (Berl). 151(4):416-423.

3 Cieza A, Maier P, Pöppel E. (2003). Effects of Ginkgo biloba on mental functioning in healthy volunteers.Arch Med Res. 34(5):373-381.

4 Kaschel R. (2011). Specific memory effects of Ginkgo biloba extract EGb 761 in middle-aged healthy volunteers.Phytomedicine. 18(14):1202-1207.

5 Jezova D, Duncko R, Lassanova M, et al. (2002). Reduction of rise in blood pressure and cortisol release during stress by Ginkgo biloba extract (EGb 761) in healthy volunteers.J Physiol Pharmacol. 53(3):337-348.

6 Bäurle P, Suter A, WormstallH. (2009) Safety and effectiveness of a traditional ginkgo fresh plant extract - results from a clinical trial. Forsch Komplementmed. 16(3): 156-61.

7 Hong Kong Consumer Council. Test Casts Doubt on Clinical Benefits of Ginkgo Leaf Products with Non-Standardized Extract. Choice No. 289, 15 November 2002.