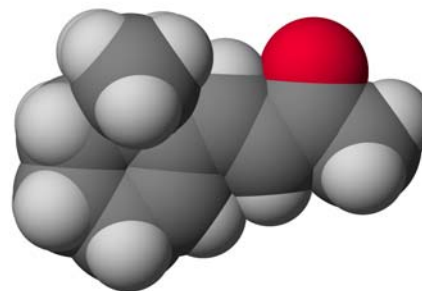
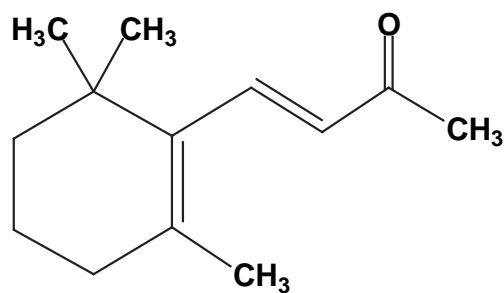


Molecule of the week-B-Ionone

Concepts: Chemistry and Synthesis of α,β -unsaturated carbonyls, conjugation

**Ionone-beta**

Ionone-beta (3-buten-2-one, 4-(2,6,6-trimethyl-1-cyclohexen-1-yl)) is partly responsible for the smells that are associated with newly-mown hay and freshly picked raspberries. Doesn't that bring back memories! The ionone compound in the freshly mown hay comes from the breakdown of carotene in the hay.

- 1) Look up the structure of carotene and find the ionone unit buried in the carotene structure.
- 2) What chemical reactions are needed to convert carotene into ionone?

Below is the structure of the alpha-ionone isomer (**3-buten-2-one, 4-(2,6,6-trimethyl-2-cyclohexen-1-yl), (E)**). It too is a fragrance, more flowery than beta-ionone. Can you provide a reasonable mechanism for the transformation of ionone-alpha into ionone-beta?

Ionone-alpha