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# Essential Oil Distillation Kit

By

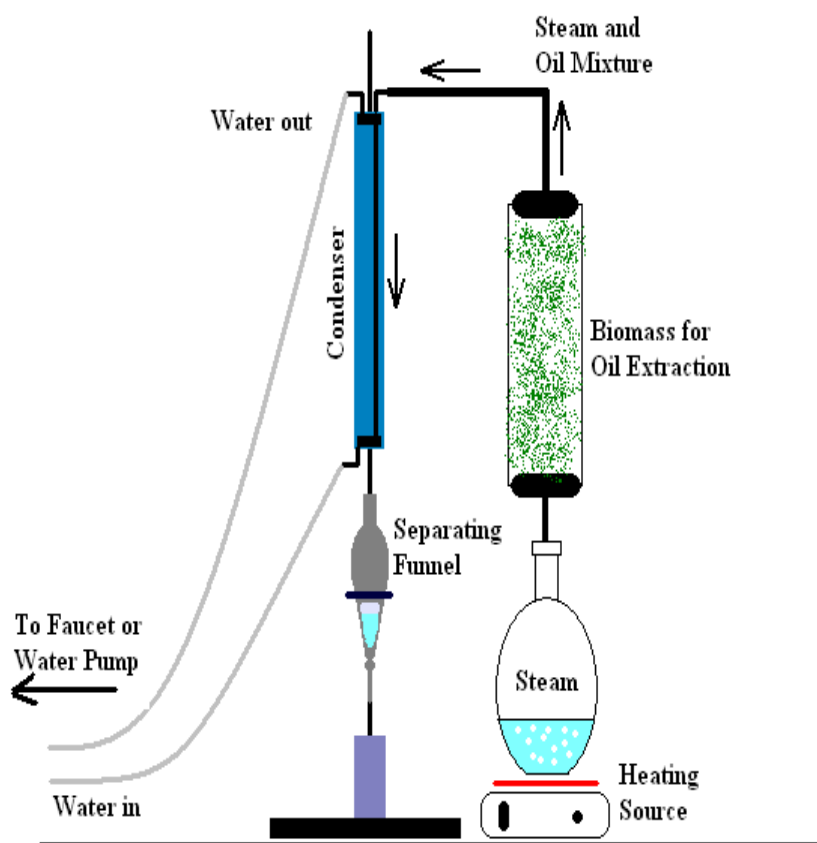


## Introduction:

Thank you for purchasing the essential oil distillation lab kit from Physics Playground. It is our goal to insure a kit that is reliable and flexible to meet the needs of our customers. This kit has been designed for at-home and laboratory use so that our customers may fluently extract the essential oils in the convenience of their desired settings. To guide you along the way, below is a brief overview of the extraction process and how to set up your essential oil extraction kit. Should any questions arise during the use of your product, please feel free to send us an email at [frederickgraff@hotmail.com](mailto:frederickgraff@hotmail.com) and thanks again!

## How Essential Oils are Removed from a Plant:

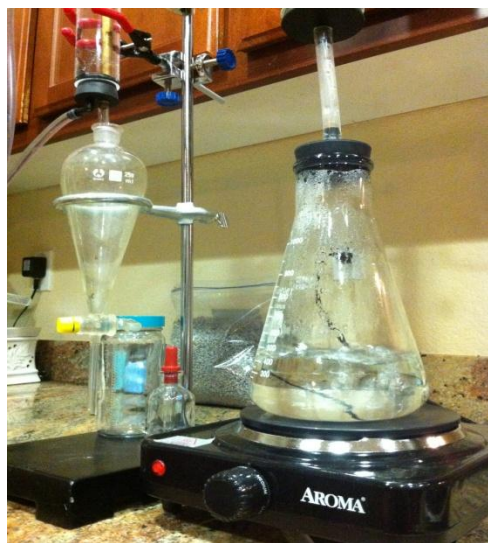
With in all plants there are oils that may be extracted. Common methods of extraction are cold pressing or steam distillation. Plants such as sage, thyme, or lavender may easily have their oils extracted by the use of distillation. Oil distillation is accomplished by passing hot steam through a plant material. Because the oil within the plants have a lower boiling point than water, the oil within the plants will vaporize with the steam. To then separate the oil and steam, the vapors are sent through a cooling process to condense the gasses into a liquid. The final product will be an oil water mixture with the essential oils floating on the top. To separate the oil and water, the water may be drained from below using a separating funnel.





# Essential Oil Distillation Set-Up

## Connecting the Condenser and Biomass Extraction Tube





## Tubing Connections for Bio Container:

The illustrations have been provided to show the proper connection of the distillation system. Please note that this is just one of the possible configurations that may be used.

The illustration below shows the connection of 3/8 polypropylene tubing that leaves the container with the organic material. This tubing will need to be cut to size and then connected to the 3/8 to 1/4 inline barbed connector. On the other side of the connector is a short 2 inch section of 1/4 tubing that connects to the 1/4 elbow.

The 1000 ml boiling flask is connected using a short section of 3/8 polypropylene tubing with the 3/8 to 3/8 barbed connectors going into the larger rubber stoppers.

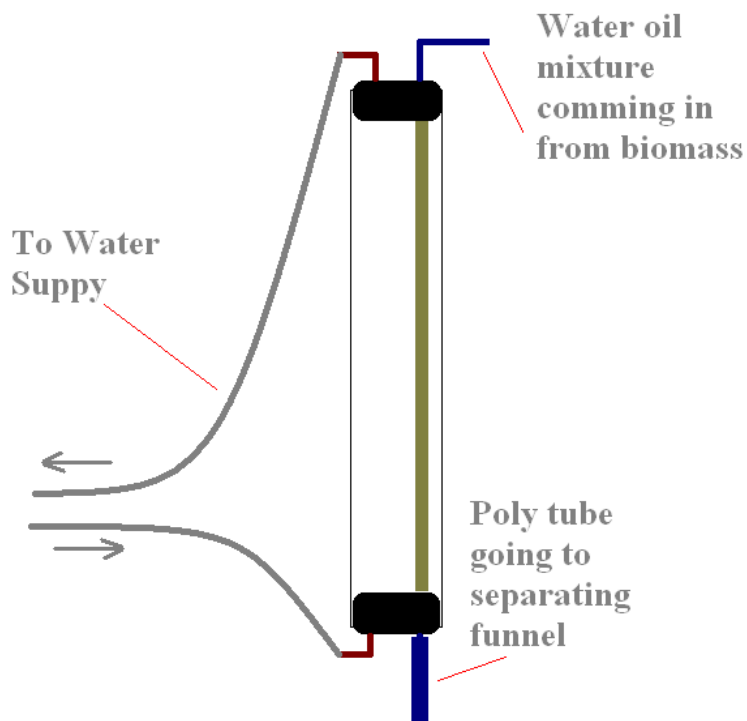
*This configuration will be redesigned in the near future so that 1/2 inch tubing is used which will no longer need the 3/8 to 1/4 barbed connector.*



## Tubing Connections for Condenser:

Connect the 1/4 tubing to the condenser 1/4 plastic elbows. The 1/4 tubing may either be connected to the faucet tubing or the plug-in water pump. Please cut the tubing to the size that is needed. In addition, the water flow is specified as seen by the arrows.

At the bottom of the condenser should be connected a small piece of the 1/4 tubing that leads to the separating funnel.



## Step 2: Connecting the Condenser Water Supply

This kit will either come with a faucet connection or a plug in water pump. The 1/4 inch poly tubing may be directly connected to the water pump and for the faucet, it will need a barbed connector to join the two tubes

When using the pump, a large pot will be needed. Immerse the pump in the water and allow cool water to flow into the pot from the faucet. Allow the returning water to flow down the sink. *(Please follow instructions and safety as listed on the pump instructions from the manufacture)*



## Alternative Connections:

Because the flask is made from Pyrex, the 1000ml flask may be directly heated over an oven flame. Plus, the 2.5 x 12 inch glass biomass tube may be eliminated by placing the biomass directly in the 1000ml flask.

## Using the Essential Oil Distillation Kit:

**Safely First: When heating the system, avoid using too high of a temperature to avoid rubber corks from popping out of their glass lab ware. Essential oils are very corrosive and flammable. Handle the oils with care.**

Step 1: Fill the bio mass container with your choice of herbs.

Step 2: Add about 200ml of water to the 1000ml flask.

Step 3: Securely press in the stoppers into the flask and biomass tube.

Step 4: Turn on the water supply to the condenser.

Step 5: Turn on heat source and allow to begin boiling the water in the 1000ml flask.

Step 5: Once the water begins to boil, essential oil will immediately be extracted. Most of the oils will be extracted within the first 5 to 10 minutes depending upon the type of plant material. Most extraction only take about 10 minutes at best.

Step 6: As the oil and water collect in the separating funnel, the oil will float to the top. To drain out the water, slowly turn the separating funnels handle at the bottom of the funnel.

Step 7: Store the essential oils only in glass containers because they will chemically react with most plastics.

## Oil Distillations Resources:

**Below is a list of different resources in both video and website formats that would be very useful for watching in light of gather different ideas for applications of the oil distillation kit and for basic operation.**

[http://www.cleanvideosearch.com/media/action/yt/watch?videoId=wVi3\\_zkdars](http://www.cleanvideosearch.com/media/action/yt/watch?videoId=wVi3_zkdars)

<http://www.cleanvideosearch.com/media/action/yt/watch?videoId=gDojS7PWWPY>

<http://www.essential-oil-mama.com/make-your-own-essential-oil.html>

<http://www.cleanvideosearch.com/media/action/yt/watch?v=8RKIEisN3qs>

<http://www.makeessentialoils.net/>

<http://www.cleanvideosearch.com/media/action/yt/watch?videoId=Io-Gv4xeOAg>