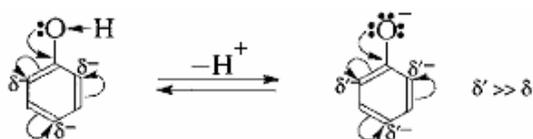


Why phenol is acidic while ethanol is neutral? Why triphenylmethyl carbocation is more stable in comparison to phenol?

Answer: The explanation of the phenol acidity is the resonance stabilization of the phenoxide anion by the aromatic ring. In this way, the negative charge on oxygen is delocalized on to the ortho and para carbon atoms. Also, increased acidity is the result of orbital overlap between the oxygen's lone pairs and the aromatic system:



In case of ethanol, ethoxyanion doesn't have such resonance stabilization and electron density withdrawal from the atom of oxygen, that's why it's neutral.

Triphenylmethyl carbocation is even more stable than phenoxide anion because of the resonance stabilization from three aromatic rings with conjugated electron system:

