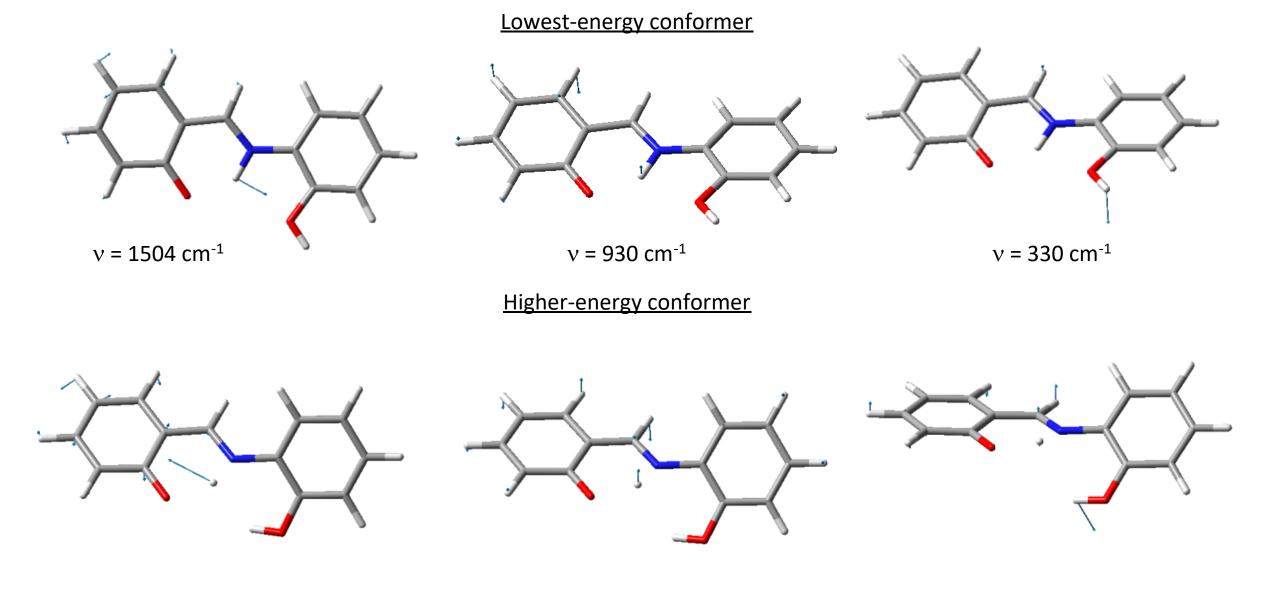
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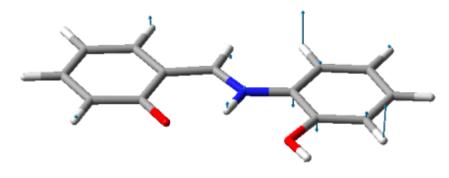
## Calculated vibrations in the Z-keto form ground state



 $v = 1510 \text{ cm}^{-1}$ 

## Calculated vibrations in the Z-keto form excited state

Lowest-energy conformer



 $v = 447 \text{ cm}^{-1}$ 

Higher-energy conformer



 $v = 329 \text{ cm}^{-1}$