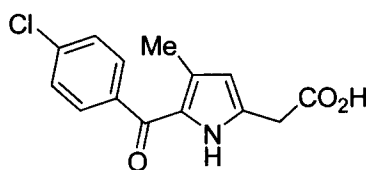
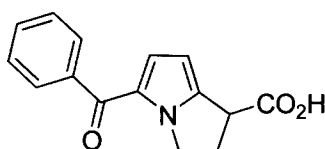


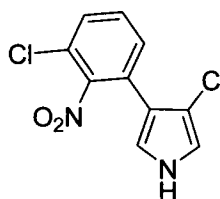
tolmetin
analgesic and
anti-inflammatory



zomepirac
analgesic and
anti-inflammatory



Ketorolac
analgesic and
anti-inflammatory

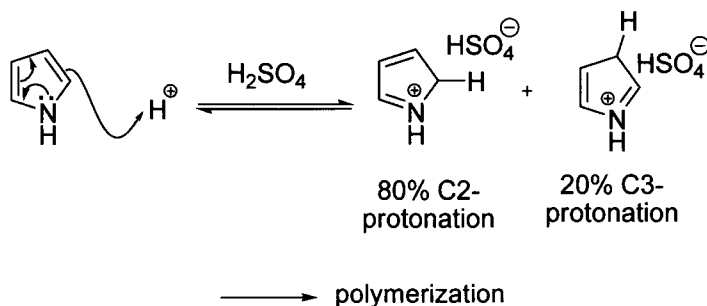


pyrrolnitrin
antifungal
and antibiotic

2.2 Reactivity of the Pyrrole Ring

2.2.1 Protonation

The pyrrole nitrogen atom ($pK_a = -3.80$)¹ is only weakly basic, pyrrole loses its aromaticity when protonated because the lone pair electrons are involved in the aromatic sextet. When treated with strong acid such as sulfuric acid, the protonation does not occur at the nitrogen atom, but most of the protonation takes place at C2 (80%) and 20% of the protonation takes place at C3 (20%).



2.2.2 C2 Electrophilic Substitution

Pyrrole's lone pair of electrons is the engine that propels many of its unique reactivities. Contrary to the indole where C3 electrophilic substitution takes