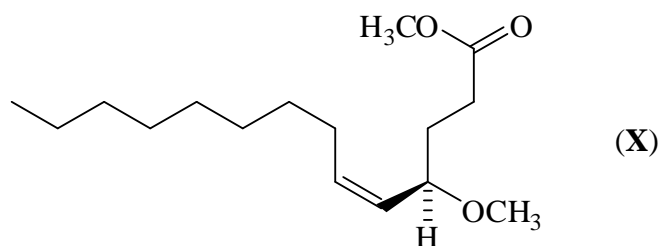


Marks
7

- Compound (**X**) is a derivative of a naturally occurring Japanese beetle pheromone.



What is the molecular formula of (**X**)?

What is the stereochemistry of the C–C double bond in (**X**)?

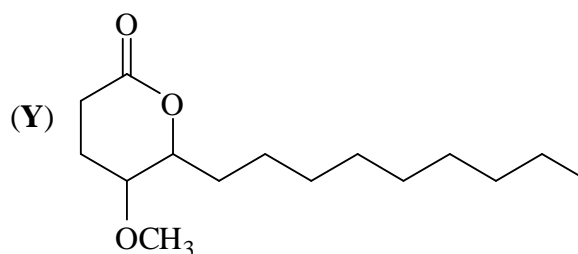
List the substituents attached to the stereogenic centre in descending order of priority according to the sequence rule.

highest priority

lowest priority

What is the absolute stereochemistry of (**X**)? Write (*R*) or (*S*).

On heating with 4 M H₂SO₄, one of the products obtained is compound (**Y**), whose structure is shown on the right. Explain the formation of this product.



How many different stereoisomers are possible for compound (**Y**)?