Write products and mechanisms where applicable.

a. 

b. 

c. 

d. 

\[ \text{Br} \quad \text{MgBr} + \text{Et}_2\text{O} \]
Write a synthetic plan: Outline a synthesis for the following molecules:

a. \[ \text{from } \begin{array}{c}
\text{ from } \\
\text{and anything else you need}
\end{array} \]

b. \[ \text{from } \begin{array}{c}
\text{and anything else you need}
\end{array} \]
1. Find isoprene units in terpenes

2. Write mechanism (arrows) for biosynthesis

---

Synthesis from prior:

(a) $O + Br_2 \xrightarrow{hv} O + Br_2 \xrightarrow{Mg_2} O + MgBr$

(b) $+ \xrightarrow{HBr, ROOR}$
Catch Up Notes......

Conjugated
isolated
no conjugation

cumulated
no conjugation

Terpenes...........

biosynthesis - biochemistry is organic chemistry

See arrows

Why would these form....

A diterpene
distilling temperature and volatile enough to contribute to the vapor pressure. As mentioned previously in this lab, steam distillation is an excellent way to exhaustively isolate a volatile organic material from a solid matrix. In addition to its use as a fragrance and flavoring, clove oil has medicinal applications. It has been used as a dental analgesic for thousands of years.

Eugenol and acetyleneugenol belong to a class of compounds called vanilloids. The structures of several of these compounds are shown on the following pages. Several of the vanilloids will be available for you to test for scent in lab. In addition to clove oil, vanillin (from vanilla beans), ethyl vanillin (artificial vanillin) and vanillyl alcohol (obtained from the chemical reduction of vanillin) will also be available for comparison. Shown on the following pages, but not included for scent testing is capsaicin. Capsaicin is the compound that gives hot chili peppers their bite. Capsaicin and related compounds are being studied for their pain relieving properties and capsaisin is used in bird seed to keep the squirrels out. Anyone who has a standard bird feeder knows that squirrels are the most acrobatic and persistent creatures in the world. They can consume almost any bird feeder and its contents in a matter of days. Capsaicin is helpful because the birds don't mind the taste, but the squirrels dislike it. In this lab, it is desired that you will be able to determine the parts of the molecule that are responsible for the quantity and quality of the scents you experience.

Scented Terpenes

limonene

R(-)-carvone

S(+)-carvone

citral (a mixture of cis and trans)

http://www.brynmawr.edu/Acds/Chem/mnerzsto/StructureVS.htm 1/24/00