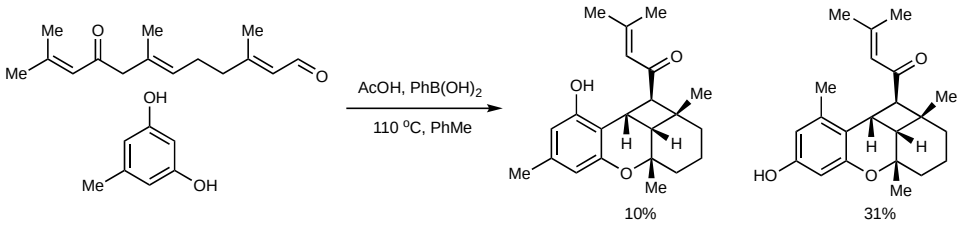
Studies in Biomimetic Synthesis

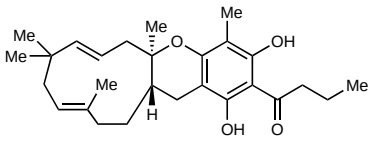
23rd of April

1. Examine the reaction below and answer the questions that follow.

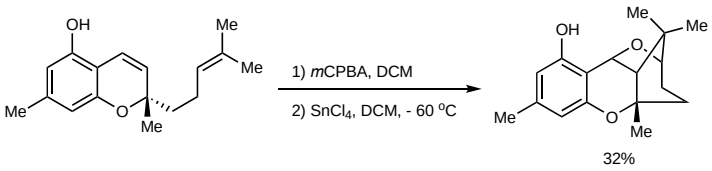


(a) Give a synthesis for the aldehyde.
(b) Comment on the likely biosynthetic origin of the aldehyde – think about the number of carbon atoms it contains.
(c) What is the likely biosynthesis of the phenol?
(d) Give a mechanism for the biomimetic transformation that accounts for the formation of the two constitutionally isomeric products.

2. Propose a biomimetic synthesis of the natural product below using humulene and an appropriate aromatic precursor. Give an FMO or WH analysis of any pericyclic reactions that intervene in the sequence

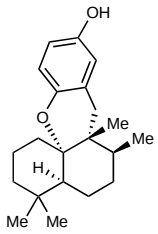


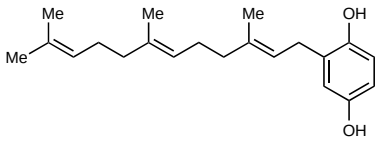
3. Examine the reaction below and answer the questions that follow.



(a) Give a synthesis of the chromene.
(b) Give an FMO or WH analysis of any pericyclic reactions that intervene in the sequence.
(c) Give a mechanism for the biomimetic transformation that accounts for the formation of the product.
(d) Can you suggest structures for any other possible products based on your mechanism?

4. Examine the compounds below and answer the questions that follow.





(a) Give a synthesis of the triene precursor.
(b) Give a mechanism for the biomimetic transformation of the triene in the decalin natural product.
(c) Suggest suitable reaction conditions for the transformation.