

Experiment 30

Isolation of Natural Products: Obtaining a Procedure from Literature

Isolation of natural products is a time-tested and venerable tradition in organic chemistry. By separating out a single compound from natural sources, chemists can provide themselves with a wide range of materials from which to design new drugs and therapeutics, as well as provide specific targets to design novel reactions and reaction conditions. There would be relatively few new therapeutics in the world today if there were no efforts made to isolate strategic compounds found in nature that appear to provide significant promise towards combating disease or providing new materials to characterize.

For this lab, you will isolate a natural product (thymol, camphor, or citral) from a plant-based source (thyme, sagebrush, or lemongrass). You will work individually for this experiment. Which product you isolate depends on the last digit of your fume hood number.

Table 30-1: Which product you isolate depends on your hood number.

If your hood ends with...	You will isolate...
1, 2, or 3	Thymol
4, 5, or 6	Camphor
7, 8, 9, or 0	Citral

Rather than being provided with a prewritten publication, you should follow the procedure from this paper: McClain, K. A., Miller, K. A., Collins, W. R. *J. Chem. Educ.* **2015**, *92*, 1226-1228 (remember to obtain the supporting information as well). Here is some additional information and instructions:

- Make sure you read the Handbook section about steam distillation ahead of time.
- Use sodium sulfate instead of magnesium sulfate to dry the solution.
- Remove solvent with a rotovap, not a hotplate.
- Characterize your sample by TLC, IR, ^1H and ^{13}C NMR.
- The prelab quiz for this experiment will be based on the material in the paper and its supporting info.

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