EFFECT OF GOSSYPOL ON HUMAN SEMINAL PLASMA ACIDIC PROTEASE

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Abstract

The effect of gossypol, on antifertility in man, on human seminal plasma acidic protease has been studied *in vitro*. This enzyme is normally present in the proenzyme form which is converted to the active form by acidification. Gossypol inhibits the potential activity of proenzyme, as determined by the milk clotting assay and in some cases by the acid-denatured hemoglobin assay. Gossypol exerts its action at pHs above 7.3 and shows maximal effect at pHs of 8.0 or greater. 50% Inhibition of potential activity can be observed at a 3.8 fold molar excess of gossypol over purified proenzyme. This inhibitory effect was due to the prevention of activation of proenzyme and so that no active form is produced on acidification. Chemical analyses showed that 8.5 out of a total 11 lysine residues in proenzyme react with gossypol. In addition, gossypol can delay the proteolytic degradation of fresh semen and decrease the lysis rate of seminal coagulum. Gossypol also shows potent inhibition of the ability of neutral protease in seminal plasma to digest heat-denatured fresh semen (Δ-FS).