

MISTLETOE

Viscum album L.

Family

Santalaceae.

Parts Used

Herb.

Traditional Use

Mistletoe, originating from the Celtic name meaning 'all-heal', has been used as a traditional medicine in Europe for centuries to treat various diseases like cancer, cardiovascular disorder, epilepsy, infertility, hypertension and arthritis.^{1,2}

Constituents

Current phytochemical studies have shown that lectins, hetero-dimeric glycoproteins, polysaccharides, viscotoxins, alkaloids, lipids, triterpenes, peptides, flavonoids, cyclitols and amines are principal bioactive phytochemicals of mistletoe. The phytochemical profile of mistletoe depends on the host trees of this plant. Being a semiparasitic plant normally found growing on a variety of trees, especially pine, poplar, oak, apple trees, locust trees etc., mistletoe can biosynthesise its own compounds but it can also take some nutrients from the host trees. It has been suggested that pharmacologically active compounds may pass from the host trees to the parasitic plants. So far literature studies haven't revealed exactly what



compounds are only biosynthesised by mistletoe and what could be taken from the host trees.^{3,4}

Actions

Immunomodulatory, antihypertensive, antioxidant, cytotoxic, antitumour, anti-inflammatory, antidiabetic, antimicrobial, sedative.

Pharmacological Activity

Mistletoe, a semi-parasitic plant romantically associated with stealing a kiss at Christmas, is frequently used in the complementary therapy of cancer and other immunological disorders. Several lines of evidence indicate that mistletoe improves patient survival, reduces the damage caused by conventional cancer therapies and increases patients' quality of life.⁵

Crude extracts and isolated chemical constituents from mistletoe have exhibited significant medicinal effects in experimental models and in patients with cancer, autoimmune and inflammatory conditions. Recent randomised clinical trials have suggested improved overall survival and quality of life in cancer patients treated with different mistletoe preparations.⁶

Mistletoe extracts exert their anticancer effects both by modulating the immune system as well as directly having cytotoxic activities on cancer cells, with a less potent effect on normal, healthy cells. It possesses TNF α activity to strengthen the immune system to combat cancer. In line with its anticancer activity it is rich in antioxidants that confer protection against cancer as well as neurodegeneration.⁷

Extracts from mistletoe have shown evidence of vasodilation and thus, antihypertensive effects. The antihypertensive effect of mistletoe was recorded in 1907 by a French physician, René Gaultier. Viscysate, a commercially available mistletoe

preparation from around 1930s to 1950s, was used as a vasodilator. However only recently has antihypertensive work on mistletoe re-emerged. A 2007 *in vivo* study indicated that mistletoe induced a significant decrease in blood pressure without causing any change in heart rate. This led the team to postulate that mistletoe most likely decreases blood pressure via the sympathetic pathway. A 2014 pilot study on the assessing the antihypertensive effect of mistletoe also showed promise.^{8,9,10}

Indications

- Hypertension, tachycardia, atherosclerosis
- Adjuvant for cancer therapy
- Depression, anxiety, sleep disorders, headache

Energetics

Warming, drying, sweet, acrid and bitter.

Use in Pregnancy

Contraindicated due to possible emmenagogue and abortifacient effects.

Contraindications

None known.

Drug Interactions

Caution with immunosuppressant drugs. Monitor with antihypertensive and hepatotoxic drugs.

Administration and Dosage

Liquid Extract: 1:1

Alcohol: 30%

Weekly Dosage:¹¹ 20 to 60mL

References

1. Singh B, Saha C, Galun D, Upreti DK, Bayry J, Kaveri SV. European *Viscum album*: a potent phytotherapeutic agent with multifarious phytochemicals, pharmacological properties and clinical evidence. *RSC Adv.*, 2016,6, 23837-23857 DOI: 10.1039/C5RA27381A
Received 21 Dec 2015, Accepted 19 Feb 2016 First published online 22 Feb 2016.
2. Lim YC, Rajabalaya R, Lee SH, Tennakoon KU, Le QV, Idris A, et al. Parasitic Mistletoes of the Genera *Scurrula* and *Viscum*: From Bench to Bedside. *Molecules*. 2016 Aug 17;21(8). pii: E1048. doi: 10.3390/molecules21081048.
3. Vicaş SI, Rugină D, Socaciu C. Comparative study about antioxidant activities of *Viscum album* from different host trees, harvested in different seasons." *Journal of Medicinal Plants Research* 5, no. 11 2011: 2237-2244.
4. Twardziok M, Kleinsimon S, Rolff J, Jäger S, Eggert A, Seifert G, et al. Multiple Active Compounds from *Viscum album* L. Synergistically Converge to Promote Apoptosis in Ewing Sarcoma. *PLoS One*. 2016 Sep 2;11(9):e0159749. doi: 10.1371/journal.pone.0159749. eCollection 2016.
5. Saha C, Das M, Stephen-Victor E, Friboulet A, Bayry J, Kaveri SV. Differential Effects of *Viscum album* Preparations on the Maturation and Activation of Human Dendritic Cells and CD4+ T Cell Responses. *Molecules*. 2016 Jul 14;21(7). pii: E912. doi: 10.3390/molecules21070912.
6. Singh B, Saha C, Galun D, Upreti DK, Bayry J, Kaveri SV. European *Viscum album*: a potent phytotherapeutic agent with multifarious phytochemicals, pharmacological properties and clinical evidence. *RSC Adv.*, 2016,6, 23837-23857 DOI: 10.1039/C5RA27381A
Received 21 Dec 2015, Accepted 19 Feb 2016 First published online 22 Feb 2016.
7. Lim YC, Rajabalaya R, Lee SH, Tennakoon KU, Le QV, Idris A, et al. Parasitic Mistletoes of the Genera *Scurrula* and *Viscum*: From Bench to Bedside. *Molecules*. 2016 Aug 17;21(8). pii: E1048. doi: 10.3390/molecules21081048.
8. Inci A, Bowman. The Everlasting Mistletoe and the Cardiovascular System. *Tex Heart Inst J*. 1990; 17(4): 310–314. PMCID: PMC324941
9. Poruthukaren KJ, Palatty PL, Baliga MS, Suresh S. Clinical evaluation of *Viscum album* mother tincture as an antihypertensive: a pilot study. *J Evid Based Complementary Altern Med*. 2014 Jan;19(1):31-5. doi: 10.1177/2156587213507726. Epub 2013 Nov 5.
10. Lim YC, Rajabalaya R, Lee SH, Tennakoon KU, Le QV, Idris A, et al. Parasitic Mistletoes of the Genera *Scurrula* and *Viscum*: From Bench to Bedside. *Molecules*. 2016 Aug 17;21(8). pii: E1048. doi: 10.3390/molecules21081048.
11. British Herbal Medicine Association Scientific Committee. *British Herbal Pharmacopoeia*. Cowling: BHMA; 1983. p.