

What is Artemisia Annua?



Artemisia Annua (annual wormwood, sweet wormwood, sweet Annie) is a common type of weed that grows throughout the world. It has fern-like leaves, bright yellow flowers, and a camphor-like scent.

How is it used?

Artemisia Annua has a wide variety of uses. This highly aromatic annual herb has been used in China as a medicinal plant to treat fever since the 340s. It is also grown in Europe and India for its scented leaves which are used to flavor beverages.

Artemisia Annua yields a compound called artemisinin, that has demonstrated to be a potent anti-malarial agent with little or no side effects. Malaria is an infective disease caused by sporozoan parasites that are transmitted through the bite of an infected Anopheles mosquito. The disease often causes outbreaks of chills, fever, and even death. Artemisinin is used to treat malaria, cerebral malaria in particular, which is the most severe form.

Further uses include, using the vapor to fight colds and coughs, and chewing the leaves to treat Candida infection in the mouth. Artemisinin has also been recommended for use by AIDS and Cancer patients because the tea's positive effect on the immune system.



Artemisinin Extraction:

Definition:

The method by which essential oils are separated from the plant using solvents which can then be removed by evaporation.

Procedure for liquid solvent extraction:

Step 1:
Chop the plant leaves



or freeze the leaves then grind them up

Step 2:

Put the leaves in a solvent (examples: toluene, n-hexane, chloroform, or petroleum.) This dissolves the molecules so that they leak out in the solvent.



Step 3:

Remove the liquid containing the artemisia with a pipette and transfer it to another test tube.



Step 4:

Evaporate the solvent, leaving the artemisinin powder on its own (later to be made into pills or tea for patients.)



Problems with liquid solvent extraction:

- ♡ Time consuming
- ♡ Labor intensive
- ♡ Expensive for underdeveloped countries where most cases of malaria occur.

Other methods of extractions:

- ♡ Pressurized Solvent Extraction- a new technique which uses higher pressure and temperatures to reduce the time required to complete the extraction.
- ♡ Microwave Assisted Extraction- uses microwave energy to heat the sample and shorten the extraction time.
- ♡ Bioreactor-container in which biological reaction occurs (the plant is grown in this container and misted with a solvent so that the artemisinin drips to the bottom of the bioreactor.)

References

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