Chemistry 334R

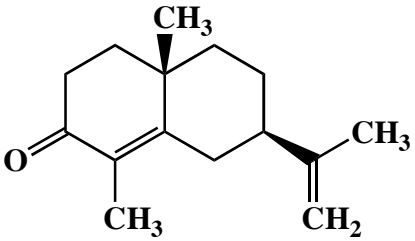
Problem Set 17

1. Answer the following two questions precisely, succinctly, and with correct grammar.

   A. Explain why carboxylate salts of fatty acids form micelles in water. Draw a rough, annotated diagram to illustrate your answer.

   B. Explain why triacylglycerols containing *cis*-unsaturated fatty acids have a lower melting point than the corresponding triacylglycerols containing saturated fatty acids. Draw specific, annotated examples of each triacylglycerol class to illustrate your answer.

2. Circle the "isoprene" units in the terpene, α-cyperone. Label the head (h) and tail (t) of each "isoprene" unit clearly. Finally, state α-cyperone's terpene classification.



α-cyperone

3. An early step in the biosynthesis of terpenes and steroids is the NADPH reduction of a thioester to the corresponding primary alcohol. Although the starting material and reagent are different, the following reaction is analogous in that it accomplishes the same general, overall transformation. Draw the mechanism of this reaction, using the curved-arrow notation to indicate the reorganization of electron density. Denote **all** intermediates, lone pairs, nonzero formal charges, countercharges, and reversibility or nonreversibility.