

Membrane actions of male contraceptive gossypol tautomers

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The role of different gossypol tautomers in the interaction of this molecule with membranes has been investigated using the isolated hemiacetal moiety of gossypol and the pH dependency of the keto-enol tautomeric equilibrium. Our results indicate that: (a) the actions of the hemiacetal tautomer cannot explain the effects of gossypol on mitochondrial oxidative phosphorylation, lipid membrane interfacial potentials, and proton conductance of lipid bilayers; (b) the enolate forms of gossypol are the species that bind to the membrane interface and decrease the electrostatic interfacial potential; and (c) the uncharged (keto and/or enol) species in equilibrium with the enolate forms of gossypol give the molecule the ability to carry protons across biological membranes. © 1986.